CORRECTED RESPONSE TO SIGNIFICANT PUBLIC COMMENTS ON THE PROPOSED CLEAN AIR INTERSTATE RULE

Received in response to:

Rule to Reduce Interstate Transport of Fine Particulate Matter and Ozone (Interstate Air Quality Rule); Proposed Rule (69 FR 4566; January 30, 2004)

Supplemental Proposal for the Rule to Reduce Interstate Transport of Fine Particulate Matter and Ozone (Clean Air Interstate Rule); Proposal Rule (69 FR 32684; June 10, 2004)

Docket Number OAR-2003-0053

This is a corrected version of the document at docket number OAR-2003-0053-2165 (Response to Significant Public Comments in the Docket on the Proposed Clean Air Interstate Rule Received in response to: Rule to Reduce Interstate Transport of Fine Particulate Matter and Ozone (Interstate Air Quality Rule); Proposed Rule (69 FR 4566; January 30, 2004)). The typographical errors in the original document have been corrected in this document.

March 2005
Corrected April 2005

The following corrections have been made to this Response to Comments since the date of signature of the final rule. All concern the use of the abbreviations “SO2" or “SOx” (sulfur dioxide or sulfur oxides) when the intention was to use the abbreviation “NOx” (oxides of nitrogen). The errors occurred in the process of using global find-and-replace commands to correct the capitalization of these abbreviations.

Page numbers refer to the pagination of the original Response to Comments, Docket Number OAR-2003-0053-2165.

1. Everywhere it appears except when indicated otherwise in a later listed item, replace “SO2 and SO2" with “NOx and SO2". The pages affected are 35, 36, 39, 40, 42, 44, 45, 48-52, 54, 55, 56, 58, 68, 70, 75, 86, 89, 92, 96, 100, 104, 106, 107, 108, 109, 110, 111, 112, 114, 116, 117, 118, 120, 121, 122, 123, 124, 125, 126, 127, 128, 130, 131, 132, 133, 134, 152, 153, 154, 156, 158, 159, 160, 161, 162, 163, 164, 166, 168, 169, 172, 173, 174, 175, 183, 195, 198, 199, 200, 203, 204, 205, 214, 218, 220, 224, 225 , 226, 227, 235, 237, 238, 240, 241, 243, 244, 245, 246, 249, 250, 251, 252, 253, 254, 257, 259, 260, 261, 262, 266, 267, 274, 274, 275, 276, 278, 281, 282, 285, 286, 287, 288, 289, 290, 291, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 305, 306, 308, 310, 311, 317, 319, 321, 323, 327, 333, 335, 338, 339, 340, 341, 343, 344, 347, 350, 355, 357, 365, 366, 367, 369, 370, 371, 372, 374, 375, 376, 377, 379, 380, 382, 383, 384, 385, 386, 387, 389, 390, 392, 395, 396, 397, 398, 400, 404, 414, 415, 416, 421, 422, 423, 424, 425, 426, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 444, 454, 474, 475, 476, 479, 482, 486, 487, 490, 514, 516, 533, 548, 549, 555, 574, 575, 580, 581, 587, 590, 596, 598, 599, 560, 609, 611, 612, 615, 668, 669, 670, 677, 678, 680, 683, 685, 687, 689, 692, 693, 697, 398, 701, 703, 705, 708, 709, 711, 712, 717, 718, 723, 726, 728, 729, 733, 735, 738, 740, 745, 747, 749, 751, 757, 765, 771, 776, 779, 783, 794, 797, 798, 809, 816, 821, 822, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 847, 858, 863, 867, 868, 869, 875, 879, 880, 882, 884, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 899, 901, 903, 905, 906, 907, 908, 909, 910, 912, 914, 915, 916, 918, 920, 921, 928, 929, 930, 931, 935, 959, 964, 972, 975.

2. On pages 29, 116, and 477 replace “SOx and SO2" with “NOx and SO2".

3. Replace “SO2 and SOX” with “SO2 and NOx” on the following pages: 10, 159, 164, 168, 246, 257, 281, 365, 366, 375, 428, 735, 838, 839, 972.

4. Replace “SO2 or SO2" with “SO2 or NOx” on the following pages: first page of the Table of Contents, 81, 94, 128, 157, 166, 169, 175, 253, 277, 295, 352, 403, 489, 501, 577, 589, 614, 801, 820, 821, 824, 884, 898, 915.

5. On page 221, replace “SO2 or SOX” with “SO2 or NOx”.

6. On pages 111 and 842, replace “SOX or SO2" with “NOx or SO2".

7. Everywhere it appears, replace “SO2 SIP” with “NOx SIP”. The affected pages are the first and second pages of the Table of Contents and pages 8, 10, 14, 15, 18, 20, 24, 25,

27, 28-31, 39, 43, 48, 58, 63, 66, 72, 73, 75, 79, 81, 83, 87, 88, 95, 97, 98, 101, 104, 128, 128, 131, 135, 141, 152, 155, 156, 157, 161, 163-169, 171, 181, 183, 187, 190, 191, 199, 200, 205, 207, 210, 212, 213, 219, 220, 228, 229, 231, 232, 235, 237, 243, 252-256, 261, 262, 264, 267-271, 275, 276, 280, 285, 297-299, 303, 308, 315, 318, 319, 321-325, 329-334, 336-338, 340, 341, 347, 348, 351, 355, 356, 358-360, 363, 364, 368, 373, 375, 380-382, 392, 393, 401-403, 407, 408, 410-413, 415, 417, 418, 419, 427, 440-446, 448-454, 456, 458, 466, 476, 477, 480, 481, 483, 485, 487, 488, 504, 508, 511, 529, 531, 540, 547-552, 554, 555-557, 562, 573, 575, 578, 579, 586, 595, 597, 604-606, 648, 685, 686, 688, 689, 691-705, 707-710, 717, 725, 726, 729-731, 733, 734, 735, 738, 769, 784, 787, 797, 806, 808-810, 812, 813, 815, 823, 829, 838, 839, 842, 845, 847, 850, 855, 856, 859, 860, 862, 868, 869, 876, 878, 881, 884, 885, 886, 888, 889, 892, 895, 897, 898, 903, 907, 912, 913, 929, 943, 959, 960, 963, 964, 965, 972.

In the following descriptions of other corrections to be made, it is presumed that the above replacements have already been made.

8. On the first page of the Table of Contents and on page 232, replace CONTROL LEVEL FOR 2 AND/ORSO2" with “CONTROL LEVEL FOR SO2 AND/OR NOx”

9. On the first page of the Table of Contents and on page 266, replace “Benefits of additional SO_2 control are not adequately demonstrated” with “Benefits of additional NOx control are not adequately demonstrated”

10. On the second page of the Table of Contents and on page 519, replace “X.B.Methodology for setting state-level SO2 budgets” with “X.B. Methodology for setting state-level NOx budgets”

11. On the second page of the Table of Contents, replace “XIII.F. Approaches for allocating SO2 allowances to EGUs” with “XIII.F. Approaches for allocating NOx allowances to EGUs”

12. On page 15, replace “EPA noted that the NOx SIP call would entail states obtaining reductions of SO2 emissions from sources potentially located in all areas, regardless of designated status.” with “EPA noted that the NOx SIP call would entail states obtaining reductions of NOx emissions from sources potentially located in all areas, regardless of designated status.”

13. On page 24, replace “To the contrary, in “Appendix B” to the document, EPA explicitly discussed the fact that states covered by the NOx SIP call would need to address SO_2 emissions in their SIP submissions in order to comply with §110(a)(2)(D).” with “To the contrary, in “Appendix B” to the document, EPA explicitly discussed the fact that states covered by the NOx SIP call would need to address NOx emissions in their SIP submissions in order to comply with §110(a)(2)(D).”

14. On page 24, replace “In essence, the commenters claim that because one stated basis for the NOx SIP Call was to alleviate SO_2 emissions that were significantly contributing to

violations of the 8-hour ozone NAAQS, it necessarily follows that compliance with the NOx SIP Call eliminates and all significant contribution to downwind violations of the NAAQS." with "In essence, the commenters claim that because one stated basis for the NOx SIP Call was to alleviate NOx emissions that were significantly contributing to violations of the 8-hour ozone NAAQS, it necessarily follows that compliance with the NOx SIP Call eliminates and all significant contribution to downwind violations of the NAAQS."

15. On page 30, replace "The commenters note that in the NOx SIP call for the 1-hour ozone and the 8-hour ozone NAAQS, EPA "required the same states to achieve the same SO_2 emission reductions" for both NAAQS. Even though EPA stayed the NOx SIP call with respect to the 8-hour NAAQS, the commenters note that States nevertheless did proceed with their obligation to obtain SO_2 emission reductions. Moreover, EPA has taken action to approve the SIPs submitted by the States to meet those obligations. By this line of logic, the commenter suggests that all of the States covered by the NOx SIP call must, therefore, necessarily have already achieved the amount of SO_2 emission reductions that EPA could require for compliance not just with the 1-hour ozone NAAQS, but also the 8-hour ozone NAAQS to meet §110(a)(2)(D)." with "The commenters note that in the NOx SIP call for the 1-hour ozone and the 8-hour ozone NAAQS, EPA "required the same states to achieve the same NOx emission reductions" for both NAAQS. Even though EPA stayed the NOx SIP call with respect to the 8-hour NAAQS, the commenters note that States nevertheless did proceed with their obligation to obtain NOx emission reductions. Moreover, EPA has taken action to approve the SIPs submitted by the States to meet those obligations. By this line of logic, the commenter suggests that all of the States covered by the NOx SIP call must, therefore, necessarily have already achieved the amount of NOx emission reductions that EPA could require for compliance not just with the 1-hour ozone NAAQS, but also the 8-hour ozone NAAQS to meet §110(a)(2)(D)."

16. On page 30, replace "Subsequent data and analyses in connection with this action have identified additional SO_2 reductions that are necessary in order to eliminate emissions that run afoul of §110(a)(2)(D). EPA's rationale is discussed in further detail in Section III B of the preamble to the final rule." with "Subsequent data and analyses in connection with this action have identified additional NOx reductions that are necessary in order to eliminate emissions that run afoul of §110(a)(2)(D). EPA's rationale is discussed in further detail in Section III B of the preamble to the final rule."

17. On page 31, replace "Commenters made a number related arguments concerning the 8-hour ozone NAAQS and the prior obligations of States to meet §110(a)(2)(D) for SO_2 emissions in the NOx SIP call. These arguments concerned: (i) the actions of the States to comply with the NOx SIP call; (ii) EPA's statements about reevaluating the need for additional controls in 2007; and (iii) EPA's purported commitment to do nothing more with respect to SO_2 emissions from these States until some future date. The commenter's view is that EPA should not take any further action whatsoever to implement SO_2 controls until after at least 2007." with "Commenters made a number related arguments concerning the 8-hour ozone NAAQS and the prior obligations of

States to meet §110(a)(2)(D) for NOx emissions in the NOx SIP call. These arguments concerned: (i) the actions of the States to comply with the NOx SIP call; (ii) EPA's statements about reevaluating the need for additional controls in 2007; and (iii) EPA's purported commitment to do nothing more with respect to NOx emissions from these States until some future date. The commenter's view is that EPA should not take any further action whatsoever to implement NOx controls until after at least 2007."

18. On page 34, replace "If the EPA pursues the development of a new national cap and trade program for SO_2 and/or SO_2, for the purpose of addressing PSD or regional haze, or both, in doing so we would work with western States, Tribes, and stakeholders to address their concerns." with "If the EPA pursues the development of a new national cap and trade program for NOx and/or SO_2, for the purpose of addressing PSD or regional haze, or both, in doing so we would work with western States, Tribes, and stakeholders to address their concerns."

19. On page 34, replace "The commenter stated that any proposal to expand the cap and trade approach of the CAIR must also include consideration of the WRAP SO_2 milestones and different NOx requirements in the west." with "The commenter stated that any proposal to expand the cap and trade approach of the CAIR must also include consideration of the WRAP SO_2 milestones and different NOx requirements in the west."

20. On page 34, replace "EPA appreciates the interests of western States and stakeholders in taking the WRAP SO_2 program into account in any national cap and trade program, and in addressing the differing factors regarding SO_2 in the west." with "EPA appreciates the interests of western States and stakeholders in taking the WRAP SO_2 program into account in any national cap and trade program, and in addressing the differing factors regarding NOx in the west."

21. On page 35, replace "SO_2 requirements for the west do not require the installation of SCR (as in Clear Skies)" with "NOx requirements for the west do not require the installation of SCR (as in Clear Skies)"

22. On page 36, replace "(Commenter also included a spreadsheet intended to demonstrate the viability of SO_2 pollution reductions employing the aggressive application of combustion technology.)" with "(Commenter also included a spreadsheet intended to demonstrate the viability of NOx pollution reductions employing the aggressive application of combustion technology.)"

23. On page 38, replace "One State commented that it would be inappropriate to have two $_{SO2}$ zones, one for haze and one for NAAQS attainment, due to technical uncertainties and legal complications." with "One State commented that it would be inappropriate to have two NOx zones, one for haze and one for NAAQS attainment, due to technical uncertainties and legal complications."

24. On page 38, replace "The EPA has not determined whether, in the event we propose to extend a CAIR-like program nationally for regional haze, a SO_2 cap and trade program would consist of two zones. We will work closely with States and RPOs in developing any proposal." with "The EPA has not determined whether, in the event we propose to extend a CAIR-like program nationally for regional haze, a NOx cap and trade program would consist of two zones. We will work closely with States and RPOs in developing any proposal."

25. On page 43, replace "Chemical reactions in the atmosphere create ozone from those SO_2 emissions, and convert both SO_2 and NOx emissions from those sources into fine particulates." with "Chemical reactions in the atmosphere create ozone from those NOx emissions, and convert both SO_2 and NOx emissions from those sources into fine particulates."

26. On page 43, replace "This program builds on the federal Acid Rain Program, the OTC SO_2 Budget Program, and the NOx SIP Call, which were some of the first multi-state transport initiatives." with "This program builds on the federal Acid Rain Program, the OTC NOx Budget Program, and the NOx SIP Call, which were some of the first multi-state transport initiatives."

27. On page 45, replace "The proposed action would require significant reductions of emissions of nitrogen oxides (SO_2) and sulfur dioxide (SO_2) from EGUs in other states. North Carolinas Clean Smokestacks Act (CSA), which was enacted in 2002, will require reductions of NOx and SO2 from the States 14 largest coal-fired power plants of more than 70 percent from 1998 levels." with "The proposed action would require significant reductions of emissions of nitrogen oxides (NOx) and sulfur dioxide (SO_2) from EGUs in other states. North Carolinas Clean Smokestacks Act (CSA), which was enacted in 2002, will require reductions of NOx and SO2 from the States 14 largest coal-fired power plants of more than 70 percent from 1998 levels."

28. Page 46, replace "During the Southern Appalachian Mountain Initiative (SAMI) study all eight of the states involved offered strong support for multi pollutant legislation controlling SO_2, SO_2, and Mercury at a level at least as stringent as proposed in the Clear Skies legislation." with "During the Southern Appalachian Mountain Initiative (SAMI) study all eight of the states involved offered strong support for multi pollutant legislation controlling NOx, SO_2, and Mercury at a level at least as stringent as proposed in the Clear Skies legislation."

29. Pages 47 and 599, replace "K SO_2 County" with "Knox County" and replace "K SO_2ville" with "Knoxville."

30. On page 51, replace "The proposed action would require significant reductions of emissions of nitrogen oxides (SO_2) and sulfur dioxide (SO_2) from EGUs in other states." with "The proposed action would require significant reductions of emissions of nitrogen oxides (NOx) and sulfur dioxide (SO_2) from EGUs in other states."

31. On page 51, replace "While the targets and time schedules for reducing SO_2, SO_2 , and mercury in the proposed rules are more ambitious than Clear Skies, it is important that the control levels and compliance deadlines finally adopted are technically and economically feasible and consistent with objectives to ensure adequate supplies of reasonably priced power." with "While the targets and time schedules for reducing NOx, SO_2 , and mercury in the proposed rules are more ambitious than Clear Skies, it is important that the control levels and compliance deadlines finally adopted are technically and economically feasible and consistent with objectives to ensure adequate supplies of reasonably priced power."

32. On page 52, replace ". Power plants are the predominant source of SO_2 pollution and a major source of SO_2." with ". Power plants are the predominant source of SO_2 pollution and a major source of NOx"

33. On page 53, replace "The administration plan allows more than one and a half times as much SO_2 for nearly a decade longer (2010-2018), and one third more SO_2 even after 2018." with "The administration plan allows more than one and a half times as much NOx for nearly a decade longer (2010-2018), and one third more NOx even after 2018."

34. On page 56, replace "With respect to regulation of these pollutants for regional haze purposes, CAIR will reduce emissions years earlier than would be required under the provisions for Best Available Retrofit Technology (BART) – specifically, in 2009 (SO_2) and 2010 (SO_2), versus 2013 at the earliest for BART." with "With respect to regulation of these pollutants for regional haze purposes, CAIR will reduce emissions years earlier than would be required under the provisions for Best Available Retrofit Technology (BART) – specifically, in 2009 (NOx) and 2010 (SO_2), versus 2013 at the earliest for BART."

35. On page 71, replace "(4) whether EPA knows how 0.5 percent translates to tons of SO_2 per day and whether EPA has provided these data to the public;" with "(4) whether EPA knows how 0.5 percent translates to tons of NOx per day and whether EPA has provided these data to the public;"

36. On page 72, replace "In the SIP Call, EPA defined the highly cost-effective test in terms of cost per ton of SO_2 removed (or not emitted)." with In the SIP Call, EPA defined the highly cost-effective test in terms of cost per ton of NOx removed (or not emitted)."

37. On page 80, replace "A problem situation would be an area with substantive local controls (enhanced inspection and maintenance, Stage II vapor recovery, reformulated gasoline, major source RACT, and local/upwind SO_2 controls) that continues to monitor a violation of the standard or can not model compliance with the NAAQS for its attainment demonstration." with "A problem situation would be an area with substantive local controls (enhanced inspection and maintenance, Stage II vapor recovery, reformulated gasoline, major source RACT, and local/upwind NOx controls) that continues to monitor a violation of the standard or can not model compliance with the NAAQS for its attainment demonstration."

38. On page 82, replace "Data presented in the initial notice of proposed rulemaking indicates that electric generating units (EGUs) represent nearly two-thirds of SO_2 emissions and almost a quarter of all SO_2 emissions in the contiguous 48 states" with "Data presented in the initial notice of proposed rulemaking indicates that electric generating units (EGUs) represent nearly two-thirds of SO2 emissions and almost a quarter of all NOx emissions in the contiguous 48 states"

39. On page 86, replace "It will allow research on effective SO_2 emission control technology for lignite to be completed and for such systems to be manufactured and installed on lignite-fired plants." with "It will allow research on effective NOx emission control technology for lignite to be completed and for such systems to be manufactured and installed on lignite-fired plants."

40. On page 86, replace "EPA has shown in the preamble to the final rule that Phase 1 SO_2 controls are necessary to eliminate significant contribution to nonattainment of the 8-hour ozone standard." with "EPA has shown in the preamble to the final rule that Phase 1 NOx controls are necessary to eliminate significant contribution to nonattainment of the 8-hour ozone standard."

41. On page 86, replace "An example of a situation where a significant contribution could exist without meeting the threshold of 0.5 percent of counties located in the continental United States (0.5 percent of the number of counties in the continental United States amounts to 16 counties) would be as follows. State A has many large sources of SO_2, and State B is the only truly downwind State." with "An example of a situation where a significant contribution could exist without meeting the threshold of 0.5 percent of counties located in the continental United States (0.5 percent of the number of counties in the continental United States amounts to 16 counties) would be as follows. State A has many large sources of NOx, and State B is the only truly downwind State."

42. On page 91, replace "See Section IV of the CAIR NFR preamble well as sections VI and VII A.B. of the RTC for a detailed discussion of the factors affecting timing and control levels including the requirement of phase 1 SO_2 reductions by 2009." with "See Section IV of the CAIR NFR preamble well as sections VI and VII A.B. of the RTC for a detailed discussion of the factors affecting timing and control levels including the requirement of phase 1 NOx reductions by 2009."

43. On page 92, replace "In addition, the marginal costs of SO_2 controls should be $2,200 and $2,600." with "In addition, the marginal costs of NOx controls should be $2,200 and $2,600."

44. On page 92, replace "In evaluating the performance of its SO_2 model, EPA notes the 'mean normalized gross error is 20.5 percent' and that there are no generally accepted statistical criteria by which one can judge the adequacy of model performance for regional scale ozone model applications.'" with "In evaluating the performance of its NOx model, EPA notes the 'mean normalized gross error is 20.5 percent' and that there

are no generally accepted statistical criteria by which one can judge the adequacy of model performance for regional scale ozone model applications.'"

45. On page 94, replace "SO_2/ SO_2" with "NOx/SO2"

46. On page 101, replace "For example, industrial (non-EGU) boilers with a heat input greater than 250 million Btus per hour emit (nationwide) about 2 million tons per year of SO_2 and 1 million tons per year of SO_2." with "For example, industrial (non-EGU) boilers with a heat input greater than 250 million Btus per hour emit (nationwide) about 2 million tons per year of SO_2 and 1 million tons per year of NOx."

47. On page 103, replace "In the case of the IAQR rule, EPA focuses on EGUs given that this emissions from this source category will be about one-quarter (23 percent) of the total SO_2 emissions and over two-thirds (67 percent) of the total SO_2 emissions in 2010 in the proposed 29-State control region." with "In the case of the IAQR rule, EPA focuses on EGUs given that this emissions from this source category will be about one-quarter (23 percent) of the total NOx emissions and over two-thirds (67 percent) of the total SO_2 emissions in 2010 in the proposed 29-State control region."

48. On page 104, replace "All regions, states and localities shall retain the authority to adopt and implement their own more stringent emission caps for any pollutant (including, but not limited to, a seasonal SO_2 cap)." with "All regions, states and localities shall retain the authority to adopt and implement their own more stringent emission caps for any pollutant (including, but not limited to, a seasonal NOx cap)."

49. On page 108, replace "Despite the longstanding policy of allowing states this freedom, EPA states in the preamble to the proposed rule that '[sulfur-dioxide and SO_2 are not the only emissions that contribute to interstate transport of $PM_{2.5}$ nonattainment." with "Despite the longstanding policy of allowing states this freedom, EPA states in the preamble to the proposed rule that '[sulfur-dioxide and NOx are not the only emissions that contribute to interstate transport of $PM_{2.5}$ nonattainment."

50. On page 109, replace "Ammonia emission control measures were not considered in the IAQR based on the argument that SO_2 emissions would be more effective in reducing $PM_{2.5}$, including the ammonium in the aerosol, and that reductions in ammonia would lead to worsening of acid precipitation." with "Ammonia emission control measures were not considered in the IAQR based on the argument that NOx emissions would be more effective in reducing $PM_{2.5}$, including the ammonium in the aerosol, and that reductions in ammonia would lead to worsening of acid precipitation."

51. On page 110 in footnote 21, replace "As pointed out by one commenter, a hypothetical new program resulting in major regional reductions of ammonia would reduce the effectiveness of SO_2 controls. However, given the uncertainties in emissions, the dispersed nature of ammonia sources and the lack of present controls, an effort to develop a new regional ammonia program would likely take significantly longer than the additional SO_2 reductions EPA is adopting today." with "As pointed out by one

commenter, a hypothetical new program resulting in major regional reductions of ammonia would reduce the effectiveness of NOx controls. However, given the uncertainties in emissions, the dispersed nature of ammonia sources and the lack of present controls, an effort to develop a new regional ammonia program would likely take significantly longer than the additional NOx reductions EPA is adopting today."

52. On page 110, replace "In addition to the above considerations, because ammonium nitrates are highest in the winter, when ammonia emissions are lowest, uncontrolled wintertime SO_2 emissions may represent a more certain path towards reducing this winter peak than ammonia reductions." with "In addition to the above considerations, because ammonium nitrates are highest in the winter, when ammonia emissions are lowest, uncontrolled wintertime NOx emissions may represent a more certain path towards reducing this winter peak than ammonia reductions."

53. On page 111, replace "EPA should reconsider its SOX / SO_2 only control proposal and consider how controls on ammonia sources could be factored into the IAQR." with "EPA should reconsider its NOx / SO_2 only control proposal and consider how controls on ammonia sources could be factored into the IAQR."

54. On page 111, replace "But research over the next few years may lead to more a more certain relationship between SO_2, SO_2, and the acid catalyzed formation of secondary organic aerosols." with "But research over the next few years may lead to more a more certain relationship between NOx, SO_2, and the acid catalyzed formation of secondary organic aerosols."

55. On pages 115, 116, 118, 120 replace "mo SO2ide" with "monoxide".

56. On page 116, replace "The potential increase in carbon monoxide (CO) emissions referred to by commenter is only possible with the application of combustion controls, including low- SO2 burner and overfire air. As discussed in the preamble for CAIR, most plants affected by this rule are projected to install SCR to meet the SO_2 emission requirements." with "The potential increase in carbon monoxide (CO) emissions referred to by commenter is only possible with the application of combustion controls, including low- NOx burner and overfire air. As discussed in the preamble for CAIR, most plants affected by this rule are projected to install SCR to meet the NOx emission requirements."

57. In footnote 23 on page 116, replace "SO2" with "NOx".

58. On page 121, replace "EPA has already regulated national sources of VOC, SO_2, organic particles, and elemental carbon through a series of rulemaking directed at on-and non-road mobile sources." with "EPA has already regulated national sources of VOC, NOx, organic particles, and elemental carbon through a series of rulemaking directed at on-and non-road mobile sources."

59. On page 128, in section III.B (except for in the title), replace “SO2" with “NOx” wherever “SO2" is not part of “NOx and SO2".

60. On page 130, replace “We fully support the major premise of the Environmental Protection Agency’s (EPA) IAQR that the reduction of regional SO_2 emissions is essential to address ozone transport and to achieve attainment of air quality standards. Increased wind energy development (particularly in the East and Midwest) can play a major role in reducing SO_2 emissions.” with “We fully support the major premise of the Environmental Protection Agency’s (EPA) IAQR that the reduction of regional NOx emissions is essential to address ozone transport and to achieve attainment of air quality standards. Increased wind energy development (particularly in the East and Midwest) can play a major role in reducing NOx emissions.”

61. On page 130, replace “States have the flexibility to choose the types of control measures to achieve the required SO_2 reductions.” with “States have the flexibility to choose the types of control measures to achieve the required NOx reductions.”

62. On page 132, in section III.C.9, and on page 133 in section III.C.13, replace “SO2" with “NOx”.

63. On page 135, replace “and the 2009 SO_2 reductions will precede attainment dates for many downwind $PM_{2.5}$ and ozone nonattainment areas.” with “and the 2009 NOx reductions will precede attainment dates for many downwind $PM_{2.5}$ and ozone nonattainment areas.”

64. On page 138, replace “CAIR also will require initial SO_2 reductions in 2009, and additional SO_2 reductions in 2015. (Our modeling does not predict large early reductions in SO_2 although CAIR does provide credits for early reductions.)” with “CAIR also will require initial NOx reductions in 2009, and additional NOx reductions in 2015. (Our modeling does not predict large early reductions in NOx although CAIR does provide credits for early reductions.)”

65. On page 142, replace “In addition, the initial CAIR annual NOx cap date is 2009.” with “In addition, the initial CAIR annual SO_2 cap date is 2009.”

66. On page 145 in footnote 36, replace “For $PM_{2.5}$ and ammonia, the increases are greater -- and for SO_2 and VOC, the decreases are smaller -- for the 2015-2020 period than for the 2010-2015 period.” with “For $PM_{2.5}$ and ammonia, the increases are greater -- and for NOx and VOC, the decreases are smaller -- for the 2015-2020 period than for the 2010-2015 period.”

67. On page 146 in footnote 13, replace “Because the initial CAIR compliance date for SO_2 is in 2009, the issue relating to timing of the respective requirements raised by commenters does not arise for most receptors. CAIR reductions in 2009 would be in time to help states demonstrate that all reductions needed for attainment will be achieved in 2009, as required for 8-hour ozone moderate nonattainment areas.” with “Because the

initial CAIR compliance date for NOx is in 2009, the issue relating to timing of the respective requirements raised by commenters does not arise for most receptors. CAIR reductions in 2009 would be in time to help states demonstrate that all reductions needed for attainment will be achieved in 2009, as required for 8-hour ozone moderate nonattainment areas."

68. On page 146 - 151, in the section titled "**5. Basis for Ozone Precursor Reductions in 2015**" replace "SO2" with "NOx".

69. On pages 152, 154, 531, 572, 813, and 839, replace "SO2 budget trading program" with "NOx budget trading program".

70. On pages 152, 341, and 838, replace "SO2 and/or SO2" with "NOx and/or SO2".

71. On page 152, replace "Many of these commenters believed that particularly for SO_2 ample information was available from the work done for the NOx SIP Call." with "Many of these commenters believed that particularly for NOx ample information was available from the work done for the NOx SIP Call."

72. On page 154, replace "Some commenters believed it is counterintuitive to exclude certain sources that are already participating in a successful $_{SO2}$ emissions trading program" with "Some commenters believed it is counterintuitive to exclude certain sources that are already participating in a successful NOx emissions trading program".

73. On page 154, replace "These commenters are presumably referring to the NOx budget trading program which requires SO_2 reductions from non-EGU boilers and turbines of a certain size." with "These commenters are presumably referring to the NOx budget trading program which requires NOx reductions from non-EGU boilers and turbines of a certain size."

74. On page 155, replace "EGU emissions of SO_2 are significantly greater than SO_2 emissions from non-EGUs in the CAIR region. See preamble for further discussion. Also, EPA has modified its SO_2 allocation system to favor gas-fired units less and coal-fired units more. See preamble for further discussion." with "EGU emissions of NOx are significantly greater than NOx emissions from non-EGUs in the CAIR region. See preamble for further discussion. Also, EPA has modified its NOx allocation system to favor gas-fired units less and coal-fired units more. See preamble for further discussion."

75. On page 156, replace "For example, non-EGUs in the SO_2 Budget Program emitted approximately 30,000 tons of SO_2 in 2004 compared to approximately 430,000 tons of SO_2 emitted by EGUs in the same program." with "For example, non-EGUs in the NOx Budget Program emitted approximately 30,000 tons of NOx in 2004 compared to approximately 430,000 tons of NOx emitted by EGUs in the same program."

76. On page 158, replace "EPA estimates that approximately 1/3 of the SO_2 reductions, and 30 percent of the SO_2 reductions, required under today's rule come from plants between

25 MW and 250 Mwe" with "EPA estimates that approximately 1/3 of the SO_2 reductions, and 30 percent of the NOx reductions, required under today's rule come from plants between 25 MW and 250 Mwe"

77. On page 159, replace "As an example, in the Lake Michigan States base emissions for SO_2 for the non-EGU point sources are projected to be ½ the level of the EGUs in 2010." with "As an example, in the Lake Michigan States base emissions for NOx for the non-EGU point sources are projected to be ½ the level of the EGUs in 2010."

78. On page 159, replace "Given the even larger geographic nature of the SOx regional transport phenomena compared to the SO_2 transport phenomena, and the elevated background levels of PM-2.5 across the entire midwest, non-EGU sectors for which application of SO_2 controls is demonstrated effective should become subject to the same proportionate retrofit effort as the power sector." with "Given the even larger geographic nature of the SOX regional transport phenomena compared to the NOx transport phenomena, and the elevated background levels of PM-2.5 across the entire midwest, non-EGU sectors for which application of SO_2 controls is demonstrated effective should become subject to the same proportionate retrofit effort as the power sector."

79. On page 160, replace "The non-EGU sector in Iowa represents 32 percent of the projected SO_2 and 10 percent of the projected SO_2 in 2010. In Iowa, the EGU and non-EGU sectors cumulatively represent 95 percent of the SO_2 in 2010, and 43 percent of the SO_2. This is particularly important in the case of SO_2 emission reductions where the largest portions (45 percent) of the emissions in 2010 are attributable to the on-road and non-road sectors. MidAmerican believes that the non-EGU sector is a significant contributor to transport of $_{NOx\ and\ SO2}$ emissions, and needs to be included in the IAQR. Without the inclusion of the non-EGU sector, States such as Iowa will have difficulty demonstrating progress when the vast majority of the SO_2 emissions are not associated with EGU emissions." with "The non-EGU sector in Iowa represents 32 percent of the projected NOx and 10 percent of the projected SO_2 in 2010. In Iowa, the EGU and non-EGU sectors cumulatively represent 95 percent of the SO_2 in 2010, and 43 percent of the NOx. This is particularly important in the case of NOx emission reductions where the largest portions (45 percent) of the emissions in 2010 are attributable to the on-road and non-road sectors. MidAmerican believes that the non-EGU sector is a significant contributor to transport of NOx and SO2 emissions, and needs to be included in the IAQR. Without the inclusion of the non-EGU sector, States such as Iowa will have difficulty demonstrating progress when the vast majority of the NOx emissions are not associated with EGU emissions."

80. On page 161, replace "To restore a better balance in the program for States, I urge EPA to expand the scope of the package to include major non-EGU SO_2, SOX, and $PM_{2.5}$ sources." with "To restore a better balance in the program for States, I urge EPA to expand the scope of the package to include major non-EGU SO_2, NOx, and $PM_{2.5}$ sources."

81. On page 161, replace "An alternative approach would be to control SO_2 from the non-EGU sources that are subject to the NOx SIP Call, on a year-round basis, and not control SO_2." with "An alternative approach would be to control NOx from the non-EGU sources that are subject to the NOx SIP Call, on a year-round basis, and not control SO_2."

82. On page 162, replace "EPA's proposed IAQR omits important sources of NOx and SO2 emissions that contribute to interstate transport, including industrial boilers, which, according to EPA, produce 11 percent of the nation's SO_2 emissions and 13 percent of the annual SO_2 emissions in the U.S. Another source that should be included is stationary internal combustion engines, which contribute approximately 12 percent to annual emissions of SO_2 in the U.S. Vehicle emissions also contribute to NAAQS exceedences in nonattainment areas." with "EPA's proposed IAQR omits important sources of NOx and SO2 emissions that contribute to interstate transport, including industrial boilers, which, according to EPA, produce 11 percent of the nation's SO_2 emissions and 13 percent of the annual NOx emissions in the U.S. Another source that should be included is stationary internal combustion engines, which contribute approximately 12 percent to annual emissions of NOx in the U.S. Vehicle emissions also contribute to NAAQS exceedences in nonattainment areas."

83. On page 163, replace "Industrial boilers and stationary internal combustion engines will account for 25 percent of SO_2 emissions in 2010." with "Industrial boilers and stationary internal combustion engines will account for 25 percent of NOx emissions in 2010."

84. Replace "ozone season SO2 trading program" with "ozone season NOx trading program" on these pages: 163, 165, 543, 443, 444, 448, 453, 454, 839, 886.

85. Replace "ozone season SO2 cap" with "ozone seasons NOx cap" on these pages: 165, 440, 443–450.

86. Replace "OTC SO2" with "OTC NOx" on these pages: 165, 338, 355, 373, 442, 444, 695, 718, 757, 769, 775, 829, 855, 897.

87. On page 165, replace "Many of the non EGUs participating in the $_{OTC\ NOx}$ Budget Program and NOx SIP Call have been providing annual SO_2 emissions data since 2000." with "Many of the non EGUs participating in the OTC NOx Budget Program and NOx SIP Call have been providing annual NOx emissions data since 2000."

88. On page 166, replace "Non-EGU sectors which are relatively large emitters of SO_2 and/or SOx in the Lake Michigan region include industrial boilers, facilities with the largest process heaters and stationary engines, and those that involve a high sulfur content feedstock or by-product. Several of these were demonstrated by EPA in the NOx SIP Call to impact ambient air levels in downwind areas for ozone and are shown able to install highly cost effective emission reductions. Now that the scope of the regional transport area has been expanded based on updated projections and air quality assessments, it seems reasonable at a minimum to apply those SO_2 control findings here." with "Non-EGU sectors which are relatively large emitters of SO_2 and/or NOx in

the Lake Michigan region include industrial boilers, facilities with the largest process heaters and stationary engines, and those that involve a high sulfur content feedstock or by-product. Several of these were demonstrated by EPA in the NOx SIP Call to impact ambient air levels in downwind areas for ozone and are shown able to install highly cost effective emission reductions. Now that the scope of the regional transport area has been expanded based on updated projections and air quality assessments, it seems reasonable at a minimum to apply those NOx control findings here."

89. On page 166, replace "Given the even larger geographic nature of the SOx regional transport phenomena compared to the SO_2 transport phenomena, and the elevated background levels of PM-2.5 across the entire midwest, non-EGU sectors for which application of SO_2 controls is demonstrated effective should become subject to the same proportionate retrofit effort as the power sector. "with "Given the even larger geographic nature of the SOX regional transport phenomena compared to the NOx transport phenomena, and the elevated background levels of PM-2.5 across the entire midwest, non-EGU sectors for which application of SO_2 controls is demonstrated effective should become subject to the same proportionate retrofit effort as the power sector."

90. On page 169, replace "The more recent NOx SIP Call is ready to begin the significant reduction of SO_2 from the same sector." with "The more recent NOx SIP Call is ready to begin the significant reduction of NOx from the same sector."

91. On page 170, replace "EPA is ignoring the fact that SO_2 emission from mobile sources are significant, and EPA should seek emissions reductions from mobile sources in the budgets." with "EPA is ignoring the fact that NOx emission from mobile sources are significant, and EPA should seek emissions reductions from mobile sources in the budgets."

92. On page 171, replace "We also urge U.S. EPA to propose, as part of this rulemaking, controls on SO_2 emissions from stationary internal combustion engines and to require these controls on an annual basis. U.S. U.S. EPA's actions with regards to this source category as part of Phase II of the NOx SIP Call are long overdue. In addition, this rulemaking should also require that existing SO_2 controls on cement kilns, imposed as part of the NOx SIP Call, be applied on an annual basis." with "We also urge U.S. EPA to propose, as part of this rulemaking, controls on NOx emissions from stationary internal combustion engines and to require these controls on an annual basis. U.S. U.S. EPA's actions with regards to this source category as part of Phase II of the NOx SIP Call are long overdue. In addition, this rulemaking should also require that existing controls on cement kilns, imposed as part of the NOx SIP Call, be applied on an annual NOx basis."

93. On pages 173 and 251, replace "EPA estimates that EGU emissions will be about one-quarter (23 percent) of the total SO_2 emissions and over two-thirds (67 percent) of the total SO_2 emissions in 2010 in the proposed 29-State control region." with "EPA estimates that EGU emissions will be about one-quarter (23 percent) of the total NOx

emissions and over two-thirds (67 percent) of the total SO_2 emissions in 2010 in the proposed 29-State control region."

94. On page 173, replace "Based on current EPA estimates for 2010, SO_2 emissions from the 'emissions category' for waste disposal and recycling facilities - of which MWCs are just one of several source categories - are projected to be about 0.7 percent of the total emissions for the region." with "Based on current EPA estimates for 2010, NOx emissions from the 'emissions category' for waste disposal and recycling facilities - of which MWCs are just one of several source categories - are projected to be about 0.7 percent of the total emissions for the region."

95. On page 173, replace "For these reasons, MWC boilers also do not have access to SO_2 reduction options available to other types of units such as low- SO_2 burners, fuel switching during the ozone season, or load curtailment." with "For these reasons, MWC boilers also do not have access to NOx reduction options available to other types of units such as low-NOx burners, fuel switching during the ozone season, or load curtailment."

96. On page 174, replace "Equally important, EPA should recognize that further SO_2 regulation would require control technology that is prohibitively expensive, and has not even been demonstrated to be technically feasible on MWC boilers. The only 'add-on' control technology for reducing SO_2 emissions from MWCs is selective non-catalytic reduction (SNCR) system. As noted below, MWCs are already achieving 'maximum achievable control technology' (MACT) limits for SO_2 based on SNCR performance levels. In contrast, the IAQR proposes to set SO_2 control levels for EGUs that are based on a SO_2 rate of 0.15 lbs/mmBtu in Phase I and 0.125 lbs/mmBtu rate in Phase II of the IAQR program. The achievement of these extremely low SO_2 rates by a MWC would require the use of selective catalytic reduction (SCR). No MWC facility in the U.S., however, is equipped with SCR, in part because of daunting technical challenges that are unique to installing and operating the SCR system on MWC boilers." with "Equally important, EPA should recognize that further NOx regulation would require control technology that is prohibitively expensive, and has not even been demonstrated to be technically feasible on MWC boilers. The only 'add-on' control technology for reducing NOx emissions from MWCs is selective non-catalytic reduction (SNCR) system. As noted below, MWCs are already achieving 'maximum achievable control technology' (MACT) limits for NOx based on SNCR performance levels. In contrast, the IAQR proposes to set NOx control levels for EGUs that are based on a NOx rate of 0.15 lbs/mmBtu in Phase I and 0.125 lbs/mmBtu rate in Phase II of the IAQR program. The achievement of these extremely low NOx rates by a MWC would require the use of selective catalytic reduction (SCR). No MWC facility in the U.S., however, is equipped with SCR, in part because of daunting technical challenges that are unique to installing and operating the SCR system on MWC boilers."

97. Replace "seasonal SO2" with "seasonal NOx" on these pages: 175, 444, 448, 449, 452, 556, 689, 690, 699, 733.

98. On page 194, replace "In 2001 Oklahoma coal-fired utilities' SO_2 rate was 17 percent less than the national average;" with "In 2001 Oklahoma coal-fired utilities' NOx rate was 17 percent less than the national average;"

99. On page 194, replace "Oklahoma coal-fired utilities' 2001 SO_2 rate was 13 percent less than the average of the 19 states presently not included in the IAQR;" with "Oklahoma coal-fired utilities' 2001 NOx rate was 13 percent less than the average of the 19 states presently not included in the IAQR;"

100. On page 198, replace "If state's SO_2 emissions alone could be the cause of a state qualifying as a significant $PM_{2.5}$ contributor, the state would be labeled a significant contributor for SO_2, also, and thereby be subject to the SO_2 caps imposed under the Proposal. The unfair consequence of the failure to separate SO_2 impacts on $PM_{2.5}$ nonattainment from SO_2 impacts is plain in the case of a state, such as Florida. EPA determined Florida is not a significant contributor for ozone, however it is subject to the IAQR's SO_2 requirements on the basis of modeling that fails to demonstrate the downwind impact of its SO_2 emissions on $PM_{2.5}$ ambient air quality." with "If state's SO_2 emissions alone could be the cause of a state qualifying as a significant $PM_{2.5}$ contributor, the state would be labeled a significant contributor for NOx, also, and thereby be subject to the NOx caps imposed under the Proposal. The unfair consequence of the failure to separate NOx impacts on $PM_{2.5}$ nonattainment from SO_2 impacts is plain in the case of a state, such as Florida. EPA determined Florida is not a significant contributor for ozone, however it is subject to the IAQR's NOx requirements on the basis of modeling that fails to demonstrate the downwind impact of its NOx emissions on $PM_{2.5}$ ambient air quality."

101. On page 200, replace "More importantly, it will also slightly increase the reductions of NOx and SO2 emissions required by the IAQR in 2010, by about 92,000 tons of SO_2 and 148,000 tons of SO_2 Given the severe human health and environmental impacts of $PM_{2.5}$ and its precursor emissions, we urge EPA to adopt the alternative contribution threshold, thereby strengthening the rule." with "More importantly, it will also slightly increase the reductions of NOx and SO2 emissions required by the IAQR in 2010, by about 92,000 tons of NOx and 148,000 tons of SO_2 Given the severe human health and environmental impacts of $PM_{2.5}$ and its precursor emissions, we urge EPA to adopt the alternative contribution threshold, thereby strengthening the rule."

102. On page 205, replace "Also EPA failed to identify whether SO_2 emissions alone would be insignificant, even under the 0.15 μg/m3 criteria." with "Also EPA failed to identify whether NOx emissions alone would be insignificant, even under the 0.15 μg/m3 criteria."

103. On page 205, replace "Even in these nearby states, only SO_2 emissions, and not SO_2 emissions, are likely to result in a significant contribution." with "Even in these nearby states, only SO_2 emissions, and not NOx emissions, are likely to result in a significant contribution."

104. On page 209, replace “versus just SO_2 for ozone” with “versus just NOx for ozone”

105. On page 210, replace “on a per SO_2 emissions basis” with “on a per NOx emissions basis”

106. On pages 210-212 in sections V.C.8, V.C.9, and V.C.10, replace “SO2" with “NOx”

107. On page 213, replace “Ultimately, the Clear Skies Act provisions better reflect regional air quality differences because of separation into Zone 1 (eastern) and Zone 2 (western) SO_2 control regions.” with “Ultimately, the Clear Skies Act provisions better reflect regional air quality differences because of separation into Zone 1 (eastern) and Zone 2 (western) NOx control regions.”

108. Replace “nitrogen oxides (SO2)” with “nitrogen oxides (NOx)” on pages 217, 240, 338, 345, 370, 371, 377, 378, 379, 435, 634, 677, 697, 732, 792, 810, 855, 887, 908, 921.

109. On page 218 and 224, replace “Unless EPA separately evaluates the NOx and SO2 contribution to $PM_{2.5}$, there is no assurance that there is a basis for including SO_2 in the IAQR.” with “Unless EPA separately evaluates the NOx and SO2 contribution to $PM_{2.5}$, there is no assurance that there is a basis for including NOx in the IAQR.”

110. On page 226, replace “For SO_2, the proposal would set state budgets based on a uniform basis of each state’s highest annual heat input for Acid Rain Program units during 1999-2002, multiplied by an emission rate of 0.15 lb/mmBtu for 20 10 and 0.125 lb/mmBtu for 2015.” with “For NOx, the proposal would set state budgets based on a uniform basis of each state’s highest annual heat input for Acid Rain Program units during 1999-2002, multiplied by an emission rate of 0.15 lb/mmBtu for 20 10 and 0.125 lb/mmBtu for 2015.”

111. On page 228, replace “In that case, EPA had included the entire states of Georgia and Missouri in its rule to reduce the interstate transport of SO_2 (the NOx SIP Call, 63 Fed. Reg. 57356 (October 27, 1998)) even though only the 'fine grid' portions of those states were shown to be significantly contributing to downwind ozone nonattainment areas.” with “In that case, EPA had included the entire states of Georgia and Missouri in its rule to reduce the interstate transport of NOx (the NOx SIP Call, 63 Fed. Reg. 57356 (October 27, 1998)) even though only the 'fine grid' portions of those states were shown to be significantly contributing to downwind ozone nonattainment areas.”

112. On page 232 in footnote 42, replace “SO2" with “NOx”

113. On page 233, replace “It should also be noted that EPA has conducted a sensitivity analysis to evaluate the effect of increasing the 1999 SCR capital and fixed O&M costs by 30 percent (from the $100/kW level) on the predicted marginal costs of SO_2 control. This analysis shows that even with this level of cost increases, the emission reductions required by this rule would be highly cost effective. As discussed in the preamble to the final rule, EPA determined that SO_2 control costs lower than $2,500 per ton are highly

cost effective. The modeled marginal costs for SO_2 control using the increased SCR cost assumptions along with the more conservative EIA's projections for electricity growth and natural gas price are $1,600/ton and $2,100/ton for 2010 and 2015, respectively, well below the $2,500/ton benchmark." with "It should also be noted that EPA has conducted a sensitivity analysis to evaluate the effect of increasing the 1999 SCR capital and fixed O&M costs by 30 percent (from the $100/kW level) on the predicted marginal costs of NOx control. This analysis shows that even with this level of cost increases, the emission reductions required by this rule would be highly cost effective. As discussed in the preamble to the final rule, EPA determined that NOx control costs lower than $2,500 per ton are highly cost effective. The modeled marginal costs for NOx control using the increased SCR cost assumptions along with the more conservative EIA's projections for electricity growth and natural gas price are $1,600/ton and $2,100/ton for 2010 and 2015, respectively, well below the $2,500/ton benchmark."

114. On page 235 in footnote 55, replace "SO2" with "NOx"

115. On page 236, replace "(particularly the SO_2 cap)" with "(particularly the NOx cap)"

116. On page 237, replace "caps of 1.25 million TPY for SO_2 in 2012" with "caps of 1.25 million TPY for NOx in 2012"

117. Replace "SO2, SO2" with "SO2, NOx" on pages 237, 242, 287, 289, 300, 328, 353, 385, 389, 421-438, 488, 586, 608, 857.

118. On page 239, replace "Calpine believes that the fastest and most cost-effective way to reduce emissions from the power sector that will facilitate attainment of the NAAQS for $PM_{2.5}$ and SO_2, is by continuing to replace the nation's aging fleet of inefficient, high emitting electric generators with modern, highly efficient, clean, combined cycle natural gas-fired energy centers, renewable energy sources, and CHP facilities. For example, while today's average fossil fuel power plant emits an average of 10.9 lb/MWh of SO_2 and 5 lb/MWh of SO_2, Calpine's newest combined cycle, natural gas fired energy centers emit about 0.004 lb/MWh of SO_2 and approximately 0.064 lb/MWh of SO_2." with "Calpine believes that the fastest and most cost-effective way to reduce emissions from the power sector that will facilitate attainment of the NAAQS for $PM_{2.5}$ and NOx, is by continuing to replace the nation's aging fleet of inefficient, high emitting electric generators with modern, highly efficient, clean, combined cycle natural gas-fired energy centers, renewable energy sources, and CHP facilities. For example, while today's average fossil fuel power plant emits an average of 10.9 lb/MWh of SO_2 and 5 lb/MWh of NOx, Calpine's newest combined cycle, natural gas fired energy centers emit about 0.004 lb/MWh of SO_2 and approximately 0.064 lb/MWh of NOx."

119. On page 241, replace "For example, Texas Emission Reduction Plan (TERP) provides funding for projects with a cost effectiveness of up to $13,000 per ton of NOx." with "For example, Texas Emission Reduction Plan (TERP) provides funding for projects with a cost effectiveness of up to $13,000 per ton of SO_2."

120. On page 241, replace “If the IAQR’s cost-effectiveness reference points were increased $2,000/ton, then SO_2 emissions would be lowered by an additional 1.5 million tons and NOx emissions would be lowered by 437,000 tons across the IAQR region. A cost effectiveness threshold of $3,000/ton would yield fewer marginal benefits, decreasing SO_2 emissions by another 339,000 tons and decreasing NOx emissions by another 235,000 tons.” with “If the IAQR’s cost-effectiveness reference points were increased $2,000/ton, then SO_2 emissions would be lowered by an additional 1.5 million tons and SO_2 emissions would be lowered by 437,000 tons across the IAQR region. A cost effectiveness threshold of $3,000/ton would yield fewer marginal benefits, decreasing SO_2 emissions by another 339,000 tons and decreasing SO_2 emissions by another 235,000 tons.”

121. On page 241, replace “($1,000/ton for SO_2 and $1,500/ton for NOx)” with “($1,000/ton for SO_2 and $1,500/ton for SO_2)”

122. On page 243, replace “the lowest cost EPA has ever observed in SO_2 control actions” with “the lowest cost EPA has ever observed in NOx control actions”

123. On page 243, replace “a large and robust regional SO_2 emissions cap” with “a large and robust regional NOx emissions cap”

124. On page 243, replace “achieve those cost effective SO_2 emissions reductions” with “achieve those cost effective NOx emissions reductions”

125. Page 244, replace “Specifically, as previously indicated, we believe EPA must limit regional SO_2 emissions to 1.84 million tons annually and regional SO_2 emissions to 1.04 million tons annually.” with “Specifically, as previously indicated, we believe EPA must limit regional SO_2 emissions to 1.84 million tons annually and regional NOx emissions to 1.04 million tons annually.”

126. On page 245, replace “4.7 million tons of SO_2 and 10.6 million tons of SO_2. STAPPA and ALAPCO have determined that by applying clearly reasonable levels of today’s Best Available Control Technology (BACT), EGU SO_2 emissions can be reduced to 0.88 to 1.26 million tons per year by 2013 and EGU SO_2 emissions to 1.26 to 1.89 million tons per year." with “4.7 million tons of NOx and 10.6 million tons of SO_2. STAPPA and ALAPCO have determined that by applying clearly reasonable levels of today’s Best Available Control Technology (BACT), EGU NOx emissions can be reduced to 0.88 to 1.26 million tons per year by 2013 and EGU SO_2 emissions to 1.26 to 1.89 million tons per year."

127. On page 246 and 248, replace “SCR for SO_2**”** with **“**SCR for NOx"

128. On pages 246, 446, 828, and 988 replace “SO2 and VOC” with “NOx and VOC”.

129. On page 252, 259, and 294 replace “the largest source of stationary source SO_2 emissions” with “the largest source of stationary source NOx emissions”

130. On page 261, replace “Although it may not be as cost-effective to retrofit EGUs with reasonable control measures, once ‘very cost-effective’ controls are installed under the IAQR, we agree that EGUs may still be a source of cost-effective SO_2 and PM-2.5 reductions compared with other locally available measures.” with “Although it may not be as cost-effective to retrofit EGUs with reasonable control measures, once ‘very cost-effective’ controls are installed under the IAQR, we agree that EGUs may still be a source of cost-effective NOx and PM-2.5 reductions compared with other locally available measures.”

131. On page 261, replace “(SCR) technology has proven to be a reliable and effective way to achieve reductions in the 90 percent range for SO_2 emissions” with “(SCR) technology has proven to be a reliable and effective way to achieve reductions in the 90 percent range for NOx emissions”

132. On page 262, replace “1.3 million tons for SO_2" with “1.3 million tons for NOx”

133. On page 262 and 380, replace “Application of that approach leads to a determination that “highly cost-effective” controls are those that achieve the “greatest feasible emission reductions” but cost on average up to $2000 per ton of SO_2 removed and up to $2500 per ton of SO_2 removed. As our analysis … will demonstrate, regional annual control caps for power plants of 1.84 million tons for SO_2 and 1.04 million tons for NOx are well within these limits for highly costeffective controls” with “Application of that approach leads to a determination that “highly cost-effective” controls are those that achieve the “greatest feasible emission reductions” but cost on average up to $2000 per ton of SO_2 removed and up to $2500 per ton of NOx removed. As our analysis … will demonstrate, regional annual control caps for power plants of 1.84 million tons for SO_2 and 1.04 million tons for NOx are well within these limits for highly costeffective controls”

134. On page 264, replace “Maine’s experience with Wyman Station in Yamnouth, Maine provides a good example of the types of new control technology that, when used in concert with controls such as SCR, can reduce NOx emissions to levels well under the 0.125 lbs/mm Btu emission rate limit.” with “Maine’s experience with Wyman Station in Yamnouth, Maine provides a good example of the types of new control technology that, when used in concert with controls such as SCR, can reduce SO_2 emissions to levels well under the 0.125 lbs/mm Btu emission rate limit.”

135. On page 265, replace “However, it has been seen recently that the installation of various burner controls on EGUs can result in much larger reductions in SO_2 emissions than previously thought, making the cost per ton much lower even for older EGUs.” with “However, it has been seen recently that the installation of various burner controls on EGUs can result in much larger reductions in NOx emissions than previously thought, making the cost per ton much lower even for older EGUs.”

136. On page 269, 300, 322, 331, 336, 337, 338, 356, 364, 574, and 795, replace “initial SO2" with “initial NOx”.

137. On page 269, replace "EPA data indicates that the SO_2 reductions predicted by the proposed IAQR will yield, at most, 1 to 2 parts per billion (ppb) ozone reductions on a per county basis, leaving most affected counties out of ozone attainment. This is not a significant step beyond the level of controls required by the NOx SIP Call and is not enough to help bring the Northeastern states into attainment of the 8-hour ozone standard. EPA's next phase of SO_2 controls should provide reductions deep enough to achieve attainment objectives, consistent with the OTC's multi- pollutant principles of January 27,2004 and consistent with STAPPA/ALAPCO multi-pollutant principles of May, 2002 that were further explained in the STAPPA/ALAPCO of March 2004." with" EPA data indicates that the NOx reductions predicted by the proposed IAQR will yield, at most, 1 to 2 parts per billion (ppb) ozone reductions on a per county basis, leaving most affected counties out of ozone attainment. This is not a significant step beyond the level of controls required by the NOx SIP Call and is not enough to help bring the Northeastern states into attainment of the 8-hour ozone standard. EPA's next phase of NOx controls should provide reductions deep enough to achieve attainment objectives, consistent with the OTC's multi- pollutant principles of January 27,2004 and consistent with STAPPA/ALAPCO multi-pollutant principles of May, 2002 that were further explained in the STAPPA/ALAPCO of March 2004."

138. On page 270, replace "While improving air quality trends and the stage of implementation of the requirements of the NOx SIP Call indicate that the need for additional SO_2 reductions under the CAIR is premature, the following comments are provided to ensure that the final regulatory program adopted by EPA achieves ambient air quality benefits in a flexible and cost effective manner." with "While improving air quality trends and the stage of implementation of the requirements of the NOx SIP Call indicate that the need for additional NOx reductions under the CAIR is premature, the following comments are provided to ensure that the final regulatory program adopted by EPA achieves ambient air quality benefits in a flexible and cost effective manner."

139. On page 270, replace "The serious and sweeping SO_2 cuts that would be imposed across the affected region under the proposal are not justified based on those relatively minor projected improvements in ambient ozone." with "The serious and sweeping NOx cuts that would be imposed across the affected region under the proposal are not justified based on those relatively minor projected improvements in ambient ozone."

140. On page 271, replace "The EPA also notes that technologies other than SCR can also be used to provide substantial SO_2 reduction on boilers mentioned in the comments." with "The EPA also notes that technologies other than SCR can also be used to provide substantial NOx reduction on boilers mentioned in the comments."

141. On page 271, replace "In addition, a commenter noted that when SCR is used for mercury oxidation, ammonia injected for SO_2 control renders the catalyst ineffective for the oxidation of mercury." with "In addition, a commenter noted that when SCR is used for mercury oxidation, ammonia injected for NOx control renders the catalyst ineffective for the oxidation of mercury."

142. On page 272 in footnotes 59 and 64, replace “SO2" with “NOx”.

143. On page 273, replace “The commenter also states that EPA’s IPM assessments appear to assume less than 90 percent SO_2 reduction with SCR, even though EPA has indicated in the docket that 90 percent SCR SO_2 reduction is the presumptive highly cost-effective technology.” with “The commenter also states that EPA’s IPM assessments appear to assume less than 90 percent NOx reduction with SCR, even though EPA has indicated in the docket that 90 percent SCR NOx reduction is the presumptive highly cost-effective technology.”

144. On page 273, in the response that begins “The EPA confirms that IPM was updated to include the controlled. .”, replace “SO2" with “NOx” in all three paragraphs and footnote 66.

145. On page 274, replace “One commenter has argued that the waste-coal circulating fluidized-bed (CFB) boilers should be required to comply with only the SO_2 control requirements under CAIR, exempting them from compliance with the $_{SO2}$ control requirements of this rule.” with “One commenter has argued that the waste-coal circulating fluidized-bed (CFB) boilers should be required to comply with only the NOx control requirements under CAIR, exempting them from compliance with the NOx control requirements of this rule.”

146. On page 274, replace “A large number of CFB boilers are equipped with selective non-catalytic reduction (SNCR) systems to control SO_2.” with “A large number of CFB boilers are equipped with selective non-catalytic reduction (SNCR) systems to control NOx.” and in footnote 70 replace “SO2" with “NOx”.

147. On page 275, replace “EPA has not done an economic analysis to demonstrate that additional SO_2 reductions are cost-effective in reducing $PM_{2.5}$ and ozone exceedances: EPA should separately model the $PM_{2.5}$ and ozone benefits derived solely from the proposed reduction in year-round SO_2 emissions. Reducing SO_2 emissions in the winter provides no benefits in reducing warm season $PM_{2.5}$ exceedances. It is not a cost-effective approach. EPA should either provide a straightforward cost-effective justification of year-round SO_2 controls, or drop this requirement from the IAQR.” with “EPA has not done an economic analysis to demonstrate that additional NOx reductions are cost-effective in reducing $PM_{2.5}$ and ozone exceedances: EPA should separately model the $PM_{2.5}$ and ozone benefits derived solely from the proposed reduction in year-round NOx emissions. Reducing NOx emissions in the winter provides no benefits in reducing warm season $PM_{2.5}$ exceedances. It is not a cost-effective approach. EPA should either provide a straightforward cost-effective justification of year-round NOx controls, or drop this requirement from the IAQR.”

148. On page 275, replace “Duke Energy has serious concerns about the technical and legal basis for the additional electric generating unit (EGU) SO_2 reductions that EPA has proposed, especially in those states already affected by the NOx SIP Call rule. The

minimal downwind air quality impacts to both 8-hour ozone and fine particles that EPA's modeling indicates might result from the additional reductions are not compelling and do not support EPA's proposal for additional SO_2 reductions from EGUs to address transport. In fact, EPA's modeling indicates that 8-hour ozone levels may actually increase in Mecklenburg County, N.C. if the proposed SO_2 reductions are implemented (EPA modeling indicates that the 2010 8-hour ozone design value increases for Mecklenburg County). See OAR-2003-0053-0162,Tables X-7 and X-9. At the most, rather than require installation of further SO_2 controls on EGUs, Duke recommends that EPA simply adjust the NOx SIP Call to an annual program requiring year-round operation of the controls that are already being installed to meet the SIP call." with "Duke Energy has serious concerns about the technical and legal basis for the additional electric generating unit (EGU) NOx reductions that EPA has proposed, especially in those states already affected by the NOx SIP Call rule. The minimal downwind air quality impacts to both 8-hour ozone and fine particles that EPA's modeling indicates might result from the additional reductions are not compelling and do not support EPA's proposal for additional NOx reductions from EGUs to address transport. In fact, EPA's modeling indicates that 8-hour ozone levels may actually increase in Mecklenburg County, N.C. if the proposed NOx reductions are implemented (EPA modeling indicates that the 2010 8-hour ozone design value increases for Mecklenburg County). See OAR-2003-0053-0162,Tables X-7 and X-9. At the most, rather than require installation of further NOx controls on EGUs, Duke recommends that EPA simply adjust the NOx SIP Call to an annual program requiring year-round operation of the controls that are already being installed to meet the SIP call."

149. On page 276, replace "Modeling done for the proposal indicated the potential for a 1 ppb increase in the 8-hr ozone design value in Mecklenburg County, which was attributed to local increases in EGU SO_2 emissions in the IPM modeling." with "Modeling done for the proposal indicated the potential for a 1 ppb increase in the 8-hr ozone design value in Mecklenburg County, which was attributed to local increases in EGU NOx emissions in the IPM modeling."

150. On page 276, replace "SO_2 reductions for the 8-hour ozone NAAQS are not warranted. As MOG stated in its comments filed in this proceeding on March 30, 2004, NOx SIP Call States eliminated in May 2003 or in May 2004 any significant contribution to 8-hour ozone nonattainment." with "NOx reductions for the 8-hour ozone NAAQS are not warranted. As MOG stated in its comments filed in this proceeding on March 30, 2004, NOx SIP Call States eliminated in May 2003 or in May 2004 any significant contribution to 8-hour ozone nonattainment."

151. On page 276, replace "MOG urges U.S. EPA to evaluate the need, if any, for additional SO_2 controls only after full implementation of the NOx SIP Call." with "MOG urges U.S. EPA to evaluate the need, if any, for additional NOx controls only after full implementation of the NOx SIP Call."

152. On page 280, replace "as well as ongoing programs such as SO_2 RACT" with "as well as ongoing programs such as NOx RACT".

153. On page 285, replace "SO_2, VOC, and SO_2 reductions from the measures that EPA considers to be 'local' controls can be effective if implemented on a regional basis." with "NOx, VOC, and SO_2 reductions from the measures that EPA considers to be 'local' controls can be effective if implemented on a regional basis."

154. On page 286, replace "See preamble discussion of basis for SO_2 contributions to ozone areas in Section III and accompanying air quality modeling TSD." with "See preamble discussion of basis for NOx contributions to ozone areas in Section III and accompanying air quality modeling TSD."

155. On page 288, 386, and 390, replace "2009 for SO2" with "2009 for NOx".

156. On page 291, replace "65 percent for SO_2 and 70 percent for SOX is not acceptable for the life of this rule." with "65 percent for NOx and 70 percent for SO2 is not acceptable for the life of this rule."

157. On page 291, replace "The Agency must rely on SO_2's role in $PM_{2.5}$ transport to justify the SO_2 budget proposed in the IAQR. There is also a question concerning the Agency's overestimation of SO_2's role in $PM_{2.5}$ formation and overestimation of the harmful effects of the inorganic species of $PM_{2.5}$ emitted by utilities. This may lead EPA to overestimate the level of SO_2 reductions that are reasonable and necessary, thus warranting further study of these issues." with "The Agency must rely on NOx's role in $PM_{2.5}$ transport to justify the NOx budget proposed in the IAQR. There is also a question concerning the Agency's overestimation of NOx's role in $PM_{2.5}$ formation and overestimation of the harmful effects of the inorganic species of $PM_{2.5}$ emitted by utilities. This may lead EPA to overestimate the level of NOx reductions that are reasonable and necessary, thus warranting further study of these issues."

158. On page 292, replace "By 2015 the reductions of SO_2 in Virginia would be 53 percent from the 2010 baseline and the reductions of SO_2 would be 76 percent from the 2010 baseline." with "By 2015 the reductions of NOx in Virginia would be 53 percent from the 2010 baseline and the reductions of SO_2 would be 76 percent from the 2010 baseline."

159. On page 292, replace "Should SO_2 Reductions Precede SO_2 Reductions?: In light of the limitations on materials and skilled labor, EPA asks whether it should phase the schedules for reductions to require that SO_2 reductions be achieved before SO_2 reductions. 69 Fed. Reg. 4622. From the standpoint of health implications, reducing SO_2 before SO_2 makes little sense in light of scientific evidence concluding that the SO_2 produced sulfate fraction of the fine particle mass is not causing adverse health problems. Regardless, EPA should explain more fully what this would mean for the schedules proposed in the rule. If the same 2010-2015 phased schedule would be retained for SO_2 and an extended schedule established for SO_2, this would allow utilities more flexibility to rationally schedule control projects and allocate limited craft and material resources. The commenter would support this additional schedule flexibility. On the other hand, accelerating the schedule for SO_2 reductions and retaining the 2010-2015 schedule for

SO_2 reductions, would exacerbate the craft and material resource problems. The commenter would oppose this." with "Should SO_2 Reductions Precede NOx Reductions?: In light of the limitations on materials and skilled labor, EPA asks whether it should phase the schedules for reductions to require that SO_2 reductions be achieved before NOx reductions. 69 Fed. Reg. 4622. From the standpoint of health implications, reducing SO_2 before NOx makes little sense in light of scientific evidence concluding that the SO_2 produced sulfate fraction of the fine particle mass is not causing adverse health problems. Regardless, EPA should explain more fully what this would mean for the schedules proposed in the rule. If the same 2010-2015 phased schedule would be retained for SO_2 and an extended schedule established for NOx, this would allow utilities more flexibility to rationally schedule control projects and allocate limited craft and material resources. The commenter would support this additional schedule flexibility. On the other hand, accelerating the schedule for SO_2 reductions and retaining the 2010-2015 schedule for NOx reductions, would exacerbate the craft and material resource problems. The commenter would oppose this."

160. On page 293, replace "The commenter recommends that states that have already achieved substantial NOx and SO2 emissions reductions be rewarded in some manner, such as with an extension of the Phase I compliance deadline by up to two years for units that currently have scrubbers and/or low SO_2 emissions (i.e., units that emit below 0.2 lbs/mmBtu)." with "The commenter recommends that states that have already achieved substantial NOx and SO2 emissions reductions be rewarded in some manner, such as with an extension of the Phase I compliance deadline by up to two years for units that currently have scrubbers and/or low NOx emissions (i.e., units that emit below 0.2 lbs/mmBtu)."

161. Replace "SO2 Budget Program" with "NOx Budget Program" on pages 295, 296, 443, 448, 508, 569, 570, 717.

162. On page 296, replace "The commenter urges the EPA to reduce the annual control region SO_2 cap to 1.8 million tons (approximately equivalent to a 2 million ton nationwide cap); and reduce the SO_2 cap to a 1.25 million ton nationwide cap; and make all the reductions effective in one phase, by 2009." with "The commenter urges the EPA to reduce the annual control region SO_2 cap to 1.8 million tons (approximately equivalent to a 2 million ton nationwide cap); and reduce the NOx cap to a 1.25 million ton nationwide cap; and make all the reductions effective in one phase, by 2009."

163. On page 298, replace "As a result of this law, the commenter's North Carolina SO_2 emissions will be more than halved - a 56 percent reduction - by 2007 from 2001 levels." with "As a result of this law, the commenter's North Carolina NOx emissions will be more than halved - a 56 percent reduction - by 2007 from 2001 levels."

164. On page 298, replace "The commenter plans to operate existing selective catalytic reduction (SCR) and other SO_2 controls year-round and install SO_2 controls on an additional four units to meet and maintain the fixed SO_2 caps." with "The commenter plans to operate existing selective catalytic reduction (SCR) and other NOx controls

year-round and install NOx controls on an additional four units to meet and maintain the fixed NOx caps."

165. On page 301, replace "Further, Environment Canada estimates that, if the U.S. were to advance the caps such that both Phase I and Phase II were fully implemented by 2010, the environment would be spared more than 2 million additional tons of SO_2 and almost 1 million additional tons of SO_2 for the five-year period." with "Further, Environment Canada estimates that, if the U.S. were to advance the caps such that both Phase I and Phase II were fully implemented by 2010, the environment would be spared more than 2 million additional tons of SO_2 and almost 1 million additional tons of NOx for the five-year period."

166. On page 306, replace "Electric generating units (EGUs) are a significant source of air pollution they emit more than half of the nation's SO_2 emissions and almost a fifth of the nation's SO_2 emissions, according to EPA's 2001 inventory." with "Electric generating units (EGUs) are a significant source of air pollution they emit more than half of the nation's SO_2 emissions and almost a fifth of the nation's NOx emissions, according to EPA's 2001 inventory."

167. On page 307, replace "SCR technology for SO_2 control, although much more recent than FGD control for SO_2, is now in widespread use in the utility industry and is proving to be reliable and effective. EPA reports that [operating data available from many plants indicate that the 90 percent NOx removal rate has been met or exceeded at these plants.:

CATF urged the EPA to reduce the annual control region SO_2 cap to about 1.84 million tons (approximately equivalent to a two million ton nationwide cap) and reduce the annual control region SO_2 cap in two phases to about 1.04 million tons (approximately equivalent to a 1.25 million ton nationwide cap)."

with "SCR technology for NOx control, although much more recent than FGD control for SO_2, is now in widespread use in the utility industry and is proving to be reliable and effective. EPA reports that [operating data available from many plants indicate that the 90 percent NOx removal rate has been met or exceeded at these plants.:

CATF urged the EPA to reduce the annual control region SO_2 cap to about 1.84 million tons (approximately equivalent to a two million ton nationwide cap) and reduce the annual control region NOx cap in two phases to about 1.04 million tons (approximately equivalent to a 1.25 million ton nationwide cap).

168. On page 307, replace

"**Comment:**

Considering the average annual cost as estimated by EPA ($800/ton SO_2 table VI-7 page 4615) the cost per ugm-3 of ammonium nitrated reduced is approximately $5.7 Billion for the 2010 controls. Assuming an annual marginal cost of $1300/ton SO_2 (table VI-7) to get the additional 300,000 tons of SO_2 required in 2015 the cost is increased by approximately $2

Billion in 1999 dollars. Clearly this would be a very significant investment to achieve the insignificant reductions shown above. [[p. 7]]

Response:

According to EPA's projections, the total increase in cost between 2010 and 2015 is $1.3 billion. Between 2010 and 2015, EPA projects a 1.1 million ton reduction in SO_2 and a 200,000 ton reduction in SO_2. This is significantly less expensive than the $2 Billion that the commenter calculates for reducing 300,000 tons of SO_2. With respect to the $5.7 billion cost number that the commenter cites, EPA projects that the rule will cost $2.3 billion in 2010 and will have significant benefit beyond reducing ammonium nitrate. See the RIA for further discussion of the costs and benefits of this rule."

with

"**Comment:**

Considering the average annual cost as estimated by EPA ($800/ton NOx table VI-7 page 4615) the cost per ugm-3 of ammonium nitrated reduced is approximately $5.7 Billion for the 2010 controls. Assuming an annual marginal cost of $1300/ton NOx (table VI-7) to get the additional 300,000 tons of NOx required in 2015 the cost is increased by approximately $2 Billion in 1999 dollars. Clearly this would be a very significant investment to achieve the insignificant reductions shown above. [[p. 7]]

Response:

According to EPA's projections, the total increase in cost between 2010 and 2015 is $1.3 billion. Between 2010 and 2015, EPA projects a 1.1 million ton reduction in NOx and a 200,000 ton reduction in SO_2. This is significantly less expensive than the $2 Billion that the commenter calculates for reducing 300,000 tons of NOx With respect to the $5.7 billion cost number that the commenter cites, EPA projects that the rule will cost $2.3 billion in 2010 and will have significant benefit beyond reducing ammonium nitrate. See the RIA for further discussion of the costs and benefits of this rule."

169. On page 308, replace

> "Coal-based EGUs also have reduced SO_2 emissions substantially through widespread installation and use of combustion controls to meet the Title IV SO_2 requirements. In addition, many EGUs in the eastern half of the United States have cut their SO_2 emissions even further in response to the SO_2 State Implementation Plan (SIP) Call rule that went into effect in most Northeastern states in 2003 and went into effect throughout the eastern U.S. in May 2004. EGUs in Northeastern states also achieved SO_2 reductions pursuant to the 1994 Ozone Transport Commission (OTC) Memorandum of Understanding program. Furthermore, many electric generators have implemented or will be implementing SO_2 emissions reductions under state legislative initiatives or under SIP provisions to address ozone nonattainment. All in all, SO_2 emissions also are down 40 percent and will go even lower with the NOx SIP Call. [[(pp.3-4)]]

Regarding the NOx SIP Call, this new regulation requires roughly 20 states to revise SIPs to cut industrial SO_2 emissions during the summer months. A large portion of the Eastern coal-based electric generating fleet is installing state-of- the art pollution control technology, called selective catalytic reduction or 'SCR,' to cut SO_2 emissions by nearly one million tons. The power industry will spend almost $10 billion to install the new pollution control technology, and hundreds of millions each year to operate and maintain the equipment. [[(p.4)]]

As a result of this new ozone-reduction regulation, issued and enforced by EPA, power sector SO_2 emissions will fall to approximately one-fifth of the nation's total. Coupling these reductions with the fact that the industry is responsible for less than 1 percent of U.S. volatile organic compounds emissions (the other emission of importance to ozone formation) supports the conclusion that the electric power industry's contribution to ozone formation in the future will be relatively minor."

with

"Coal-based EGUs also have reduced NOx emissions substantially through widespread installation and use of combustion controls to meet the Title IV NOx requirements. In addition, many EGUs in the eastern half of the United States have cut their NOx emissions even further in response to the NOx State Implementation Plan (SIP) Call rule that went into effect in most Northeastern states in 2003 and went into effect throughout the eastern U.S. in May 2004. EGUs in Northeastern states also achieved NOx reductions pursuant to the 1994 Ozone Transport Commission (OTC) Memorandum of Understanding program. Furthermore, many electric generators have implemented or will be implementing NOx emissions reductions under state legislative initiatives or under SIP provisions to address ozone nonattainment. All in all, NOx emissions also are down 40 percent and will go even lower with the NOx SIP Call. [[(pp.3-4)]]

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As a result of this new ozone-reduction regulation, issued and enforced by EPA, power sector NOx emissions will fall to approximately one-fifth of the nation's total. Coupling these reductions with the fact that the industry is responsible for less than 1 percent of U.S. volatile organic compounds emissions (the other emission of importance to ozone formation) supports the conclusion that the electric power industry's contribution to ozone formation in the future will be relatively minor."

170. On page 309, replace "Emissions caps will be 223 percent higher for SO_2 and 168 percent higher for SO_2, and even when fully implemented in 2015 these figures will be 150 percent and 136 percent higher." with "Emissions caps will be 223 percent higher for SO_2 and 168 percent higher for NOx, and even when fully implemented in 2015 these figures will be 150 percent and 136 percent higher."

171. On page 311, replace "This rule does nothing for summertime SO_2." with "This rule does nothing for summertime NOx."

172. On page 311, replace "The very fact that no significant SO_2 reductions are expected to take place ahead of time indicates that the cap was set too high." with "The very fact that no significant NOx reductions are expected to take place ahead of time indicates that the cap was set too high."

173. On page 312, replace "SO_2/ozone season" with "NOx/ozone season"

174. On page 314, replace "Those comments also established the need to extend SO_2 reduction requirements to the western United States. Here, we expand on our recommendation that EPA quickly finalize the CAIR requirements for year-round reductions in SO_2 emissions and require faster, deeper cuts in these emissions." with "Those comments also established the need to extend NOx reduction requirements to the western United States. Here, we expand on our recommendation that EPA quickly finalize the CAIR requirements for year-round reductions in NOx emissions and require faster, deeper cuts in these emissions."

175. On page 314, replace "In doing so, it should strengthen the program by imposing a stricter cap on year-round SO_2 emissions and a faster pace for achieving reductions. EPA should also modify the proposed rule to guarantee that summertime SO_2 emissions are reduced adequately." with "In doing so, it should strengthen the program by imposing a stricter cap on year-round NOx emissions and a faster pace for achieving reductions. EPA should also modify the proposed rule to guarantee that summertime NOx emissions are reduced adequately."

176. On page 315, replace "SO_2 emissions should be capped at 1.0 million tons annually for the region, based on a similarly strengthened cost effectiveness test that will better protect the communities hard hit by ozone smog." with "NOx emissions should be capped at 1.0 million tons annually for the region, based on a similarly strengthened cost effectiveness test that will better protect the communities hard hit by ozone smog."

177. On page 316, replace "Nevertheless, EPA does not believe that this 'distorts' its proposed findings 'because the aggregate reduction in [nitrogen oxide] (SO_2) and [sulfur dioxide] (SO_2) emissions from these measures would be at most a small percentage of overall emissions." with "Nevertheless, EPA does not believe that this 'distorts' its proposed findings 'because the aggregate reduction in [nitrogen oxide] (NOx) and [sulfur dioxide] (SO_2) emissions from these measures would be at most a small percentage of overall emissions."

178. On page 319, replace "Over the past 8 years, OTC states have succeeded in reducing our own SO_2 emissions by approximately 70 percent, while the rest of the country has reduced its emissions by only about 10 percent." with "Over the past 8 years, OTC states

have succeeded in reducing our own NOx emissions by approximately 70 percent, while the rest of the country has reduced its emissions by only about 10 percent."

179. On page 321, replace "reduces the annual control region SO_2 cap in two phases to about 1.04 million tons (approximately equivalent to a 1.25 million ton nationwide cap)" with "reduces the annual control region NOx cap in two phases to about 1.04 million tons (approximately equivalent to a 1.25 million ton nationwide cap)"

180. On page 322 and 330, replace "EPA did move-up the initial SO_2 compliance phase from 2010 to 2009 after the CAIR proposal." with "EPA did move-up the initial NOx compliance phase from 2010 to 2009 after the CAIR"

181. On page 327, replace "a program designed to control SO_2, SO_2, and mercury at the same time" with "a program designed to control NOx, SO_2, and mercury at the same time"

182. On page 338, replace "SO_2 trading rules in the State of Texas" with "NOx trading rules in the State of Texas"

183. On page 343, replace "While not specifically stated in the rule documentation, we believe that the goal of the rule is to reduce nitrogen oxides (SO_2) and sulfur oxides (SOX) related interstate air pollution transport to a level that will enable downwind states to reach attainment by their federally mandated attainment dates by implementing a realistic level of local controls." with "While not specifically stated in the rule documentation, we believe that the goal of the rule is to reduce nitrogen oxides (NOx) and sulfur oxides (SOX) related interstate air pollution transport to a level that will enable downwind states to reach attainment by their federally mandated attainment dates by implementing a realistic level of local controls."

184. On page 343, replace "During the formation of the SO_2/SOX Transport Rule (subsequently renamed the Interstate Air Quality Rule and then again to the current Clean Air Interstate Rule), EPA worked with interested states and stakeholders in developing the science, inventories, and modeling procedures." with "During the formation of the SO_2/NOx Transport Rule (subsequently renamed the Interstate Air Quality Rule and then again to the current Clean Air Interstate Rule), EPA worked with interested states and stakeholders in developing the science, inventories, and modeling procedures."

185. On page 345, replace "We have executed a cap and trade program within the OTR, successfully reducing our SO_2 emissions from EGUs by over 70 percent." with "We have executed a cap and trade program within the OTR, successfully reducing our NOx emissions from EGUs by over 70 percent."

186. On page 346, replace "EPA's own charts show the proposed Interstate Air Quality Rule is too little too late for the Dallas-Fort Worth area, which fails to get needed SO_2 reductions by 2010, when that area will be required to meet tough new air pollution rules." with "EPA's own charts show the proposed Interstate Air Quality Rule is too little

too late for the Dallas-Fort Worth area, which fails to get needed NOx reductions by 2010, when that area will be required to meet tough new air pollution rules."

187. On page 349, replace "As explained in the preamble, EPA believes that with respect to interstate transport contributing to ozone nonattainment, SO_2 controls are most important" with "As explained in the preamble, EPA believes that with respect to interstate transport contributing to ozone nonattainment, NOx controls are most important"

188. On page 349, replace "Chemical reactions in the atmosphere create ozone from those SO_2 emissions, and convert both NOx and SO2 emissions from those sources into fine particulates." with "Chemical reactions in the atmosphere create ozone from those NOx emissions, and convert both NOx and SO2 emissions from those sources into fine particulates."

189. On page 350, replace

" - All anthropogenic SO_2 emissions must be reduced 50-75 percent of 1996 'typical' base case values; and

- All anthropogenic SO_2 emissions must be reduced 75-85 percent of the 1996 base case values under the conditions that yielded the highest 8-hour ozone concentrations."

with

" - All anthropogenic NOx emissions must be reduced 50-75 percent of 1996 'typical' base case values; and

- All anthropogenic NOx emissions must be reduced 75-85 percent of the 1996 base case values under the conditions that yielded the highest 8-hour ozone concentrations."

190. On page 352, replace "Our analysis demonstrates that we need significant reductions from the power sector and other large stationary SO_2 sources in addition to other national, regional, and local mobile and area source measures, to have any hope of achieving attainment." with "Our analysis demonstrates that we need significant reductions from the power sector and other large stationary NOx sources in addition to other national, regional, and local mobile and area source measures, to have any hope of achieving attainment."

191. On page 355, replace "OTC's proposal, assuming the increased energy costs and growth rates, would achieve a 58 percent reduction in SO_2 and a 67 percent reduction in SO_2 in 2010 from the EPA base case scenario, approaching twice as much improvement as the IAQR (IAQR yields 36 percent and 38 percent reductions for NOx and SO2 respectively in the 2010 timeframe)" with "OTC's proposal, assuming the increased energy costs and growth rates, would achieve a 58 percent reduction in NOx and a 67 percent reduction in SO_2 in 2010 from the EPA base case scenario, approaching twice as much improvement

as the IAQR (IAQR yields 36 percent and 38 percent reductions for NOx and SO2 respectively in the 2010 timeframe)"

192. On page 357, replace "Cinergy Supports EPA's Proposed Phase II Cap for SO_2 Emissions Although the Marginal Costs of Additional Reductions Will Be Greater Than EPA Estimates. Analyses being submitted with these comments demonstrate that EPA has substantially underestimated the marginal costs to utilities of meeting Phase II goals. Cinergy's analyses show that the marginal cost-per-ton of Phase II SO_2 reductions is on the brink of diminished returns, such that any further reductions from the power sector would not be cost effective." with "Cinergy Supports EPA's Proposed Phase II Cap for NOx Emissions Although the Marginal Costs of Additional Reductions Will Be Greater Than EPA Estimates. Analyses being submitted with these comments demonstrate that EPA has substantially underestimated the marginal costs to utilities of meeting Phase II goals. Cinergy's analyses show that the marginal cost-per-ton of Phase II NOx reductions is on the brink of diminished returns, such that any further reductions from the power sector would not be cost effective."

193. On pages 357 390, replace "In the final rule, EPA has moved the first SO_2 cap forward by a year to 2009. This provides more support to States that are developing plans to provide attainment for the ozone standard at that time. Analysis of the Agency explained in section IV of the preamble shows that if there are sufficient labor resources available in 2010 to comply with the initial CAIR NOx and SO2 caps in 2010 that a simple ordering of the work that is needed that queues installation of the SCRs first leads to their completion in 2009 and the completion of scrubber installations by 2010. There is sufficient time available for States to adopt CAIR and power plants to then install SCRs by 2009. As a hedge on this situation, the EPA has also provided in the final CAIR rule a Compliance Supplement Pool for SO_2 allowances that States can use to help power plants installing SCRs, if problems arise." with "In the final rule, EPA has moved the first NOx cap forward by a year to 2009. This provides more support to States that are developing plans to provide attainment for the ozone standard at that time. Analysis of the Agency explained in section IV of the preamble shows that if there are sufficient labor resources available in 2010 to comply with the initial CAIR NOx and SO2 caps in 2010 that a simple ordering of the work that is needed that queues installation of the SCRs first leads to their completion in 2009 and the completion of scrubber installations by 2010. There is sufficient time available for States to adopt CAIR and power plants to then install SCRs by 2009. As a hedge on this situation, the EPA has also provided in the final CAIR rule a Compliance Supplement Pool for NOx allowances that States can use to help power plants installing SCRs, if problems arise."

194. On page 357, replace
"Public Citizen had an analysis done in February 2004, by expert David Schoengold of MSB Energy Associates to determine how the area would fare under the EPAs new eight-hour standard Information available, which related levels of East Texas SO_2 emissions to the ozone level in the Dallas-Fort Worth area, was examined in order to try to determine what the impact on Dallas-Fort Worth ozone would be of reductions in East Texas SO_2. [[Discussion of the study can be found in the comment letter.]] [[p.1]]

Based on this modeling, it is estimated that emissions of SO_2 will need to be reduced below 96,000 tons in order to reduce ozone to the attainment level in all of the Dallas-Fort Worth area. This is a reduction of more than 27 percent below estimated 2003 levels, and about 66 percent below 1997 levels.

However the EPA's proposed rules will reduce SO_2 in the East Texas area by 'too little-too late' EPA's own charts confirm that your proposed Interstate Air Quality Rule is too little too late for the Dallas-Fort Worth area, which will fail to get needed SO_2 reductions by 2010, when that area will be required to meet tough new air pollution rules. We would urge you to adopt tougher SO_2 limits for ozone in the ERCOT grid region of Eastern Texas (North of I-37 and East of 35) of 96,000 tons from power plants."

with

"Public Citizen had an analysis done in February 2004, by expert David Schoengold of MSB Energy Associates to determine how the area would fare under the EPAs new eight-hour standard Information available, which related levels of East Texas NOx emissions to the ozone level in the Dallas-Fort Worth area, was examined in order to try to determine what the impact on Dallas-Fort Worth ozone would be of reductions in East Texas NOx. [[Discussion of the study can be found in the comment letter.]] [[p.1]]

Based on this modeling, it is estimated that emissions of NOx will need to be reduced below 96,000 tons in order to reduce ozone to the attainment level in all of the Dallas-Fort Worth area. This is a reduction of more than 27 percent below estimated 2003 levels, and about 66 percent below 1997 levels.

However the EPA's proposed rules will reduce NOx in the East Texas area by 'too little-too late' EPA's own charts confirm that your proposed Interstate Air Quality Rule is too little too late for the Dallas-Fort Worth area, which will fail to get needed NOx reductions by 2010, when that area will be required to meet tough new air pollution rules. We would urge you to adopt tougher NOx limits for ozone in the ERCOT grid region of Eastern Texas (North of I-37 and East of 35) of 96,000 tons from power plants. "

195. On page 359, replace "On page 4579, the USEPA states that 'at full implementation of today's proposal SO_2 emissions would be reduced about 71 percent. On the same basis, SO_2 emissions would be reduced 65 percent.' USEPA needs to define 'full implementation' by giving a specific year." with "On page 4579, the USEPA states that 'at full implementation of today's proposal SO_2 emissions would be reduced about 71 percent. On the same basis, NOx emissions would be reduced 65 percent.' USEPA needs to define 'full implementation' by giving a specific year."

196. On page 359, replace "Scaling back the OTC nationwide recommendations to the 25 state and DC geographic scope of this proposal for SO_2, the interim SO_2 cap should be reduced to 1.1 million tons and advanced to 2008, to precede the attainment date for moderate ozone areas. The final SO_2 cap should be reduced to 0.8 million tons beginning

in 2012, to precede the attainment date for serious areas. As currently proposed, the interim SO_2 cap would provide virtually no additional ozone benefit to New Jersey since it is based on the same level of facility emission control (0.15 lbs per million BTU) already put in place by the OTC in 2003, and by the USEPA under the recent NOx SIP Call for implementation during 2004." with "Scaling back the OTC nationwide recommendations to the 25 state and DC geographic scope of this proposal for NOx, the interim NOx cap should be reduced to 1.1 million tons and advanced to 2008, to precede the attainment date for moderate ozone areas. The final NOx cap should be reduced to 0.8 million tons beginning in 2012, to precede the attainment date for serious areas. As currently proposed, the interim NOx cap would provide virtually no additional ozone benefit to New Jersey since it is based on the same level of facility emission control (0.15 lbs per million BTU) already put in place by the OTC in 2003, and by the USEPA under the recent NOx SIP Call for implementation during 2004."

197. On page 362, replace "for SO_2, the interim annual cap in 2008 is 1.87 MT and in 2012 the annual cap is 1.28 MT" with "for NOx, the interim annual cap in 2008 is 1.87 MT and in 2012 the annual cap is 1.28 MT"

198. On page 362, replace

"With respect to ozone, EPA's proposed SO_2 reductions under the IAQR essentially annualize the ozone season requirements of the NOx SIP Call. EPA has indicated that the same SO_2 control technologies are being relied upon for the NOx SIP Call and IAQR programs. However, the NOx SIP Call deadline for 19 of the 29 IAQR jurisdictions is May 31,2004. EPA should not need to allow an additional 3 years past attainment deadlines to allow for SO_2 hardware installations in just 10 states. [[(0941, p.3)]]

Based on preliminary analyses to date, the NESCAUM states believe that the proposed levels of the SO_2 cap levels are not stringent enough to adequately assist us in attaining the ozone standards."

with

"With respect to ozone, EPA's proposed NOx reductions under the IAQR essentially annualize the ozone season requirements of the NOx SIP Call. EPA has indicated that the same NOx control technologies are being relied upon for the NOx SIP Call and IAQR programs. However, the NOx SIP Call deadline for 19 of the 29 IAQR jurisdictions is May 31,2004. EPA should not need to allow an additional 3 years past attainment deadlines to allow for NOx hardware installations in just 10 states. [[(0941, p.3)]]

Based on preliminary analyses to date, the NESCAUM states believe that the proposed levels of the NOx cap levels are not stringent enough to adequately assist us in attaining the ozone standards."

199. On page 363, replace "The commenter is inaccurate in characterizing the CAIR 2009 implementation deadlines for the annual and ozone-season SO_2 programs as "3 years

past the attainment deadlines." The ozone NAAQS attainment deadline is in 2010 and the $PM_{2.5}$ NAAQS attainment deadline is 2011. EPA analysis has shown that SO_2 emission reductions would take place quickly enough to assist States in achieving attainment. Additionally, EPA analysis has shown that the CAIR implementation timeline achieves these reductions as quickly as the markets for SO_2 emission control installation will allow." with "The commenter is inaccurate in characterizing the CAIR 2009 implementation deadlines for the annual and ozone-season NOx programs as "3 years past the attainment deadlines." The ozone NAAQS attainment deadline is in 2010 and the $PM_{2.5}$ NAAQS attainment deadline is 2011. EPA analysis has shown that NOx emission reductions would take place quickly enough to assist States in achieving attainment. Additionally, EPA analysis has shown that the CAIR implementation timeline achieves these reductions as quickly as the markets for NOx emission control installation will allow."

200. On page 367, replace "Full-attainment could be better reached through the faithful implementation and enforcement of the existing Clean Air Act, which would allow an SO_2 cap of 2 million tons by 2012 and a SO_2 cap of 1.25 million tons by 2010. Emissions from power plants should be reduced to levels no less stringent than these national caps. This is particularly true for SO_2, in that SO_2 reductions cost less than half as much as those for SO_2." with "Full-attainment could be better reached through the faithful implementation and enforcement of the existing Clean Air Act, which would allow an SO_2 cap of 2 million tons by 2012 and a NOx cap of 1.25 million tons by 2010. Emissions from power plants should be reduced to levels no less stringent than these national caps. This is particularly true for SO_2, in that SO_2 reductions cost less than half as much as those for NOx."

201. On page 365, replace "The NOx and SOX control levels and achieved emission reductions are woefully inadequate - perhaps by as much as a factor of 2 for SO_2 and 2.5 for SOX based on available 'highly cost effective' controls." with "The NOx and SOX control levels and achieved emission reductions are woefully inadequate - perhaps by as much as a factor of 2 for NOx and 2.5 for SOX based on available 'highly cost effective' controls."

202. On page 366, replace "and SOx, utilities and the public will be provided the best and most efficient technology from this major retrofit investment." with "and NOx, utilities and the public will be provided the best and most efficient technology from this major retrofit investment."

203. On page 369, replace "The Council urges EPA to return to prior analyses and reduce the SOx cap to 2 million tons and the SO_2 cap to 1.25 million tons by 2009. The Council cannot accept the reductions contemplated in this regulation as adequate. EPA's own modeling analysis showed that after full implementation of planned reductions of SO_2 in 2018, the Philadelphia region will remain in nonattainment for the 8-hour ozone standard." With "The Council urges EPA to return to prior analyses and reduce the SOx cap to 2 million tons and the NOx cap to 1.25 million tons by 2009. The Council cannot accept the reductions contemplated in this regulation as adequate. EPA's own modeling

analysis showed that after full implementation of planned reductions of NOx in 2018, the Philadelphia region will remain in nonattainment for the 8-hour ozone standard."

204. On page 369, replace "Current CAA requirements 'do it better'. IAQR delays sulfur and nitrogen oxide reductions by 5 years while allowing an increase in allowable limits of sulfur and SO_2 by 17.5 percent." with "Current CAA requirements 'do it better'. IAQR delays sulfur and nitrogen oxide reductions by 5 years while allowing an increase in allowable limits of sulfur and NOx by 17.5 percent."

205. On page 369, replace "reducing the SO_2 cap to 1.25 million tons nationwide" with "reducing the NOx cap to 1.25 million tons nationwide"

206. On page 434, replace "Empire supports the timing of Phase I and Phase II if EPA also implements a flexible, multi-pollutant cap and trade program which incorporates SO_X, $_{SO2}$, and Hg." with "Empire supports the timing of Phase I and Phase II if EPA also implements a flexible, multi-pollutant cap and trade program which incorporates NOx, SO2, and Hg."

207. On page 370, replace "We recommend that EPA strongly consider the views of the Ozone Transport Commission (OTC) and many State and local officials who have advocated lower caps for SO_2 and sulfur dioxide emissions than the limits contained in the IAQR." with "We recommend that EPA strongly consider the views of the Ozone Transport Commission (OTC) and many State and local officials who have advocated lower caps for NOx and sulfur dioxide emissions than the limits contained in the IAQR."

208. On page 372, replace "Maryland also supports an interim SO_2 cap of 1.87 million tons per year in 2008, and a final cap of 1.28 million tons per year in 2012." with "Maryland also supports an interim NOx cap of 1.87 million tons per year in 2008, and a final cap of 1.28 million tons per year in 2012."

209. On page 373, replace "Our resolution completed a final target for the SO_2 number of 1.28 million tons by 2012." with "Our resolution completed a final target for the NOx number of 1.28 million tons by 2012."

210. On page 374, replace "The SO_2 cap should be adjusted based on comparative marginal costs of reductions." with "The NOx cap should be adjusted based on comparative marginal costs of reductions.**"**

211. On page 374, replace "Since ozone remains essentially unchanged, it appears that utilities will be able to comply with this regulation merely by using what are now summertime SO_2 scrubbers year-round." with "Since ozone remains essentially unchanged, it appears that utilities will be able to comply with this regulation merely by using what are now summertime NOx scrubbers year-round.**"**

212. On page 374, replace

"EPA anticipates no banking of credits prior to the implementation of the SO_2 cap. EPA has set the bar far too low if it results in little improvement in ozone and no incentive to bank credits. One of the motivators for a cap and trade program is supposed to be that polluters scrub early and often to bank credits ahead of the rule's implementation. If the cap were set lower, utilities would have a stronger incentive to scrub more of their emissions ahead of time, possibly giving Maryland benefits before the 2010 and 2015 deadlines suggested in this rule. [[(1746, p.17)]]

A more reasonable way to set the SO_2 cap (and the SO_2 cap, for that matter) would be to take the desired emissions reduction, and determine the point at which the marginal cost for further SO_2 reductions from power plants and industrial stacks equals the marginal cost for additional 'local' reductions, keeping in mind the goal that must be met. The required reductions would be achieved by a combination of 'local' and regional reductions in $_{NOx\ and\ SO2}$. Some highly cost-effective 'local' programs would then be implemented regionally, and the overall cost for all concerned would come down. The combined effects of regional implementation of what were formerly local programs and a tighter cap on SO_2 from point sources would produce a larger benefit to more people at a reasonable cost. This approach would also work for SO_2."

with

"EPA anticipates no banking of credits prior to the implementation of the NOx cap. EPA has set the bar far too low if it results in little improvement in ozone and no incentive to bank credits. One of the motivators for a cap and trade program is supposed to be that polluters scrub early and often to bank credits ahead of the rule's implementation. If the cap were set lower, utilities would have a stronger incentive to scrub more of their emissions ahead of time, possibly giving Maryland benefits before the 2010 and 2015 deadlines suggested in this rule. [[(1746, p.17)]] A more reasonable way to set the NOx cap (and the SO_2 cap, for that matter) would be to take the desired emissions reduction, and determine the point at which the marginal cost for further NOx reductions from power plants and industrial stacks equals the marginal cost for additional 'local' reductions, keeping in mind the goal that must be met. The required reductions would be achieved by a combination of 'local' and regional reductions in $_{NOx\ and\ SO2}$. Some highly cost-effective 'local' programs would then be implemented regionally, and the overall cost for all concerned would come down. The combined effects of regional implementation of what were formerly local programs and a tighter cap on NOx from point sources would produce a larger benefit to more people at a reasonable cost. This approach would also work for SO_2."

213. On page 381, replace "delaying SO_2 reductions in Phase I" with "delaying NOx reductions in Phase I".

214. On page 383, replace "Similarly for SO_2, Vermont requests that EPA consider a 1st phase cap level of 1,750,000 tons/year of SO_2 on the Electric Utility Sector by 2008." with "Similarly for NOx Vermont requests that EPA consider a 1st phase cap level of 1,750,000 tons/year of NOx on the Electric Utility Sector by 2008."

215. On page 384, replace ", Illinois EPA recommends that the 30-state and D.C. region annual SO_2 emissions cap" with ", Illinois EPA recommends that the 30-state and D.C. region annual NOx emissions cap**"**

216. On page 375, replace "Similarly, scaling back the OTC nationwide recommendations to the 25 state and DC geographic scope of this proposal for SO_2, the interim SO_2 cap should be reduced to 1.1 million tons and advanced to 2008, to precede the attainment date for moderate ozone areas. The final SO_2 cap should be reduced to 0.8 million tons beginning in 2012, to precede the attainment date for serious areas. As currently proposed, the interim SO_2 cap would provide virtually no additional ozone benefit to New Jersey since it is based on the same level of facility emission control (0.15 lbs. Per million BTU) already put in place by the OTC in 2003, and by the USEPA under the recent NOx SIP Call for implementation during 2004." and "Similarly, scaling back the OTC nationwide recommendations to the 25 state and DC geographic scope of this proposal for NOx, the interim NOx cap should be reduced to 1.1 million tons and advanced to 2008, to precede the attainment date for moderate ozone areas. The final NOx cap should be reduced to 0.8 million tons beginning in 2012, to precede the attainment date for serious areas. As currently proposed, the interim NOx cap would provide virtually no additional ozone benefit to New Jersey since it is based on the same level of facility emission control (0.15 lbs. Per million BTU) already put in place by the OTC in 2003, and by the USEPA under the recent NOx SIP Call for implementation during 2004."

217. On page 377 and 379, replace

" - reduce the annual control region SO_2 cap in two phases to about 1.04 million tons (approximately equivalent to a 1.25 million ton nationwide cap); and

- accelerate the second phase of the SO_2 reductions to 2012."

with

" - reduce the annual control region NOx cap in two phases to about 1.04 million tons (approximately equivalent to a 1.25 million ton nationwide cap); and

- accelerate the second phase of the NOx reductions to 2012."

218. On page 377, replace "A more adequate remedy for EPA's finding of significant contribution under section 110 of the Clean Air Act would be final SO_2 cap levels consistent with the Multi- Pollutant Strategy of the Ozone Transport Commission of January 27, 2004" with "A more adequate remedy for EPA's finding of significant contribution under section 110 of the Clean Air Act would be final NOx cap levels consistent with the Multi- Pollutant Strategy of the Ozone Transport Commission of January 27, 2004"

219. On page 378, replace "EPA can and must set a more stringent SO_2 cap that is still highly cost effective" with "EPA can and must set a more stringent NOx cap that is still highly cost effective".

220. On page 380, replace “about one-fourth of the SO_2 emissions” with “about one-fourth of the NOx emissions”

221. On page 381, replace “SO_2 emissions cap and trade program that implicitly begins in 2010 at 1.25 million tons “with “NOx emissions cap and trade program that implicitly begins in 2010 at 1.25 million tons “.

222. On page 381 and 387, replace “For SO_2 control EPA has an earlier start date of 2009 which the Agency believes is more helpful to States working on ozone attainment demonstrations than 2010 that CATF appears to advocate. Given that EPA believes there is a boilermaker labor constraint on how much pollution control can be constructed in the near term, EPA decided to limit the initial SO_2 cap to 1.6 million tons and allow the rest of available labor to work on the installation of scrubbers. Already in the Eastern US a lot of SO_2 reduction has occurred from the power sector due to the NOx SIP Call to address ozone and EPA and States are just beginning efforts to decrease fine particle levels and SO_2 reductions are more cost-effective to undertake than SO_2 reductions. For that reason, EPA aimed for greater SO_2 reductions initially." with “For NOx control EPA has an earlier start date of 2009 which the Agency believes is more helpful to States working on ozone attainment demonstrations than 2010 that CATF appears to advocate. Given that EPA believes there is a boilermaker labor constraint on how much pollution control can be constructed in the near term, EPA decided to limit the initial NOx cap to 1.6 million tons and allow the rest of available labor to work on the installation of scrubbers. Already in the Eastern US a lot of NOx reduction has occurred from the power sector due to the NOx SIP Call to address ozone and EPA and States are just beginning efforts to decrease fine particle levels and SO2 reductions are more cost-effective to undertake than NOx reductions. For that reason, EPA aimed for greater SO2 reductions initially.”

223. On page 385 and 390, replace “SCRs for SO_2.” with “SCRs for NOx”.

224. On age 386, replace “1.0 million tons for SO_2.” with “1.0 million tons for NOx.”

225. On page 386, replace “In looking at the cost-effectiveness curves from the TRUM model that EPA developed for consideration of the overall cost-effectiveness of pollution controls in 2015 (see Section IV of the CAIR preamble), the SO_2 emissions levels are beyond the knee of the cost-effectiveness curves. This draws into question their cost-effectiveness in general and leaves serious doubts about the SO_2 level being highly cost-effective, the standard EPA has applied to the control levels.” with “In looking at the cost-effectiveness curves from the TRUM model that EPA developed for consideration of the overall cost-effectiveness of pollution controls in 2015 (see Section IV of the CAIR preamble), the NOx emissions levels are beyond the knee of the cost-effectiveness curves. This draws into question their cost-effectiveness in general and leaves serious doubts about the NOx level being highly cost-effective, the standard EPA has applied to the control levels.”

226. On page 387, replace "SO_2 emissions cap and trade program that implicitly begins in 2010 at 1.25 million tons" with "NOx emissions cap and trade program that implicitly begins in 2010 at 1.25 million tons".

227. On page 390, replace "and for SO_2 are 1.0 million tons to 1.4 million tons in 2013" with "and for SO2 are 1.0 million tons to 1.4 million tons in 2013"

228. On page 390, replace "Examining the cost-effectiveness curves for SO_2 that EPA developed with the TRUM model (see CAIR preamble section IV), in 2015 the knee of the cost-effectiveness curve occurs at a level greater than 1 million tons annually. The lower end of the range for a SO_2 cap does not appear cost-effective and the upper of the range is the same as EPA's emissions cap that begins in 2015." with "Examining the cost-effectiveness curves for NOx that EPA developed with the TRUM model (see CAIR preamble section IV), in 2015 the knee of the cost-effectiveness curve occurs at a level greater than 1 million tons annually. The lower end of the range for a NOx cap does not appear cost-effective and the upper of the range is the same as EPA's emissions cap that begins in 2015.'"

229. On page 394, replace "Other commenters also advocated accelerating the Phase I SO_2 cap deadline only" with "Other commenters also advocated accelerating the Phase I NOx cap deadline only".

230. On page 396, replace

"**c. One-Year Phase I Acceleration for SO_2 Controls Only**

A 1 year acceleration would result in a compliance deadline of January 1, 2009, for installing Phase I SO_2 controls."

with

"**c. One-Year Phase I Acceleration for NOx Controls Only**

A 1 year acceleration would result in a compliance deadline of January 1, 2009, for installing Phase I NOx controls."

231. On page 396 in footnote 83, replace "The 200,000-ton Compliance Supplement Pool is apportioned to each of the 23 States and the District of Columbia that are required by CAIR to make annual SO_2 reductions, as well as the 3 States (Arkansas, Delaware and New Jersey) for which EPA is proposing to require annual SO_2 reductions." with "The 200,000-ton Compliance Supplement Pool is apportioned to each of the 23 States and the District of Columbia that are required by CAIR to make annual NOx reductions, as well as the 3 States (Arkansas, Delaware and New Jersey) for which EPA is proposing to require annual NOx reductions."

232. On page 396, replace "since these units would not generate SO_2 emissions during an outage" with "since these units would not generate NOx emissions during an outage".

233. On page 397, replace "The EPA also performed an analysis to determine the impact of an one-year acceleration in the SO_2 compliance deadline on Phase I boilermaker labor requirements. Since the amounts of the required Phase I SO_2 and FGD retrofits are not affected by this change, the overall boilermaker requirements for this phase will remain the same as the case with the same compliance deadline for both NOx and SO2 (see the TSD referenced above). However, with the new SO_2 compliance deadline, installation of all SO_2 retrofits would have to be completed by January 1, 2009, and some of the FGD construction work requiring boilermakers would also be done during this period." with "The EPA also performed an analysis to determine the impact of an one-year acceleration in the NOx compliance deadline on Phase I boilermaker labor requirements. Since the amounts of the required Phase I NOx and FGD retrofits are not affected by this change, the overall boilermaker requirements for this phase will remain the same as the case with the same compliance deadline for both NOx and SO2 (see the TSD referenced above). However, with the new NOx compliance deadline, installation of all NOx retrofits would have to be completed by January 1, 2009, and some of the FGD construction work requiring boilermakers would also be done during this period."

234. On page 397, replace "Based on the above analyses, EPA believes that moving the compliance deadline for Phase I for SO_2 only is feasible." with "Based on the above analyses, EPA believes that moving the compliance deadline for Phase I for NOx only is feasible."

235. On page 397, replace "The EPA agrees that there would be environmental advantages to obtaining SO_2 emission reductions earlier from units that could achieve them by simply operating an existing SCR that is used during the ozone season on a year round basis." with "The EPA agrees that there would be environmental advantages to obtaining NOx emission reductions earlier from units that could achieve them by simply operating an existing SCR that is used during the ozone season on a year round basis."

236. On page 398, replace "One way to ensure that these emission reductions did occur, would be to use a budget approach, with SO_2 budgets being based on the assumption of year round operation of SCRs." with "One way to ensure that these emission reductions did occur, would be to use a budget approach, with NOx budgets being based on the assumption of year round operation of SCRs."

237. On page 399, replace "As explained in our responses to other comments in this section, the final rule is based on an acceleration of one year in the Phase I compliance deadline for implementing SO_2 controls." with "As explained in our responses to other comments in this section, the final rule is based on an acceleration of one year in the Phase I compliance deadline for implementing NOx controls."

238. On page 399, replace "One commenter argued that EPA was overstating use of SCR for CAIR SO_2 control and, therefor, the boilermaker labor associated with building them. This commenter suggested that a lot of sources would be using SNCR instead, which requires significantly less boilermaker labor. It was also explained that a combination of SNCR and highly efficient combustion controls now available would provide significant

SO_2 reduction." with "One commenter argued that EPA was overstating use of SCR for CAIR NOx control and, therefor, the boilermaker labor associated with building them. This commenter suggested that a lot of sources would be using SNCR instead, which requires significantly less boilermaker labor. It was also explained that a combination of SNCR and highly efficient combustion controls now available would provide significant NOx reduction."

239. On page 400, replace "The SO_2 allowances are allocated to individual units, including steam generating, combined cycle (CC), and combustion turbine (CT) units" with "The NOx allowances are allocated to individual units, including steam generating, combined cycle (CC), and combustion turbine (CT) units".

240. On page 403, replace "except to note that it used capital-cost adjusted IPM SO_2 allowance prices" with "except to note that it used capital-cost adjusted IPM NOx allowance prices**"**.

241. On page 404, replace "Thus, there is no guarantee that the allowance price is the true marginal cost of SO_2 reductions at the actual emission cap imposed by CAIR. Instead, the allowance price for SO_2, of $2,290/ton, was apparently imported from IPM runs and then scaled up in an attempt to make it compatible with commenter's higher capital cost assumption for SCR." with "Thus, there is no guarantee that the allowance price is the true marginal cost of NOx reductions at the actual emission cap imposed by CAIR. Instead, the allowance price for NOx, of $2,290/ton, was apparently imported from IPM runs and then scaled up in an attempt to make it compatible with commenter's higher capital cost assumption for SCR.**"**

242. On page 410, replace "all the SCR installations built or projected to be built during the 1999-2005 period resulted from a single SO_2 regulation." with "all the SCR installations built or projected to be built during the 1999-2005 period resulted from a single NOx regulation.**"**

243. On page 414, replace "implementation of SO_2 reductions are required by January 1, 2009" with "implementation of NOx reductions are required by January 1, 2009".

244. On page 414, replace "With the first phase compliance deadline of January 1, 2009, for SO_2" with "With the first phase compliance deadline of January 1, 2009, for NOx".

245. On page 415, replace "Since the compliance deadline for SO2 controls occurs 1 year after that for SO_2" with "Since the compliance deadline for NOx controls occurs 1 year after that for SO_2".

246. On page 415, replace "until January 1, 2009, the compliance deadline for SO_2." with "until January 1, 2009, the compliance deadline for NOx."

247. On page 420, replace "accelerate the compliance deadline for meeting the Phase I SO_2 cap by 1 year , from the originally proposed January 1, 2010, to January 1, 2009. The

final CAIR is, therefore, based on this accelerated compliance deadline for meeting the Phase I SO_2 emission requirements." with "accelerate the compliance deadline for meeting the Phase I NOx cap by 1 year , from the originally proposed January 1, 2010, to January 1, 2009. The final CAIR is, therefore, based on this accelerated compliance deadline for meeting the Phase I NOx emission requirements."

248. On page 426, replace "Cinergy believes that a program combining regulations to control mercury, SO2, and SO_2 would achieve substantial multi-emission reductions in a timely fashion and allow companies to appropriately plan and schedule implementation so that costs can be held to a minimum." with "Cinergy believes that a program combining regulations to control mercury, NOx and SO_2 would achieve substantial multi-emission reductions in a timely fashion and allow companies to appropriately plan and schedule implementation so that costs can be held to a minimum."

249. On page 431, replace "low- SO_2 burner" with "low-NOx burner".

250. On page 437, replace "However, as an extra hedge, a compliance supplement pool has been created for State's use for the SO_2 program." with "However, as an extra hedge, a compliance supplement pool has been created for State's use for the NOx program."

251. On page 437, replace "control SCR units installed to reduce $_{SO2}$" with "control SCR units installed to reduce NOx".

252. On pages 440 through 455, in all of section VII.C, wherever "SO2" appears other than in the phrase "SO2 and NOx" replace "SO2" with "NOx."

253. On page 465, replace "The commenter was concerned that in SO_2 SIP-call States that chose to meet some of their SO_2 reduction requirements from non-EGUs, it was likely that SO_2 reductions under CAIR would also be obtained in part from these non-EGUs, thereby disqualifying the State from participating in the cap and trade program and thus from satisfying BART." with "The commenter was concerned that in NOx SIP-call States that chose to meet some of their NOx reduction requirements from non-EGUs, it was likely that SO_2 reductions under CAIR would also be obtained in part from these non-EGUs, thereby disqualifying the State from participating in the cap and trade program and thus from satisfying BART."

254. On page 465, replace "Therefore a source subject only to summertime SO_2 controls cannot be considered to have satisfied BART with respect to SO_2." with "Therefore a source subject only to summertime NOx controls cannot be considered to have satisfied BART with respect to SO_2."

255. On page 475, replace "With respect to PSD requirements for SO_2, EPA proposed several alternative approaches on February 14, 2005."' with "With respect to PSD requirements for NOx, EPA proposed several alternative approaches on February 14, 2005."

256. On page 478, replace "EPA requests comment on the timing of each phase of the cap and trade program, especially with regard to the fact that the Phase I SO2 compliance date of January 1, 2010 is not in time to help moderate ozone areas attain by their statutory deadline of April 15, 2010." with "EPA requests comment on the timing of each phase of the cap and trade program, especially with regard to the fact that the Phase I NOx compliance date of January 1, 2010 is not in time to help moderate ozone areas attain by their statutory deadline of April 15, 2010."

257. On page 478, replace "In the final CAIR, EPA is establishing 2009 as the compliance date for the SO_2 emissions reductions requirements." with "In the final CAIR, EPA is establishing 2009 as the compliance date for the NOx emissions reductions requirements."

258. On page 479, replace "We are concerned that the establishment of an annual SO_2 cap my erode the benefits of EPA's SO_2 State Implementation Plan call (NOx SIP Call). We urge EPA to establish a bifurcated SO_2 allowance program with two separate SO_2 caps (annual and ozone season) and prohibitions on the use of non- ozone season SO_2 allowances during the ozone season." with "We are concerned that the establishment of an annual NOx cap my erode the benefits of EPA's NOx State Implementation Plan call (NOx SIP Call). We urge EPA to establish a bifurcated NOx allowance program with two separate NOx caps (annual and ozone season) and prohibitions on the use of non-ozone season NOx allowances during the ozone season."

259. On page 480, replace "The final CAIR includes both an annual SO_2 program and an ozone-season SO_2 program. Inclusion of a nested, ozone-season SO_2 cap and trade program ensures that summertime SO_2 emission reductions occur. For additional discussion, see the CAIR NFR preamble and other sections of this response to comment document for addition." with "The final CAIR includes both an annual NOx program and an ozone-season NOx program. Inclusion of a nested, ozone-season NOx cap and trade program ensures that summertime NOx emission reductions occur. For additional discussion, see the CAIR NFR preamble and other sections of this response to comment document for addition."

260. On page 489, replace "Commenters further recommend that these allowances should be priced at the average price for 2000-2003 in the case of SO_2, and at 50 percent of the price modeled by EPA in the case of SO_2." with "Commenters further recommend that these allowances should be priced at the average price for 2000-2003 in the case of SO_2, and at 50 percent of the price modeled by EPA in the case of NOx."

261. On page 507, replace "OTR and IAQR SO_2 Allocations: EPA's proposal does not define how States within the Ozone Transport Region" with "OTR and IAQR NOx Allocations: EPA's proposal does not define how States within the Ozone Transport Region".

262. On page 507, replace "OTR-affected facilities have already reduced SO_2 emissions in Phase 11 from 1999 to 2003." with "OTR-affected facilities have already reduced NOx emissions in Phase 11 from 1999 to 2003."

263. On page 507, replace "Associated does not necessarily agree that the period used to determine SO_2 allowances must or should be the same base years as those used in determining SO_2 allowances." with "Associated does not necessarily agree that the period used to determine SO_2 allowances must or should be the same base years as those used in determining NOx allowances."

264. On page 510, replace "The treatment of SO_2 reductions differs from the setting of SO_2 budgets for CAIR, in part, because of this difference in starting points. There is no existing SO_2 regional annual cap, and no currency for emissions, on which sources have rely and continue to rely." with "The treatment of SO_2 reductions differs from the setting of NOx budgets for CAIR, in part, because of this difference in starting points. There is no existing NOx regional annual cap, and no currency for emissions, on which sources have rely and continue to rely."

265. On page 517, replace "If EPA decides to allocate the allowances to the State, MEUEC requests that the allocation of allowances be based on the same process that is used for determining SO_2 allowances, the highest heat input year during the 1999-2002 time frame." with "If EPA decides to allocate the allowances to the State, MEUEC requests that the allocation of allowances be based on the same process that is used for determining NOx allowances, the highest heat input year during the 1999-2002 time frame."

266. In sections X.B.1, X.B.2, and X.B.3 on pages 518 and 519, replace "SO2" with "NOx."

267. On page 519, replace

"EPA's proposed fuel neutral allocation of SO_2 allowances will penalize coal use and provide incentives for fuel switching to natural gas. Policies adopted in this rulemaking are likely to have as great or a greater impact on national energy policy and the cost and availability of electricity (and natural gas) to U.S. manufacturers as the proposed national energy legislation pending in the U.S. Congress.

EPA's stated preference to allocate SO_2 allowances based on a 'fuel neutral' output basis is highly contrary to sound energy and economic policy. EPA proposes to allocate SO_2 allowances based on the best of 3 years heat input from 1998-2002, which is appropriate, although newer units (2003 and 2004) are not provided with allowances and should be. EPA's proposal to allocate allowances on a fuel neutral basis will provide excess allowances to gas units while penalizing coal units by failing to recognize the very substantial differences between the fuels. SO_2 emission rates are generally lower and much cheaper to control in gas units than coal fired generators."

with

"EPA's proposed fuel neutral allocation of NOx allowances will penalize coal use and provide incentives for fuel switching to natural gas. Policies adopted in this rulemaking are likely to have

as great or a greater impact on national energy policy and the cost and availability of electricity (and natural gas) to U.S. manufacturers as the proposed national energy legislation pending in the U.S. Congress.

EPA's stated preference to allocate NOx allowances based on a 'fuel neutral' output basis is highly contrary to sound energy and economic policy. EPA proposes to allocate NOx allowances based on the best of 3 years heat input from 1998-2002, which is appropriate, although newer units (2003 and 2004) are not provided with allowances and should be. EPA's proposal to allocate allowances on a fuel neutral basis will provide excess allowances to gas units while penalizing coal units by failing to recognize the very substantial differences between the fuels. NOx emission rates are generally lower and much cheaper to control in gas units than coal fired generators."

268. On pages 520 and 521, replace "EPA in its final rule, is providing fuel adjustment factors for the setting of state SO2 budgets." with "EPA in its final rule, is providing fuel adjustment factors for the setting of state NOx budgets."

269. On page 520 in sections X.B.5 and X.B.6, replace "SO2" with "NOx".

270. On page 520, replace "**X.B.7 Comment:** SO_2 allocations" with "**X.B.7 Comment:** NOx allocations".

271. On pages 521 through 534, in sections X.B.8 through X.B.27, except where "SO2" appears as part fo the phrase "SO2 and NOx", replace "SO2" with "NOx".

272. On pages 535 through 538, in sections X.B.29 through X.B.32, replace "SO2" with "NOx".

273. On page 538, replace

"**X.B.33 Comment:**
Page 4621 Budget Determination

Comments are requested on whether the SO2 allowance budget should be based on prorated basis on average heat input during 1999-2002, pro-rated basis of emissions, or prorated on MW output.
We recommend that the NOx budget allowance be determined by the average of heat input basis. This would be consistent with the previous title IV SO_2 budget programs from the Agency.

Response:
EPA's SO_2 budgets are based on heat input, with fuel adjustment factors."

with

"**X.B.33 Comment:**

Page 4621 Budget Determination

Comments are requested on whether the NOx allowance budget should be based on prorated basis on average heat input during 1999-2002, pro-rated basis of emissions, or prorated on MW output.
We recommend that the NOx budget allowance be determined by the average of heat input basis. This would be consistent with the previous title IV SO_2 budget programs from the Agency.

Response:
EPA's NOx budgets are based on heat input, with fuel adjustment factors."

274. On pages 538 through 544, in sections X.B.34 through X.B.47, replace "SO2" with "NOx".

275. On page 544, replace "For the setting of State budgets EPA proposed in the SNPR (consistent with the January NPR) that State SO2 budgets be set based on heat input and State SO_2 budgets set based on share of title IV allowances. EPA decided to include only these preferred options to simplify the proposal (as there are almost an infinite number of alternative ways the State budgets can be determined) and to build upon an approach that is very similar to the approach successfully implemented under the Acid Rain Program. The numerous methods that could be used in setting SO_2 budgets, include input, output, emissions reductions, updating, permanent allocations, auctioning, utilizing fuel-adjustment factors, including emitters, subsets of emitters, all fossil, or all generators etc. There are a great many permutations of the above, too numerous to describe fully within this response." with "For the setting of State budgets EPA proposed in the SNPR (consistent with the January NPR) that State NOx budgets be set based on heat input and State SO_2 budgets set based on share of title IV allowances. EPA decided to include only these preferred options to simplify the proposal (as there are almost an infinite number of alternative ways the State budgets can be determined) and to build upon an approach that is very similar to the approach successfully implemented under the Acid Rain Program. The numerous methods that could be used in setting NOx budgets, include input, output, emissions reductions, updating, permanent allocations, auctioning, utilizing fuel-adjustment factors, including emitters, subsets of emitters, all fossil, or all generators etc. There are a great many permutations of the above, too numerous to describe fully within this response."

276. On pages 545 through 547, in sections X.B.49 through X.B.52, replace "SO2" with "NOx".

277. On page 547, replace "EPA should consider growth in heat-input in establishing statewide emission caps in the proposed IAQR.: In the proposed IAQR, EPA proposes that SO2 emissions limitations correspond to the sum of the affected States' historical annual heat input amounts, multiplied by an emission rate of 0.15 for 2010 and 0.125 for 2015. For the annual heat input values to use in this formula, EPA proposes to take the highest annual heat input for any year from 1999 through 2002 for each State in the

IAQR region. See 69 Fed. Reg. At 4586/1, 461813, 4621/1-2, & 4622/1. EPA does not propose to project heat input to the implementation years of 2010 and 2015 and does not propose to account for growth in the IAQR. In the NOx SIP Call, however, EPA accounted for growth in heat input. See 67 Fed. Reg. 21868 (May 1,2002). MOG submits that the NOx SIP Call and the IAQR, as well as the Acid Rain Program, need to be as consistent and complementary as possible. MOG submits that consistency among these programs will help facilitate compliance and minimize unnecessary regulatory burdens of complying with multiple programs intended to achieve the same or similar air quality benefits i.e., reduce emissions from utilities of $_{NOx\ and\ SO2}$. Indeed, EPA is proposing that the IAQR's annual SO_2 emission caps would supercede the NOx SIP Call ozone-season caps." with "EPA should consider growth in heat-input in establishing statewide emission caps in the proposed IAQR.: In the proposed IAQR, EPA proposes that NOx emissions limitations correspond to the sum of the affected States' historical annual heat input amounts, multiplied by an emission rate of 0.15 for 2010 and 0.125 for 2015. For the annual heat input values to use in this formula, EPA proposes to take the highest annual heat input for any year from 1999 through 2002 for each State in the IAQR region. See 69 Fed. Reg. At 4586/1, 461813, 4621/1-2, & 4622/1. EPA does not propose to project heat input to the implementation years of 2010 and 2015 and does not propose to account for growth in the IAQR. In the NOx SIP Call, however, EPA accounted for growth in heat input. See 67 Fed. Reg. 21868 (May 1,2002). MOG submits that the NOx SIP Call and the IAQR, as well as the Acid Rain Program, need to be as consistent and complementary as possible. MOG submits that consistency among these programs will help facilitate compliance and minimize unnecessary regulatory burdens of complying with multiple programs intended to achieve the same or similar air quality benefits i.e., reduce emissions from utilities of $_{NOx\ and\ SO2}$. Indeed, EPA is proposing that the IAQR's annual NOx emission caps would supercede the NOx SIP Call ozone-season caps."

278. On pages 549 through 552 in sections X.B.55 through X.B.60, replace "SO2" with "NOx".

279. On page 552, replace "Growth has not been considered in calculating state SO2 Budgets for 2010 and 2015." with "Growth has not been considered in calculating state NOx Budgets for 2010 and 2015."

280. On page 552, replace "Ameren over the next 5 years has projected thru its planning process an annual growth rate of approximately 1.3 percent in heat input. Assuming EPA's 0.15 lb SO2/mmbtu limit in 2010 and no growth Ameren effectively must meet 0.134 lb SO2/mmbtu." with "Ameren over the next 5 years has projected thru its planning process an annual growth rate of approximately 1.3 percent in heat input. Assuming EPA's 0.15 lb NOx/mmbtu limit in 2010 and no growth Ameren effectively must meet 0.134 lb NOx/mmbtu."

281. On page 552, replace

"If you conservatively assume 1.5 percent growth between 2010 and 2015, with the EPA proposed rate of 0.125 this equates to 0.087 lb SO2/mmbtu rate that Ameren must meet in 2015. This is a 30 percent emission penalty for growth.

If EPA thinks as it says in the original Clean Air Interstate Rule (CAIR) 'Furthermore, the majority of the growth (of heat input, or output) through 2010 is expected to be met by recently built natural gas units, with no SO_2 and very low SO_2 emission' (69 FR No. 20 January 30, 2004 page 4620), EPA has not looked at current and projected future natural gas prices."

with

"If you conservatively assume 1.5 percent growth between 2010 and 2015, with the EPA proposed rate of 0.125 this equates to 0.087 lb NOx/mmbtu rate that Ameren must meet in 2015. This is a 30 percent emission penalty for growth.

If EPA thinks as it says in the original Clean Air Interstate Rule (CAIR) 'Furthermore, the majority of the growth (of heat input, or output) through 2010 is expected to be met by recently built natural gas units, with no SO_2 and very low NOx emission' (69 FR No. 20 January 30, 2004 page 4620), EPA has not looked at current and projected future natural gas prices."

282. On page 553, replace

"EPA determined that the required SO_2 reductions are highly cost effective, taking into account future demand growth across the different States (see response above).

EPA recognizes that the effective SO_2 limit for the CAIR region in 2010 will be less than 0.15 lb per mmbtu, and lower still by 2015, as the entire region is expected to grow in population, economic output, electricity consumption, and consequently heat input. As the region grows, the effective rate (in lbs of emissions per mmbtu of heat input) corresponding to an effective emissions cap shrinks. (This is equally true of the SO_2 cap under the title IV program). However, through its IPM modeling, EPA specifically found the level of reductions corresponding to these lower rate limits to be highly cost effective.

EPA is not considering growth in its determination of individual State SO_2 budgets. State SO_2 budgets for the final rule are based on historical heat input data which is readily available and non-controversial."

with

"EPA determined that the required NOx reductions are highly cost effective, taking into account future demand growth across the different States (see response above).

EPA recognizes that the effective NOx limit for the CAIR region in 2010 will be less than 0.15 lb per mmbtu, and lower still by 2015, as the entire region is expected to grow in population, economic output, electricity consumption, and consequently heat input. As the region grows, the effective rate (in lbs of emissions per mmbtu of heat input) corresponding to an effective

emissions cap shrinks. (This is equally true of the NOx cap under the title IV program). However, through its IPM modeling, EPA specifically found the level of reductions corresponding to these lower rate limits to be highly cost effective.

EPA is not considering growth in its determination of individual State NOx budgets. State NOx budgets for the final rule are based on historical heat input data which is readily available and non-controversial."

283. On pages 553 through 554 in section X.B.62, replace "SO2" with "NOx".

284. On page 555 in section X.B.67, replace "SO2" with "NOx".

285. On page 556, in X.B.69, replace "SO2" with "NOx".

286. On page 557, replace "The plant data were also not used to calculate CAIR SO2 budgets since California is not included in the CAIR program." with 'The plant data were also not used to calculate CAIR NOx budgets since California is not included in the CAIR program."

287. On pages 558 through 573, in X.B.72 through X.B.87, replace "SO2" with "NOx".

288. On page 573, replace

"**X.B.88 Comment:**
We also want access to, and time to review and reconcile EPA's data on which it revised the NOx and SO2 budgets, as well as the technical analysis for EPA's proposed highly cost-effective threshold discussed above. A number of our member states have attempted to replicate this data and have been unsuccessful. If calculation errors exist, we request that a correction to the state SO_2 budgets be issued and that EPA republish the revised budgets, provide an analysis of the implications, and reopen the docket to accept comments on the revisions.

Response:
EPA issued a NODA with the corrections to the SO_2 State budgets, published in the FR on August 6, 2004, which was available for public comment"

with

"**X.B.88 Comment:**
We also want access to, and time to review and reconcile EPA's data on which it revised the NOx and SO2 budgets, as well as the technical analysis for EPA's proposed highly cost-effective threshold discussed above. A number of our member states have attempted to replicate this data and have been unsuccessful. If calculation errors exist, we request that a correction to the state NOx budgets be issued and that EPA republish the revised budgets, provide an analysis of the implications, and reopen the docket to accept comments on the revisions.

Response:

EPA issued a NODA with the corrections to the NOx State budgets, published in the FR on August 6, 2004, which was available for public comment"

289. On page 577, replace "EPA has set SO_2 budgets or caps collectively for States based on estimates of highly cost effective reductions from EGUs. The Agency then allocated budgets to States based on heat input. EPA has provided a mechanism for a state to adjust its SO_2 budget if it chooses to regulate non-EGUs in order to comply with CAIR. See further discussion in Section VII of the preamble." with "EPA has set NOx budgets or caps collectively for States based on estimates of highly cost effective reductions from EGUs. The Agency then allocated budgets to States based on heat input. EPA has provided a mechanism for a state to adjust its NOx budget if it chooses to regulate non-EGUs in order to comply with CAIR. See further discussion in Section VII of the preamble."

290. On page 579, replace "For SO_2, the proposal would set state budgets based uniformly on each state's highest annual heat input for Acid Rain Program units during 1999-2002 multiplied by an emission rate of 0.15 lb/mmBtu for 2010 and 0.125 lb/mmBtu for 2015. [[(p.5)]]" with "For NOx the proposal would set state budgets based uniformly on each state's highest annual heat input for Acid Rain Program units during 1999-2002 multiplied by an emission rate of 0.15 lb/mmBtu for 2010 and 0.125 lb/mmBtu for 2015. [[(p.5)]]"

291. On page 580, replace "For SO_2, the proposal would set state budgets based uniformly on each state's highest annual heat input for Acid Rain Program units during 1999-2002 multiplied by an emission rate of 0.15 lb/mmBtu for 2010 and 0.125 lb/mmBtu for 2015." with "For NOx, the proposal would set state budgets based uniformly on each state's highest annual heat input for Acid Rain Program units during 1999-2002 multiplied by an emission rate of 0.15 lb/mmBtu for 2010 and 0.125 lb/mmBtu for 2015."

292. On page 585, replace "One commenter stated that the 1996 emission inventory used as the basis for developing the 2001 Proxy inventory for Kansas for both non-EGU point sources and stationary area sources had overstated SO_2 emissions, which could have an impact on the State's significance determination." with"One commenter stated that the 1996 emission inventory used as the basis for developing the 2001 Proxy inventory for Kansas for both non-EGU point sources and stationary area sources had overstated NOx emissions, which could have an impact on the State's significance determination."

293. On page 586, replace "SO_2 emissions in Kansas for 2001 in this latest inventory" with "NOx emissions in Kansas for 2001 in this latest inventory".

294. O page 586, replace "These data showed that non-EGU emissions for 2001 were 26,787 tons for SO_2 and 12,610 tons for SO_2, as opposed to 66,176 tons SO_2 and 7,450 tons SO_2 as estimated for the NODA inventory. EGU emissions as presented in the 2001 NODA inventory were accurate. Due to the decrease in 2001 non-EGU SO_2 estimates, EPA revised the 2010 base projection for North Dakota and re-ran the contribution

modeling for North Dakota." with "These data showed that non-EGU emissions for 2001 were 26,787 tons for SO2 and 12,610 tons for NOx, as opposed to 66,176 tons SO2 and 7,450 tons NOx as estimated for the NODA inventory. EGU emissions as presented in the 2001 NODA inventory were accurate. Due to the decrease in 2001 non-EGU SO2 estimates, EPA revised the 2010 base projection for North Dakota and re-ran the contribution modeling for North Dakota."

295. On page 595, replace "However, for Massachusetts it is not the case that the differences in emissions are minor with respect to SO_2, as shown in Table IV 2. Massachusetts SO_2 emissions go from 27,800 tons in version 2.1 to 10,400 tons in version 2.1.6, a reduction of more than 62 percent. These significant reductions in SO_2 emissions are likely attributable to year-round SO_2 caps imposed on the largest EGUs in Massachusetts multi-pollutant power plant regulation, 310 CMR 7.29, adopted in 2001. Failure to model the reduced SO_2 emissions calls into question the validity of EPA's conclusion that Massachusetts is a significant contributor to nonattainment in New Haven and, if a lower threshold of 0.0l ug/m3, is adopted, New York as well." with "However, for Massachusetts it is not the case that the differences in emissions are minor with respect to NOx, as shown in Table IV 2. Massachusetts NOx emissions go from 27,800 tons in version 2.1 to 10,400 tons in version 2.1.6, a reduction of more than 62 percent. These significant reductions in NOx emissions are likely attributable to year-round NOx caps imposed on the largest EGUs in Massachusetts multi-pollutant power plant regulation, 310 CMR 7.29, adopted in 2001. Failure to model the reduced NOx emissions calls into question the validity of EPA's conclusion that Massachusetts is a significant contributor to nonattainment in New Haven and, if a lower threshold of 0.0l ug/m3, is adopted, New York as well."

296. On page 595, replace "It was not apparent if the analysis considered the reduced impact expected as a result of the Missouri State SO_2 SIP regulation, 10 CSR 10-6.350 as amended by the Missouri Air Conservation Commission in April of 2003. This rule will have a significant effect by decreasing Missouri SO_2 emissions and transport, both intrastate and interstate." with "It was not apparent if the analysis considered the reduced impact expected as a result of the Missouri State NOx SIP regulation, 10 CSR 10-6.350 as amended by the Missouri Air Conservation Commission in April of 2003. This rule will have a significant effect by decreasing Missouri NOx emissions and transport, both intrastate and interstate."

297. On page 596, replace "A summer SO_2 regulation for Missouri is included in EPA modeling of the power sector, and emissions reflect this." with "A summer NOx regulation for Missouri is included in EPA modeling of the power sector, and emissions reflect this."

298. On page 596, replace

"XI.B.3.
Comment:

Regarding the EPA emissions inventory and modeling used to establish the SO_2 cap, the commenter questions whether EPA used the Missouri State SO_2 SIP regulation, 10 CSR 10-6.350 as amended by the Missouri Air Conservation Commission in April of 2003. This regulation will have a significant effect by decreasing Missouri SO_2 emissions and transport, both intrastate and interstate. If the modeling was not adjusted to take into account the reduced emission levels expected as a result of State regulations, the commenter recommends adjusting the modeling accordingly to determine if the impact remains present.

Response:
Results from the Integrated Planning Model indicate that summer (ozone season) SO_2 are lower than the cap set forth in Missouri's State rule under the base case scenario, which includes existing federal and State rules and/or regulations. IPM does not include the Missouri State cap explicitly, but includes Missouri in the NOx SIP Call. EPA used emissions data that represent a conservative (lower) assessment of emissions in Missouri, which still impacted a downwind nonattainment area. The next update of IPM will include explicit modeling of Missouri's State rule."

with

"XI.B.3.
Comment:
Regarding the EPA emissions inventory and modeling used to establish the NOx cap, the commenter questions whether EPA used the Missouri State NOx SIP regulation, 10 CSR 10-6.350 as amended by the Missouri Air Conservation Commission in April of 2003. This regulation will have a significant effect by decreasing Missouri NOx emissions and transport, both intrastate and interstate. If the modeling was not adjusted to take into account the reduced emission levels expected as a result of State regulations, the commenter recommends adjusting the modeling accordingly to determine if the impact remains present.

Response:
Results from the Integrated Planning Model indicate that summer (ozone season) NOx are lower than the cap set forth in Missouri's State rule under the base case scenario, which includes existing federal and State rules and/or regulations. IPM does not include the Missouri State cap explicitly, but includes Missouri in the NOx SIP Call. EPA used emissions data that represent a conservative (lower) assessment of emissions in Missouri, which still impacted a downwind nonattainment area. The next update of IPM will include explicit modeling of Missouri's State rule."

299. On page 596, replace "The commenter provided a table depicting the percent differences between v21 and v216. The emissions used in the v21 modeling were 4.3 percent less for SO_2 and 3.4 percent greater for SO_2 than the new updated input database for the U.S. North Dakota's modeled SO_2 input database is 7.0 percent higher than the updated v216 input database and similarly 4.0 percent higher for SO_2." with "The commenter provided a table depicting the percent differences between v21 and v216. The emissions used in the v21 modeling were 4.3 percent less for SO_2 and 3.4 percent greater for NOx than the new updated input database for the U.S. North Dakota's modeled SO_2 input database is

7.0 percent higher than the updated v216 input database and similarly 4.0 percent higher for NOx."

300. On pages 598 and 611, replace

"Emissions of SO2 are expected to be 16,500 tons lower and emissions of SO2 are expected to be 5,900 tons lower than we modeled, according to a recent EPA analysis. These reductions translate into a 4.6 percent reduction in total statewide SO2 and a 4.3 percent reduction in total statewide SO2 emissions in Minnesota in 2010. In view of these reductions, we performed two analyses to estimate whether the lower emissions would drop Minnesota's downwind contribution below the PM2.5 significance threshold of 0.2 g/m3. EPA's zero-out modeling for Minnesota shows that Minnesota's maximum contribution is 0.21 g/m3 to Cook County, Illinois. Our analyses of the effects of the emissions changes on the maximum contribution are as follows:

Analysis 1: We reduced the maximum PM2.5 contribution by the larger of the percent reduction in NOx and SO2 emissions (i.e., the 4.6 percent reduction in SO2). The maximum PM2.5 contribution after making this adjustment is 0.2 g/m3.

Analysis 2: We reduced the sulfate and nitrate portions of the maximum PM2.5 contribution by the corresponding reductions in NOx and SO2 emissions. Specifically, the sulfate portion (including sulfate, ammonium, and particle-bound water) was reduced by the 4.3 percent reduction in SO2 emissions and the nitrate portion was reduced by the 4.6 percent reduction in SO2 emissions. We then recalculated the maximum contribution using these lower components. The result is that the adjusted maximum PM2.5 contribution is 0.2 g/m3."

with

"Emissions of NOx are expected to be 16,500 tons lower and emissions of SO2 are expected to be 5,900 tons lower than we modeled, according to a recent EPA analysis. These reductions translate into a 4.6 percent reduction in total statewide NOx and a 4.3 percent reduction in total statewide SO2 emissions in Minnesota in 2010. In view of these reductions, we performed two analyses to estimate whether the lower emissions would drop Minnesota's downwind contribution below the PM2.5 significance threshold of 0.2 g/m3. EPA's zero-out modeling for Minnesota shows that Minnesota's maximum contribution is 0.21 g/m3 to Cook County, Illinois. Our analyses of the effects of the emissions changes on the maximum contribution are as follows:

Analysis 1: We reduced the maximum PM2.5 contribution by the larger of the percent reduction in NOx and SO2 emissions (i.e., the 4.6 percent reduction in NOx). The maximum PM2.5 contribution after making this adjustment is 0.2 g/m3.

Analysis 2: We reduced the sulfate and nitrate portions of the maximum PM2.5 contribution by the corresponding reductions in SO2 and NOx emissions. Specifically, the sulfate portion (including sulfate, ammonium, and particle-bound water) was reduced by the 4.3 percent reduction in SO2 emissions and the nitrate portion was reduced by the 4.6 percent reduction in

NOx emissions. We then recalculated the maximum contribution using these lower components. The result is that the adjusted maximum PM2.5 contribution is 0.2 g/m3."

301. On page 600, replace "There is a discrepancy between the values listed in the preamble and the PM results for IAQR. On page 4579, the USEPA states 'this proposal would result in emissions reductions of 3.6 million tons SO_2 (40 percent) and 1.5 million tons SO_2 (49 percent) by 2010, and 3.7 million tons SO_2 (44 percent) and 1.8 million tons SO_2 (58 percent) by 2015.' These reductions appear to be based on the values on Table III-1 on page 4586 of the preamble. But the baseline emissions for 2010 and 2015 do not match the IPM results for IAQR, especially for SO_2. From the IPM results, the SO_2 baseline emissions for 2010 and 2015 are both 2.6 million tons, not the 3.1 and 3.2 million tons listed in the table." with "There is a discrepancy between the values listed in the preamble and the PM results for IAQR. On page 4579, the USEPA states 'this proposal would result in emissions reductions of 3.6 million tons SO2 (40 percent) and 1.5 million tons NOx (49 percent) by 2010, and 3.7 million tons SO2 (44 percent) and 1.8 million tons NOx (58 percent) by 2015.' These reductions appear to be based on the values on Table III-1 on page 4586 of the preamble. But the baseline emissions for 2010 and 2015 do not match the IPM results for IAQR, especially for NOx. From the IPM results, the NOx baseline emissions for 2010 and 2015 are both 2.6 million tons, not the 3.1 and 3.2 million tons listed in the table."

302. On page 601, replace "EPA projects that Florida's SO_2 emissions from EGUs in 2010 will be 59 percent less than in 2001 (without implementing the transport rule), and moreover, Florida's SO_2 budget in 2010 is 20,000 tons less than its projected emissions. This presumably means that Florida sources will not have to make any SO_2 reductions in 2010. Under the proposal, however, Florida will have to reduce its SO_2 emissions by 2015 by approximately 53,000 tons, and its SO_2 emissions by over 46,000 tons by 2010 and over 74,000 tons by 2015, to meet the EPA budgets." with "EPA projects that Florida's SO2 emissions from EGUs in 2010 will be 59 percent less than in 2001 (without implementing the transport rule), and moreover, Florida's SO2 budget in 2010 is 20,000 tons less than its projected emissions. This presumably means that Florida sources will not have to make any SO2 reductions in 2010. Under the proposal, however, Florida will have to reduce its SO2 emissions by 2015 by approximately 53,000 tons, and its NOx emissions by over 46,000 tons by 2010 and over 74,000 tons by 2015, to meet the EPA budgets."

303. On page 604, replace "'Specifically, the future base case scenarios include the effects of the LNDE, as proposed, the HDDE standards, the Tier 2 tailpipe standards, the NOx SIP Call as remanded (excludes controls in Georgia and Missouri), and Reasonably Available Control Techniques (RACT) for SO_2 in 1-hour ozone nonattainment areas.' The commenter disagrees with the assumption that no control on utility boilers in Missouri is the appropriate level for the future base cases. The statewide SO_2 trading rule (10 CSR 10-6.350) requires utility boilers greater than 25 MW to meet emission limits between 0.18 lb SO_2/MMBTU and 0.68 lb SO_2/MMBTU. This rule has been supplied as part of Missouri's State Implementation Plan and should be considered when developing these

inventories." with "'Specifically, the future base case scenarios include the effects of the LNDE, as proposed, the HDDE standards, the Tier 2 tailpipe standards, the NOx SIP Call as remanded (excludes controls in Georgia and Missouri), and Reasonably Available Control Techniques (RACT) for NOx in 1-hour ozone nonattainment areas.' The commenter disagrees with the assumption that no control on utility boilers in Missouri is the appropriate level for the future base cases. The statewide NOx trading rule (10 CSR 10-6.350) requires utility boilers greater than 25 MW to meet emission limits between 0.18 lb NOx/MMBTU and 0.68 lb NOx/MMBTU. This rule has been supplied as part of Missouri's State Implementation Plan and should be considered when developing these inventories."

304. On page 605, replace "Failure to address growth will result in 'effective' emission rates in 2010 and 2015 that would be less than the 0.15 lb/mmBtu and the 0.125 lb/mmBtu rates upon which the 2010 and 2015 SO_2 caps, respectively, have been based and upon which EPA's cost-effectiveness analysis is based." with "Failure to address growth will result in 'effective' emission rates in 2010 and 2015 that would be less than the 0.15 lb/mmBtu and the 0.125 lb/mmBtu rates upon which the 2010 and 2015 NOx caps, respectively, have been based and upon which EPA's cost-effectiveness analysis is based."

305. On page 608, replace "Very little coal capacity would be affected by the changes. In a few cases, NEEDS 2004 lists post-combustion SO_2 control equipment in error. However, EPA used appropriate SO_2 emission rates in its CAIR modeling for those units." with "Very little coal capacity would be affected by the changes. In a few cases, NEEDS 2004 lists post-combustion NOx control equipment in error. However, EPA used appropriate NOx emission rates in its CAIR modeling for those units"

306. On page 608, replace

"XI.B.17.
Comment:
Regarding the EPA emissions inventory and modeling used to establish the SO_2 cap, the commenter questions whether EPA used the Missouri SO_2 Rule, 10 CSR 10-6.350 as amended by the Missouri Air Conservation Commission in April of 2003. This rule will have a significant effect by decreasing Missouri SO_2 emissions and transport, both intrastate and interstate. Therefore, the commenter requests the EPA remodel based on the Missouri SO_2 Rule.

The commenter firmly believes that the environmental and health benefits of the TDF provision should be considered by EPA in the final IAQR Rule.

Response:
A summer SO_2 regulation for Missouri is included in EPA modeling of the power sector, and emissions reflect this. For additional information regarding the State rules and/or regulations

included in EPA modeling, see the documentation report for the Integrated Planning Model of 2004 in the final CAIR docket and on EPA's website."

with

"XI.B.17.
Comment:
Regarding the EPA emissions inventory and modeling used to establish the NOx cap, the commenter questions whether EPA used the Missouri NOx Rule, 10 CSR 10-6.350 as amended by the Missouri Air Conservation Commission in April of 2003. This rule will have a significant effect by decreasing Missouri NOx emissions and transport, both intrastate and interstate. Therefore, the commenter requests the EPA remodel based on the Missouri NOx Rule.

The commenter firmly believes that the environmental and health benefits of the TDF provision should be considered by EPA in the final IAQR Rule.

Response:
A summer NOx regulation for Missouri is included in EPA modeling of the power sector, and emissions reflect this. For additional information regarding the State rules and/or regulations included in EPA modeling, see the documentation report for the Integrated Planning Model of 2004 in the final CAIR docket and on EPA's website."

307. On page 610, replace

"EPA states that the information contained in the NEEDS database (reflected in Docket #OAR-2003- 0053-1712) is used as the basis for all modeling involving EGU's. It does not appear that this file accurately reflects emission rates for Wisconsin's SO_2 control program or consent decree emission rates for We-Energies. It is unclear how this database interacts with the IPM model in determining future control outcomes and emissions. An older version of an IPM file contains reference to the 'Wisconsin SO_2 Policy' but the assumptions are unclear and if this file was superseded by the NEEDS database file. Therefore the treatment of these parameters by the IPM model and resulting emissions is unclear. This same issue applies to Wisconsin's recently promulgated rule calling for EGU mercury reductions by 2010 and 2015. The control equipment used for mercury control is anticipated to be primary SO_2 and $PM_{2.5}$ control technologies.

The NEEDS database appears to contain errors. This is especially true for SO_2 emission rates contained in columns under 'Base Rate' and 'Policy Rate' which do not reflect any current of future anticipated conditions. For example, the Wisconsin Columbia 1 generating unit reflects a current emission rate under the 'Base Rate' for a selective catalytic reduction unit where one does not exist. Then the 'Policy Rate' reflects a relatively low efficiency selective catalytic reduction unit. There are also a significant number of sources where there are changes between Base and Policy rates that are not justified. However, it is unclear what emission rates are actually required for the SO_2 Base and Policy fields as the intent is not defined and therefore it is difficult to provide comment. The commenter submitted a table identifying requested

corrections to Base SO_2 emission rates in the NEEDS database coinciding with current conditions and Policy emission rates consistent with expected combustion control for major units. The attachment also identifies applicable SO_2 emission limits in 2007 under the Wisconsin rule NR 428.

There does not appear to be any outliers for the SO_2 emission rates contained in the NEEDS database. However, EPA needs to ensure that these emission rates are consistent with those contained in the acid rain compliance reports."

with

"EPA states that the information contained in the NEEDS database (reflected in Docket #OAR-2003- 0053-1712) is used as the basis for all modeling involving EGU's. It does not appear that this file accurately reflects emission rates for Wisconsin's NOx control program or consent decree emission rates for We-Energies. It is unclear how this database interacts with the IPM model in determining future control outcomes and emissions. An older version of an IPM file contains reference to the 'Wisconsin NOx Policy' but the assumptions are unclear and if this file was superseded by the NEEDS database file. Therefore the treatment of these parameters by the IPM model and resulting emissions is unclear. This same issue applies to Wisconsin's recently promulgated rule calling for EGU mercury reductions by 2010 and 2015. The control equipment used for mercury control is anticipated to be primary SO2 and PM2.5 control technologies.

The NEEDS database appears to contain errors. This is especially true for NOx emission rates contained in columns under 'Base Rate' and 'Policy Rate' which do not reflect any current of future anticipated conditions. For example, the Wisconsin Columbia 1 generating unit reflects a current emission rate under the 'Base Rate' for a selective catalytic reduction unit where one does not exist. Then the 'Policy Rate' reflects a relatively low efficiency selective catalytic reduction unit. There are also a significant number of sources where there are changes between Base and Policy rates that are not justified. However, it is unclear what emission rates are actually required for the NOx Base and Policy fields as the intent is not defined and therefore it is difficult to provide comment. The commenter submitted a table identifying requested corrections to Base NOx emission rates in the NEEDS database coinciding with current conditions and Policy emission rates consistent with expected combustion control for major units. The attachment also identifies applicable NOx emission limits in 2007 under the Wisconsin rule NR 428.

There does not appear to be any outliers for the SO2 emission rates contained in the NEEDS database. However, EPA needs to ensure that these emission rates are consistent with those contained in the acid rain compliance reports."

308. On page 610, replace "The SO_2 base rates and SO_2 policy rates are also explained in the Documentation Summary." with "The NOx base rates and NOx policy rates are also explained in the Documentation Summary."

309. On page 614, replace "They noted that EGU SO_2 emissions for Massachusetts dropped from 27,800 tons in the 2010 Base-1 to 10,400 tons in the 2010 Base-2; that EGU SO_2

emissions for North Dakota were 11,300 tons lower in 2010 Base-2; and that EGU SO_2 emissions for Iowa were 16,351 tons lower in 2010 Base-2." with "They noted that EGU NOx emissions for Massachusetts dropped from 27,800 tons in the 2010 Base-1 to 10,400 tons in the 2010 Base-2; that EGU SO2 emissions for North Dakota were 11,300 tons lower in 2010 Base-2; and that EGU SO2 emissions for Iowa were 16,351 tons lower in 2010 Base".

310. On page 614, replace "For Massachusetts, the 17,400 tons reduction in EGU SO_2 emissions between the 2010 Base-1 and Base-2 emissions represents a difference of 8 percent of total SO_2 emissions. For North Dakota, the 11,300 tons reduction in EGU SO_2 emissions between the 2010 Base-1 and Base-2 emissions represents a difference of 4 percent of total SO_2. For Iowa, 16,351 tons reduction in EGU SO_2 emissions between the 2010 Base-1 and Base-2 emissions represents a difference of 6 percent of total SO_2." with "For Massachusetts, the 17,400 tons reduction in EGU NOx emissions between the 2010 Base-1 and Base-2 emissions represents a difference of 8 percent of total NOx emissions. For North Dakota, the 11,300 tons reduction in EGU SO2 emissions between the 2010 Base-1 and Base-2 emissions represents a difference of 4 percent of total SO2. For Iowa, 16,351 tons reduction in EGU SO2 emissions between the 2010 Base-1 and Base-2 emissions represents a difference of 6 percent of total SO2".

311. On page 615, replace "SO_2/SCR" with "NOx/SCR".

312. On page 616, in section XI.C.7, replace "SO2" with "NOx'.

313. On page 625, replace "In addition, if 12 km modeling is used then plume-in-grid treatment for large point sources of SO_2 should be considered. Our modeling for CAIR is consistent with this guidance in that we are using 36 km resolution for the outer portions of the region; 12 km resolution covering nearly all urban areas in the domain; and a plume-in-grid algorithm for major SO_2 point sources in the region." with "In addition, if 12 km modeling is used then plume-in-grid treatment for large point sources of NOx should be considered. Our modeling for CAIR is consistent with this guidance in that we are using 36 km resolution for the outer portions of the region; 12 km resolution covering nearly all urban areas in the domain; and a plume-in-grid algorithm for major NOx point sources in the region."

314. On page 639, replace "One commenter stated while considering a large degree of uncertainty (over predictions of 3-5 times measured nitrate and nitric acid) the benefit of controlling SO_2 emissions on a regional basis for $PM_{2.5}$ is at best speculative in this analysis. These results should be viewed with extreme skepticism and are certainly not sufficient to justify SO_2 emission controls to offset disbenefits produced by SO_2 emission controls." with "One commenter stated while considering a large degree of uncertainty (over predictions of 3-5 times measured nitrate and nitric acid) the benefit of controlling NOx emissions on a regional basis for PM2.5 is at best speculative in this analysis. These results should be viewed with extreme skepticism and are certainly not sufficient to justify NOx emission controls to offset disbenefits produced by SO2 emission controls."

315. On page 640, replace “In addition, the EPA does not use the absolute predictions of the model in a direct manner for determining the benefits of SO_2 emissions reductions. Rather, the model predictions are used in a relative sense and are "grounded" in ambient measurements. Thus, in the case of nitrate, the impacts of SO_2 emissions reductions on nitrate are determined by applying the relative change in model-predicted nitrate between 2001 and the future year scenario to ambient nitrate concentrations. In view of the improved model performance for nitrate coupled with our approach to using the model predictions in a relative sense, we believe that our modeling provides a credible means of determining the impacts of SO_2 emissions reductions.” with “In addition, the EPA does not use the absolute predictions of the model in a direct manner for determining the benefits of NOx emissions reductions. Rather, the model predictions are used in a relative sense and are "grounded" in ambient measurements. Thus, in the case of nitrate, the impacts of NOx emissions reductions on nitrate are determined by applying the relative change in model-predicted nitrate between 2001 and the future year scenario to ambient nitrate concentrations. In view of the improved model performance for nitrate coupled with our approach to using the model predictions in a relative sense, we believe that our modeling provides a credible means of determining the impacts of NOx emissions reductions.”

316. On page 668, replace “for SO_2 and for SO_2" with “for NOx and for SO2".

317. On page 671, replace “The commenter also submitted an analysis which they claim shows that not using PinG overstates the amount of nitrate formed from a SO_2 plume.” with “The commenter also submitted an analysis which they claim shows that not using PinG overstates the amount of nitrate formed from a NOx plume.”

318. On page 673, replace “Finally, we note that EPA is not proposing to allow sources to bank early reduction credits (ERCs) for SO_2. Part of the basis for that proposal is that the generation of the estimated 3.7 million tons of SO_2 ERCs ‘would delay progress towards achieving both the annual SO_2 reduction goals .’ (P. 32,702 2d col.) We agree with this conclusion and support expedient achievement of the SO_2 budgets. However, this logic applies equally to the SO_2 program. The title IV program will generate about three times as many early reduction credits1 as the 3.7 million projected under a SO_2 program. EPA’s modeling shows that this will substantially delay compliance with the 2010 and 2015 budgets. Again, these credits should be retired more quickly such that their use does not ‘delay progress towards achieving both the annual [SO_2] reduction goals .’ Also, we note that the modeling for the CAIR SO_2 program (see Appendix A of the Air Quality Modeling Technical Support Document (Jan. 2004)) indicates that aggregate EGU emissions of SO_2 in the regulated States are projected to be over ten percent over budget in both 2010 and 2015. We ask EPA to explain these overages.” with “Finally, we note that EPA is not proposing to allow sources to bank early reduction credits (ERCs) for NOx. Part of the basis for that proposal is that the generation of the estimated 3.7 million tons of NOx ERCs ‘would delay progress towards achieving both the annual NOx reduction goals .’ (P. 32,702 2d col.) We agree with this conclusion and support expedient achievement of the NOx budgets. However, this logic applies equally to the

SO2 program. The title IV program will generate about three times as many early reduction credits1 as the 3.7 million projected under a NOx program. EPA's modeling shows that this will substantially delay compliance with the 2010 and 2015 budgets. Again, these credits should be retired more quickly such that their use does not 'delay progress towards achieving both the annual [SO2] reduction goals .' Also, we note that the modeling for the CAIR NOx program (see Appendix A of the Air Quality Modeling Technical Support Document (Jan. 2004)) indicates that aggregate EGU emissions of NOx in the regulated States are projected to be over ten percent over budget in both 2010 and 2015. We ask EPA to explain these overages."

319. On page 673, replace "The CAIR CSP is limited to 200,000 annual CAIR SO_2 allowances" with "The CAIR CSP is limited to 200,000 annual CAIR NOx allowances".

320. On pages 673 through 781, in Sections XIII.A, XIII.B, XIII.C, and XIII.D , replace "SO2" with "NOx" except where SO2 is clearly intended because it is either part of the phrase "NOx and SO2" or "SO2 and NOx," it is used in opposition or in contrast to NOx, it is used in the context of the Title IV acid rain program, it is used in the context of banked pre-2010 allowances, it is used in the context of trading ratios, or it used in the context of the Western Regional Air Partnership's Annex on SO2 emissions.

321. On pages 782 through 819 in Section XIII.F, replace every occurrence of "SO2" with "NOx" except for the passages for which an different revision is indicated in the next five items in this list.

322. On page 805, keep this passage as it appears in the original document: "We object to EPA's determination not to allow the use of output-based methodologies for allocation of allowances. Use of output as a basis for allocation rewards and incentives the use of low- or non-polluting clean energy technologies. Indeed, we believe that output-based methodologies should be used for distribution of allowances between States and should be an available option for allocating allowances among sources within a State. Accordingly, we join in the comments of other parties that States should be permitted to use output-based methodologies for allocation of SO_2 allowances, and that States should not be required to use the title IV allocations in order to participate in the trading program."

323. On page 809, replace "Regarding SO_2 allowance allocation periods and lead times, EPA wisely proposes to allow States substantial flexibility in deciding how to allocate CAIR SO_2 allowances to affected utilities. Not only is this necessary in light of the division of responsibilities among EPA and the States established by the Clean Air Act, but adheres to the NOx SIP Call model, which, as we mentioned above, largely survived litigation intact. We support EPA's proposed three-year lead time on proposing initial allocations. EPA bases this on its determination that at least 3 years is needed to enable adequate planning by affected utilities. The planning, design, financing, and installation of major controls systems like SCRs can easily take more than 3 years in TVA's experience. Planning certainty also supports allocating allowances for longer periods of time, if not permanently as Congress decided to do for the SO_2 allowance program in title IV.

Accordingly, we do not agree with EPA's negative comments about permanent allocations." with "Regarding NOx allowance allocation periods and lead times, EPA wisely proposes to allow States substantial flexibility in deciding how to allocate CAIR NOx allowances to affected utilities. Not only is this necessary in light of the division of responsibilities among EPA and the States established by the Clean Air Act, but adheres to the NOx Sip call model, which, as we mentioned above, largely survived litigation intact. We support EPA's proposed three-year lead time on proposing initial allocations. EPA bases this on its determination that at least three years is needed to enable adequate planning by affected utilities. The planning, design, financing, and installation of major controls systems like SCRs can easily take more than three years in TVA's experience. Planning certainty also supports allocating allowances for longer periods of time, if not permanently as Congress decided to do for the SO2 allowance program in title IV. Accordingly, we do not agree with EPA's negative comments about permanent allocations."

324. On page 814, keep this passage as it appears in the original document: "Provide a model rule for the trading program that supports allocation of allowances to all generators on an output basis with periodic updates. Support this approach by using the same basis for allocation of allowances to the States. This means including all affected units, new and old on the same basis, with periodic reallocation of the allowances based on output of the units (1bMWhr). The thermal output of CHP facilities should also be included in the allocation calculation. Allowances should be allocated on the same basis to all units, independent of fuel. An example rule with these features has been implemented successfully in the State of Massachusetts under the 22 State NO, Sip call.SO2 Allowance Retirement Ratios and Treatment of New Sources: Another issue is the selection and implementation of alternatives for managing SO2 allowance retirement ratios and entrance of sources without title IV allowances into the CAR trading program.".

325. On page 815, keep this passage as it appears in the original document: "A 30-year allocation consistent with the current Clean Air Act SO_2 allocation is appropriate and is necessary for utilities to determine the proper investment strategy."

326. On page 818, replace "EPA is giving States flexibility with regards to the allocations of the its SO_2 budgets to sources, including allocating allowances to CHPs. State do not have this flexibility for SO_2." with "EPA is giving States flexibility with regards to the allocations of the its NOx budgets to sources, including allocating allowances to CHPs. State do not have this flexibility for SO_2."

327. On page 820, replace "Also, a State should not be excluded from both trading programs if it decides to achieve some reductions of one pollutant from other than EGUs (i.e., if some SO_2 reductions are from non-EGUS, let the EGUs trade SO_2)." with "Also, a State should not be excluded from both trading programs if it decides to achieve some reductions of one pollutant from other than EGUs (i.e., if some NOx reductions are from non-EGUS, let the EGUs trade SO_2)."

328. On page 822, replace "In the final CAIR, States in the NOx SIP Call may choose to bring both NOx SIP Call trading EGUs and non-EGUs into the CAIR SO_2 ozone season cap and trade program, along with their banked allowances." with "In the final CAIR, States in the NOx SIP Call may choose to bring both NOx SIP Call trading EGUs and non-EGUs into the CAIR NOx ozone season cap and trade program, along with their banked allowances."

329. On page 823, replace "EPA did not receive response to the request for analysis of what the appropriate transfer ratio(s) should be nor did EPA receive any information that could be used to develop transfer ratios. (EPA did receive one comment that recommended the use a trading ratio of 2 SO_2 allowances for 1 SO_2 allowance. No supporting analysis was presented.) In the absence of a thorough exploration of interpollutant trading, in the context of the CAIR regionwide NOx and SO2 trading programs, EPA determined that CAIR should not include interpollutant trading mechanisms." with "EPA did not receive response to the request for analysis of what the appropriate transfer ratio(s) should be nor did EPA receive any information that could be used to develop transfer ratios. (EPA did receive one comment that recommended the use a trading ratio of 2 NOx allowances for 1 SO2 allowance. No supporting analysis was presented.) In the absence of a thorough exploration of interpollutant trading, in the context of the CAIR regionwide SO2 and NOx trading programs, EPA determined that CAIR should not include interpollutant trading mechanisms."

330. On page 824, replace "While NOx and SO2 will contribute varying amounts to ambient $PM_{2.5}$ across different sections of the proposed IAQR region, consideration should be given to including interpollutant trading provisions that allow SO_2 reduction credits to be traded for SO_2 allowances on a 2:1 basis." with "While NOx and SO2 will contribute varying amounts to ambient PM2.5 across different sections of the proposed IAQR region, consideration should be given to including interpollutant trading provisions that allow NOx reduction credits to be traded for SO2 allowances on a 2:1 basis."

331. On page 824, replace

"EPA believes it is not appropriate for the CAIR to allow interpollutant reductions nor allow annual SO_2 and annual SO_2 allowances to be used for compliance with annual NOx and SO2 allowance holding requirements of the model rules, respectively. This is due to these precursors having non-linear interactions in the formation of $PM_{2.5}$, making the determination of appropriate transfer ratios complex. Any uniform transfer ratio would have to be an average across the CAIR region, introducing significant uncertainty. No commenters responded to the EPA's request in the January 30, 2004, SNPR for information upon which to base a credible ratio. While this commenter recommended the use a trading ratio of 2 SO_2 allowances for 1 SO_2 allowance, no supporting analysis was presented."

with

"EPA believes it is not appropriate for the CAIR to allow interpollutant reductions nor allow annual SO2 and annual NOx allowances to be used for compliance with annual NOx and SO2

allowance holding requirements of the model rules, respectively. This is due to these precursors having non-linear interactions in the formation of PM2.5, making the determination of appropriate transfer ratios complex. Any uniform transfer ratio would have to be an average across the CAIR region, introducing significant uncertainty. No commenters responded to the EPA's request in the January 30, 2004, SNPR for information upon which to base a credible ratio. While this commenter recommended the use a trading ratio of 2 NOx allowances for 1 SO2 allowance, no supporting analysis was presented."

332. On page 825, replace "Without evidence that SO_2 relates to ozone, one supposes that the only ready possibility would be for the use of SO_2 allowances to satisfy SO_2 obligations." with "Without evidence that SO2 relates to ozone, one supposes that the only ready possibility would be for the use of NOx allowances to satisfy SO2 obligations."

333. On page 826, replace "For areas with more severe ozone problems than $PM_{2.5}$ problems, should sources that are only putting on SO_2 controls be able to exchange those for SO_2 allowances?" with "For areas with more severe ozone problems than PM2.5 problems, should sources that are only putting on SO2 controls be able to exchange those for NOx allowances?"

334. On page 826, replace "A restricted interpollutant trading mechanism that permits ozone and non-ozone SO_2 allowances to be used for SO_2 emissions will maximize compliance flexibility without sacrificing environmental objectives." with "A restricted interpollutant trading mechanism that permits ozone and non-ozone NOx allowances to be used for SO_2 emissions will maximize compliance flexibility without sacrificing environmental objectives."

335. On page 827, replace

"In the proposal, EPA raises questions about the potential of trading NOx and SO2 allowances interchangeably - and what might be an appropriate exchange ratio. It is not appropriate to trade allowances of NOx and SO2 interchangeably (FR Vol. 69 No. 20 pg. 4635). There is no precedent for the interchangeability of allowances for pollutants that have such distinct atmospheric interactions and individual environmental impacts. The only precedent for interchangeability of two pollutants is that of SO_2 for VOC reductions in SIP accounting.

This policy is based on the science: the interaction of NOx and VOC as precursors in ozone formation. The efficacy of reducing SO_2 or VOC varies depending on the preponderance of SO_2 or VOC emitting sources in a region - whether a region is SO_2 or VOC 'limited.' Depending on which pollutant is the limiting factor, reductions of one pollutant over another are preferable for reducing ozone levels."

with

"In the proposal, EPA raises questions about the potential of trading NOx and SO2 allowances interchangeably - and what might be an appropriate exchange ratio. It is not appropriate to trade

allowances of NOx and SO2 interchangeably (FR Vol. 69 No. 20 pg. 4635). There is no precedent for the interchangeability of allowances for pollutants that have such distinct atmospheric interactions and individual environmental impacts. The only precedent for interchangeability of two pollutants is that of NOx for VOC reductions in SIP accounting.

This policy is based on the science: the interaction of NOx and VOC as precursors in ozone formation. The efficacy of reducing NOx or VOC varies depending on the preponderance of NOx or VOC emitting sources in a region - whether a region is NOx or VOC 'limited.' Depending on which pollutant is the limiting factor, reductions of one pollutant over another are preferable for reducing ozone levels."

336. On page 827, replace

"Cinergy supports a provision for interpollutant trading that permits the use of ozone season and non-ozone season SO_2 allowances to pay for SO_2 emissions. A reduction in SO_2 during the non ozone season will help to reduce $PM_{2.5}$, just as SO_2 reductions would. A reduction in SO_2 emissions during the ozone season will render an added benefit over SO_2 reductions. SO_2 reductions will ameliorate problems with ozone and fine particulate. In contrast, SO_2 reductions would only address problems with fine particulate.

Response:
EPA believes it is not appropriate for the CAIR model rules to allow annual SO_2 allowances to be used for compliance with annual SO_2 allowance holding requirements."

with

"Cinergy supports a provision for interpollutant trading that permits the use of ozone season and non-ozone season NOx allowances to pay for SO2 emissions. A reduction in NOx during the non ozone season will help to reduce PM2.5, just as SO2 reductions would. A reduction in NOx emissions during the ozone season will render an added benefit over SO2 reductions. NOx reductions will ameliorate problems with ozone and fine particulate. In contrast, SO2 reductions would only address problems with fine particulate.

Response:
EPA believes it is not appropriate for the CAIR model rules to allow annual NOx allowances to be used for compliance with annual SO_2 allowance holding requirements."

337. On page 828, replace "Furthermore, because EPA has established ozone-season and annual emission caps to address separate environmental concerns – that is ozone and $PM_{2.5}$, respectively – it would not be appropriate to allow ozone-season SO_2 allowances to be used for compliance with the annual SO_2 requirements." with "Furthermore, because EPA has established ozone-season and annual emission caps to address separate environmental concerns – that is ozone and $PM_{2.5}$, respectively – it would not be appropriate to allow ozone-season NOx allowances to be used for compliance with the annual SO_2 requirements."

338. On pages 828 and 831, replace "Inter-pollutant trading of SO_2 for NOx should be considered to ease the burden of complying with Phase I, providing EPA can devise a scientifically valid basis for this approach." with "Inter-pollutant trading of SO_2 for SO_2 should be considered to ease the burden of complying with Phase I, providing EPA can devise a scientifically valid basis for this approach."

339. On page 829, replace "In the IAQR Preamble, EPA asks whether SO_2 allowances and SO_2 allowances should be interchangeable, and if so, at what ratio the two pollutants should be interchangeable. NCDAQ believes that inter-pollutant trading is not appropriate given the different importance that NOx and SO2 emissions have in the different regions of the country. For example, SO_2 is very important to fine particle formation in the Southeast, and SO_2 has a lesser role. However, in the Midwest, SO_2 plays a greater role in fine particle formation, especially in the winter." with "In the IAQR Preamble, EPA asks whether SO2 allowances and NOx allowances should be interchangeable, and if so, at what ratio the two pollutants should be interchangeable. NCDAQ believes that inter-pollutant trading is not appropriate given the different importance that SO2 and NOx emissions have in the different regions of the country. For example, SO2 is very important to fine particle formation in the Southeast, and NOx has a lesser role. However, in the Midwest, NOx plays a greater role in fine particle formation, especially in the winter."

340. On page 829, replace

"(EPA did receive one comment that recommended the use a trading ratio of 2 SO_2 allowances for 1 SO_2 allowance. No supporting analysis was presented.) In the absence of a thorough exploration of interpollutant trading, in the context of the CAIR regionwide NOx and SO2 trading programs, EPA determined that CAIR should not include interpollutant trading mechanisms.

Comment:
CE strongly encourages EPA to employ emissions trading as an integral part of the IAQR, and suggests that interpollutant (SO_2: SO_2) trading be incorporated to provide greater flexibility in achieving emission reductions."

with

"(EPA did receive one comment that recommended the use a trading ratio of 2 NOx allowances for 1 SO2 allowance. No supporting analysis was presented.) In the absence of a thorough exploration of interpollutant trading, in the context of the CAIR regionwide SO2 and NOx trading programs, EPA determined that CAIR should not include interpollutant trading mechanisms.

Comment:

CE strongly encourages EPA to employ emissions trading as an integral part of the IAQR, and suggests that interpollutant (SO2:NOx) trading be incorporated to provide greater flexibility in achieving emission reductions."

341. On page 829, replace "In fact, single pollutant trading is being applied successfully to address acid deposition associated with SO_2 and ozone caused by SO_2." with "In fact, single pollutant trading is being applied successfully to address acid deposition associated with SO_2 and ozone caused by NOx."

342. On page 831, replace "There is no need to trade between NOx and SO2 credits. If a facility can efficiently scrub SO_2, but not SO_2, then it should overcontrol SO_2, sell the credits, and use the windfall to buy SO_2 credits. SO_2 reductions will have benefits for PM, visibility, and acid precipitation. SO_2 reductions will have benefits for wintertime PM, wintertime haze, acid precipitation, excess nutrient loading in estuaries like the Chesapeake Bay, and summertime ozone. Trading between the two pollutants is not needed, and probably should not be allowed since their impacts do not overlap. In particular, the benefits of SO_2 reductions will largely be confined to PM, while the benefits of SO_2 reductions will be most prevalent in addressing summertime ozone." with "There is no need to trade between NOx and SO2 credits. If a facility can efficiently scrub SO2, but not NOx, then it should overcontrol SO2, sell the credits, and use the windfall to buy NOx credits. SO2 reductions will have benefits for PM, visibility, and acid precipitation. NOx reductions will have benefits for wintertime PM, wintertime haze, acid precipitation, excess nutrient loading in estuaries like the Chesapeake Bay, and summertime ozone. Trading between the two pollutants is not needed, and probably should not be allowed since their impacts do not overlap. In particular, the benefits of SO2 reductions will largely be confined to PM, while the benefits of NOx reductions will be most prevalent in addressing summertime ozone."

343. On page 832, replace "Inter-pollutant trading would undermine efforts to make the SO_2 reductions necessary to attain the ozone standard." with "Inter-pollutant trading would undermine efforts to make the NOx reductions necessary to attain the ozone standard."

344. On page 832, replace

"Page 4635, Column 3, Line 16 - 'While the proposed cap and trade programs would control SO_2 to address $PM_{2.5}$ and SO_2 for both $PM_{2.5}$ and ozone, EPA solicits comment on whether SO_2 allowances and SO_2 allowances should be interchangeable, and if so, at what ratio should the allowance be interchangeable.'

This concept does not follow logically. If an area has a downwind ozone problem, why would that area need upwind SO_2 reductions in place of SO_2 reductions?"

with

"Page 4635, Column 3, Line 16 - 'While the proposed cap and trade programs would control SO2 to address PM2.5 and NOx for both PM2.5 and ozone, EPA solicits comment on whether

SO2 allowances and NOx allowances should be interchangeable, and if so, at what ratio should the allowance be interchangeable.'

This concept does not follow logically. If an area has a downwind ozone problem, why would that area need upwind SO2 reductions in place of NOx reductions?"

345. On page 833, replace "The situation is further complicated by the unusually large surplus of banked SO_2 allowances, the significant cost differential between the market prices of NOx and SO2 allowances, the difficulty in attempting to quantify appropriate inter-pollutant use ratios, and our concerns about the program's ability to achieve significant ozone season SO_2 reductions." with "The situation is further complicated by the unusually large surplus of banked SO_2 allowances, the significant cost differential between the market prices of NOx and SO2 allowances, the difficulty in attempting to quantify appropriate inter-pollutant use ratios, and our concerns about the program's ability to achieve significant ozone season NOx reductions."

346. On page 834, replace "Empire supports the incorporation of the Mercury MACT in the IAQ Rule. Such incorporation creates a cap and trade program for SO2, S02, and Hg." with "Empire supports the incorporation of the Mercury MACT in the IAQ Rule. Such incorporation creates a cap and trade program for NOx, S02, and Hg."

347. On page 835, replace "We are deeply concerned that such a proposal would result in greater reductions of SO_2 and lesser reductions of SO_2 because of the relative costs of control between these two pollutants. It is very likely that we would see greater SO_2 reductions, but only at the cost of increased (or foregone reductions) SO_2 emissions. Although these concerns might be partially mitigated by establishing a trading ratio based on the cost of allowances (e.g., 7.2 SO_2 allowances per SO_2 allowance, based on respective costs of $276 and $2000 dollars per allowance) doing so would still ignore the very different health and environmental impacts of these pollutants." with "We are deeply concerned that such a proposal would result in greater reductions of SO2 and lesser reductions of NOx because of the relative costs of control between these two pollutants. It is very likely that we would see greater SO2 reductions, but only at the cost of increased (or foregone reductions) NOx emissions. Although these concerns might be partially mitigated by establishing a trading ratio based on the cost of allowances (e.g., 7.2 SO2 allowances per NOx allowance, based on respective costs of $276 and $2000 dollars per allowance) doing so would still ignore the very different health and environmental impacts of these pollutants."

348. On page 835, replace "While we support and encourage the development of multi-pollutant based unit or facility performance standards, that can be sensitive to both the planned/installed technology and specified fuel type, our inability to technically justify SO_2 reductions as a surrogate for SO_2 reductions in the context of ozone control plans leads us to discourage EPA from complicating the State emission (allocation) budgets and pollutant-specific reduction targets through any formalized NOx/SOX trading." with "While we support and encourage the development of multi-pollutant based unit or facility performance standards, that can be sensitive to both the planned/installed

technology and specified fuel type, our inability to technically justify SO2 reductions as a surrogate for NOx reductions in the context of ozone control plans leads us to discourage EPA from complicating the State emission (allocation) budgets and pollutant-specific reduction targets through any formalized NOx/SOX trading."

349. On page 836, replace "Inter-pollutant Trading: EPA is soliciting comment on whether NOx and SO2 allowances should be interchangeable, and if so, at what ratio. We see a few problems with making them interchangeable. First, because SO_2 emissions dominate the $PM_{2.5}$ problem in the winter and SO_2 emissions dominate in the summer in our nonattainment area, replacing SO_2 reductions with SO_2 reductions would be detrimental in the summer, and replacing SO_2 reductions with SO_2 reductions would be detrimental during the winter. Second, because SO_2 has no impact on ozone formation, swapping SO_2 with SO_2 reductions would hinder ozone attainment. Third, allowing interchangeability would create uncertainty in achieving the Phase I and Phase II emission reduction targets. Because the jurisdictions will be incorporating these targets into their SIP modeling, any uncertainty in the ability to achieve these targets will create uncertainty in the attainment demonstrations. Fourth, it is impossible to design an optimal trading ratio. For $PM_{2.5}$, if only the molecular weights of (NH4) 2SO4 and NH4NO3 are considered, the ratio would be 132/80, which equals 1.6 tons of SO_2 for every 1 ton of SO_2. But this is an unacceptable simplification, and will not work because it ignores complicated factors such as reaction rates and seasonal dominance. Fifth, EPA should also consider that any exchange ratio would necessitate allowing fractions of tons to be traded, which would make accounting more difficult. Sixth, and most importantly, there is no exchange ratio of SO_2 to SO_2 that would be defensible for ozone attainment. For all of these reasons, Delaware cannot support the interchangeability of $_{NOx\ and\ SO2}$." with "Inter-pollutant Trading: EPA is soliciting comment on whether SO2 and NOx allowances should be interchangeable, and if so, at what ratio. We see a few problems with making them interchangeable. First, because NOx emissions dominate the PM2.5 problem in the winter and SO2 emissions dominate in the summer in our non-attainment area, replacing SO2 reductions with NOx reductions would be detrimental in the summer, and replacing NOx reductions with SO2 reductions would be detrimental during the winter. Second, because SO2 has no impact on ozone formation, swapping NOx with SO2 reductions would hinder ozone attainment. Third, allowing interchangeability would create uncertainty in achieving the Phase I and Phase II emission reduction targets. Because the jurisdictions will be incorporating these targets into their SIP modeling, any uncertainty in the ability to achieve these targets will create uncertainty in the attainment demonstrations. Fourth, it is impossible to design an optimal trading ratio. For PM2.5, if only the molecular weights of (NH4) 2SO4 and NH4NO3 are considered, the ratio would be 132/80, which equals 1.6 tons of SO2 for every 1 ton of NOx. But this is an unacceptable simplification, and will not work because it ignores complicated factors such as reaction rates and seasonal dominance. Fifth, EPA should also consider that any exchange ratio would necessitate allowing fractions of tons to be traded, which would make accounting more difficult. Sixth, and most importantly, there is no exchange ratio of NOx to SO2 that would be defensible for ozone attainment. For all of these reasons, Delaware cannot support the interchangeability of NOx and SO2."

350. On page 836, replace "Michigan strongly disagrees with the prospect of allowing trading of a SO_2 allowance for a SO_2 allowance." with "Michigan strongly disagrees with the prospect of allowing trading of a SO_2 allowance for a NOx allowance."

351. On page 837, replace "If non-EGUs are allowed to opt-in to the program, would they need to secure NOx and SO2 allowances or just SO_2?" with "If non-EGUs are allowed to opt-in to the program, would they need to secure NOx and SO2 allowances or just NOx?"

352. On page 835, replace "While we support and encourage the development of multi-pollutant based unit or facility performance standards, that can be sensitive to both the planned/installed technology and specified fuel type, our inability to technically justify reductions as a surrogate for reductions in the context of ozone control plans leads us to discourage EPA from complicating the State emission (allocation) budgets and pollutant-specific reduction targets through any formalized SO_2/SOX trading." with "While we support and encourage the development of multi-pollutant based unit or facility performance standards, that can be sensitive to both the planned/installed technology and specified fuel type, our inability to technically justify SO_2 reductions as a surrogate for NOx reductions in the context of ozone control plans leads us to discourage EPA from complicating the State emission (allocation) budgets and pollutant-specific reduction targets through any formalized NOx/SOX trading."

353. On page 837, replace "Separating the opt-in provisions into a SO_2 annual opt-in program and SO_2 opt-in program would also mesh with the current ozone season opt-in under the NOx SIP" with "Separating the opt-in provisions into a NOx annual opt-in program and SO_2 opt-in program would also mesh with the current ozone season opt-in under the NOx SIP"

354. On page 838, replace "We are subject to the NOx budget trading program, as owner both of an EGU and of other affected units, and deal in SO_2 allowances. We believe that the pattern of the proposed regulations, imposing new requirements only on EGUs, is a good one. However, we also believe that there should be no difficulty in allowing non-EGU sources now subject to NOx SIP Call requirements to participate voluntarily in the new general SO_2 emissions trading program. The only change in the existing requirements that would be needed would be for the source to agree to be subject to its existing obligations on a year-round rather than summertime-only basis. It could use allowances from the system to meet its existing requirements and could sell any excess allowances for use throughout the system. Denying such an opportunity would appear to limit all such sources to a significantly smaller SO_2 allowance market. It is true that any sources not making that choice would be limited to a still smaller allowance market. On the other hand, such an effect would operate as an incentive for such sources to undertake year-round control." with "We are subject to the NOx Budget Trading Program, as owner both of an EGU and of other affected units, and deal in NOx allowances. We believe that the pattern of the proposed regulations, imposing new requirements only on EGUs, is a good one. However, we also believe that there should be no difficulty in allowing non-EGU sources now subject to NOx SIP Call requirements to participate voluntarily in the new general NOx emissions trading program. The only change in the existing requirements

that would be needed would be for the source to agree to be subject to its existing obligations on a year-round rather than summertime-only basis. It could use allowances from the system to meet its existing requirements and could sell any excess allowances for use throughout the system. Denying such an opportunity would appear to limit all such sources to a significantly smaller NOx allowance market. It is true that any sources not making that choice would be limited to a still smaller allowance market. On the other hand, such an effect would operate as an incentive for such sources to undertake year-round control."

355. On page 838, replace "Overall, we envision that opting in to CAIR would be a voluntary action where the facility would commit to meet the stringent emission levels for 2015 and in 2010 would extend current SO_2 controls to a year around vs. the current SO_2 SIP seasonal basis" with "Overall, we envision that opting in to CAIR would be a voluntary action where the facility would commit to meet the stringent emission levels for 2015 and in 2010 would extend current NOx controls to a year around vs. the current NOx SIP seasonal basis.

356. On page 839, replace "Emissions from 2010 to 2015 would be capped based on current requirements and emission levels and tracked via Part 75 CEMS. By 2010, SO_2 controls, would be required to be year around instead of seasonal as they are under the SO_2 SIP." with "Emissions from 2010 to 2015 would be capped based on current requirements and emission levels and tracked via Part 75 CEMS. By 2010, NOx controls, would be required to be year around instead of seasonal as they are under the NOx SIP."

357. On page 839, replace "Further reductions in 2010 (beyond the transient from summer only SO_2 control to year-round control) would not be required for sources voluntarily opting into the CAIR rule since 2010 reductions would tend to force installation of add on controls to units scheduled for replacement prior to 2015, thus removing the greatest incentive for sources to voluntarily opt-in." with "Further reductions in 2010 (beyond the transient from summer only NOx control to year-round control) would not be required for sources voluntarily opting into the CAIR rule since 2010 reductions would tend to force installation of add on controls to units scheduled for replacement prior to 2015, thus removing the greatest incentive for sources to voluntarily opt-in."

358. On page 839, replace "Our specific recommendation for 2015 emission levels for opt in facilities such as ours (non-EGU, Co-Generation, not-for-profit) are SOX limits requiring either 90 percent removal or 0.6 lb/MMBtu, and SO_2 limits of 0.15#/MMBtu." with "Our specific recommendation for 2015 emission levels for opt in facilities such as ours (non-EGU, Co-Generation, not-for-profit) are SOX limits requiring either 90 percent removal or 0.6 lb/MMBtu, and NOx limits of 0.15#/MMBtu."

359. On page 840, replace "Under the alternative approach, required SO_2 levels are lesser of 90 percent removal from a baseline (which is consistent with this commenter's suggestion) or the most stringent emissions rate applicable to the unit. For SO_2, the required rate is the lesser of 0.15 lb/mmbtu or the most stringent emissions rate

applicable to the unit." with "Under the alternative approach, required SO_2 levels are lesser of 90 percent removal from a baseline (which is consistent with this commenter's suggestion) or the most stringent emissions rate applicable to the unit. For NOx, the required rate is the lesser of 0.15 lb/mmbtu or the most stringent emissions rate applicable to the unit."

360. On page 842, replace "Opt-in units with add-on SO_2 controls will have their baseline SO_2 emission rate based on periods when the unit has add-on SO_2 controls. This requirement is necessary to prevent the incentive for deactivating add-on SO_2 controls in order to establish a higher baseline SO_2 emission rate and thus obtain more allowances." with "Opt-in units with add-on NOx controls will have their baseline NOx emission rate based on periods when the unit has add-on NOx controls. This requirement is necessary to prevent the incentive for deactivating add-on NOx controls in order to establish a higher baseline NOx emission rate and thus obtain more allowances."

361. On page 846, replace "Furthermore, requiring Part 75 monitoring for SO_2 emissions on gas-fired boilers and heaters is not cost-justified when periodic or parametric monitoring would be sufficient." with "Furthermore, requiring Part 75 monitoring for NOx emissions on gas-fired boilers and heaters is not cost-justified when periodic or parametric monitoring would be sufficient."

362. On page 849, replace "Implementation of the Interstate Transport Rule Should Not Result In the Imposition of Any New Monitoring, Recordkeeping or Reporting Requirements for ARIPPA Facilities.: Although ARIPPA facilities consistently have been among the lowest emitters of SO2 in the electric power generation industry, ARIPPA facilities have been required to expend significant resources to implement changes to monitoring programs under both the MOU and the NOx SIP Call. These efforts have secured no additional environmental benefits, and simply have resulted in the disadvantageous treatment of the cleanest sources. In light of these efforts, there is no justification for imposing new requirements or material changes in the SO2 monitoring, recordkeeping and reporting programs that have been established pursuant to the NOx SIP Call. Further, to the extent that, notwithstanding the issues discussed in Section 1 above, the Agency determines that the SO2 provisions of the Interstate Transport Rule will apply to ARIPPA facilities, ARIPPA requests that its member facilities not be required to incur the significant costs associated with Part 75 continuous emission monitoring systems for SO2. Existing continuous emission monitoring systems utilized by non-Part 75 sources to monitor SO2 provide reliable and accurate data upon which the Agency can rely, not only for compliance purposes but also for source participation in interstate trading programs." with "Implementation of the Interstate Transport Rule Should Not Result In the Imposition of Any New Monitoring, Recordkeeping or Reporting Requirements for ARIPPA Facilities.: Although ARIPPA facilities consistently have been among the lowest emitters of NOx in the electric power generation industry, ARIPPA facilities have been required to expend significant resources to implement changes to monitoring programs under both the MOU and the NOx SIP Call. These efforts have secured no additional environmental benefits, and simply have resulted in the disadvantageous treatment of the cleanest sources. In light of

these efforts, there is no justification for imposing new requirements or material changes in the NOx monitoring, recordkeeping and reporting programs that have been established pursuant to the NOx SIP Call. Further, to the extent that, notwithstanding the issues discussed in Section 1 above, the Agency determines that the SO2 provisions of the Interstate Transport Rule will apply to ARIPPA facilities, ARIPPA requests that its member facilities not be required to incur the significant costs associated with Part 75 continuous emission monitoring systems for SO2. Existing continuous emission monitoring systems utilized by non-Part 75 sources to monitor SO2 provide reliable and accurate data upon which the Agency can rely, not only for compliance purposes but also for source participation in interstate trading programs."

363. On pages 851 through 865, in section XIII.L, replace "SO2" with "NOx" except where "SO2" and "NOx" are used together, except retain the last two sentences of the section which read "EPA also notes that currently new units that are covered for SO_2 under title IV do not receive an allocation of allowances under title. These need to buy allowances to cover their all of their emissions, either on the market or through the EPA auction."

364. On page 867, replace "EPA estimates that approximately 1/3 of the SO_2 reductions, and 30 percent of the SO_2 reductions, required under today's rule come from plants between 25 MW and 250 MWe. See preamble for further discussion" with "EPA estimates that approximately 1/3 of the SO_2 reductions, and 30 percent of the NOx reductions, required under today's rule come from plants between 25 MW and 250 MWe. See preamble for further discussion".

365. On page 872, replace "EPA also used this 25MW de minimis threshold to exclude Small Generators from its previous interstate transport rule, the SO2 Budget Trading Rule." with "EPA also used this 25MW de minimis threshold to exclude Small Generators from its previous interstate transport rule, the NOx Budget Trading Rule."

366. On page 876, replace "Gas-fired CHP units are a very small part of the total SO;, and SO_2 inventory and account for only 3 percent of the nation's electric generating capacity." with "Gas-fired CHP units are a very small part of the total NOx and SO_2 inventory and account for only 3 percent of the nation's electric generating capacity."

367. On page 877, replace "Options for meeting SO_2 allowances would also essentially be reduced for non-EGUs to just one: unit-specific controls." with "Options for meeting NOx allowances would also essentially be reduced for non-EGUs to just one: unit-specific controls."

368. On page 880, replace "The commenter recommends that the exemption apply to units that emit less than 25 tons per year of SO_2, like the exemption in the NOx SIP Call." with "The commenter recommends that the exemption apply to units that emit less than 25 tons per year of NOx, like the exemption in the NOx SIP Call."

369. On page 880, replace "The NOx SIP Call allows States to exempt gas- or oil-fired sources emitting less than 25 tons of SO_2 in any ozone season from the requirements of

the NOx SIP Call trading program provided that the source take a permit condition that ensures that SO_2 emissions in the ozone season not exceed 25 tons." with "The NOx SIP Call allows States to exempt gas- or oil-fired sources emitting less than 25 tons of NOx in any ozone season from the requirements of the NOx SIP Call trading program provided that the source take a permit condition that ensures that NOx emissions in the ozone season not exceed 25 tons."

370. On page 884, replace "EPA believes that the requirements for demonstrating reductions from non-EGUs are comparable to requirements for EGUs. See further discussion in Section VII of today's preamble. EPA has considered all comments relating to ozone season SO_2 concerns including preservation of the SIP Call. In response, EPA has decided to create a CAIR ozone season SO_2 program for States determined to have a significant impact on ozone nonattainment in other States. Use of this program will satisfy the requirements of the NOx SIP Call for EGUs. To address the non-EGUs that are part of the NOx SIP Call trading program, the Agency has decided to allow States to include these sources in the CAIR ozone season SO_2 program at SIP Call emissions levels." with "EPA believes that the requirements for demonstrating reductions from non-EGUs are comparable to requirements for EGUs. See further discussion in Section VII of today's preamble. EPA has considered all comments relating to ozone season NOx concerns including preservation of the SIP Call. In response, EPA has decided to create a CAIR ozone season NOx program for States determined to have a significant impact on ozone nonattainment in other States. Use of this program will satisfy the requirements of the NOx SIP Call for EGUs. To address the non-EGUs that are part of the NOx SIP Call trading program, the Agency has decided to allow States to include these sources in the CAIR ozone season NOx program at SIP Call emissions levels."

371. On page 884, replace

"**Comment:**
In the SNPR, Connecticut was the only State identified as contributing significantly for only ozone. The proposed rule requires Connecticut to control SO_2 emissions in the ozone season. The proposal allows the State to choose to control SO_2 year-round and participate in the EPA-administered SO_2 program if the State desires. The State commented that its specific options are: continue to participate in the NOx SIP Call program, controlling both EGUs and non-EGUs in the ozone season only; have a State run intrastate trading program that meets NOx SIP Call and CAIR requirements; or allow Connecticut EGUs to participate in the annual CAIR SO_2 trading program. The State questioned which currencies would be fungible in the various trading programs (i.e., ozone season and annual or State-only and regional). There is also a question of whether choosing to participate in the annual program for EGU controls would in fact achieve adequate emission reductions for the ozone problem.

Response:
In response to comments, EPA has changed its approach to SO_2 control requirements in States identified as contributing significantly for ozone, like Connecticut. EPA has decided that it is appropriate to have both ozone season and annual SO_2 limits. Ozone season limits apply in States that are significant for ozone; annual limits apply in States that are significant for $PM_{2.5}$;

and both ozone season and annual limits apply in States that are significant for ozone and $PM_{2.5}$. Connecticut may choose to participate in the ozone season NOx trading program. Ozone season SO_2 allowances are not fungible with annual SO_2 allowances. If the State chooses to allow its EGUs to participate in the ozone season program, banked allowances (pre-2010 NOx SIP Call allowances) can be brought into the new program. (See today's preamble for additional discussion of these issues.)"

with

"**Comment:**
In the SNPR, Connecticut was the only State identified as contributing significantly for only ozone. The proposed rule requires Connecticut to control NOx emissions in the ozone season. The proposal allows the State to choose to control NOx year-round and participate in the EPA-administered NOx program if the State desires. The State commented that its specific options are: continue to participate in the NOx SIP Call program, controlling both EGUs and non-EGUs in the ozone season only; have a State run intrastate trading program that meets NOx SIP Call and CAIR requirements; or allow Connecticut EGUs to participate in the annual CAIR NOx trading program. The State questioned which currencies would be fungible in the various trading programs (i.e., ozone season and annual or State-only and regional). There is also a question of whether choosing to participate in the annual program for EGU controls would in fact achieve adequate emission reductions for the ozone problem.

Response:
In response to comments, EPA has changed its approach to NOx control requirements in States identified as contributing significantly for ozone, like Connecticut. EPA has decided that it is appropriate to have both ozone season and annual NOx limits. Ozone season limits apply in States that are significant for ozone; annual limits apply in States that are significant for PM2.5; and both ozone season and annual limits apply in States that are significant for ozone and PM2.5. Connecticut may choose to participate in the ozone season NOx trading program. Ozone season NOx allowances are not fungible with annual NOx allowances. If the State chooses to allow its EGUs to participate in the ozone season program, banked allowances (pre-2010 NOx SIP Call allowances) can be brought into the new program. (See today's preamble for additional discussion of these issues.)"

372. On page 885, replace "EPA has determined that a CAIR ozone season SO_2 program is necessary and agrees that States should have the option to include the non-EGUs in the NOx SIP Call trading program in the new CAIR ozone season program at their NOx SIP Call emissions levels." with "EPA has determined that a CAIR ozone season NOx program is necessary and agrees that States should have the option to include the non-EGUs in the NOx SIP Call trading program in the new CAIR ozone season program at their NOx SIP Call emissions levels."

373. On pages 887 and 889, replace "EPA also believes that it is important to provide for a smooth transition between the existing NOx and SO2 allowance trading markets and the requirements of the CAIR. For that reason, the CAIR allows both SO_2 and NOx SIP

Call allowances to be used for compliance in the CAIR SO_2 and CAIR ozone-season SO_2 markets. EPA is committed to assisting States as they develop their CAIR mandated SIP revisions." with "EPA also believes that it is important to provide for a smooth transition between the existing SO2 and NOx allowance trading markets and the requirements of the CAIR. For that reason, the CAIR allows both SO2 and NOx SIP Call allowances to be used for compliance in the CAIR SO2 and CAIR ozone-season NOx markets. EPA is committed to assisting States as they develop their CAIR mandated SIP revisions."

374. On page 888, replace "EPA is committed to assisting States as they develop their CAIR mandated SIP revisions, including key elements such as the SO_2 allocation methodology. Where there needs to be consistency and strong provisions that everyone must follow for the sake of the program, EPA is making a strong effort for that to occur." with "EPA is committed to assisting States as they develop their CAIR mandated SIP revisions, including key elements such as the NOx allocation methodology. Where there needs to be consistency and strong provisions that everyone must follow for the sake of the program, EPA is making a strong effort for that to occur."

375. On page 891, replace "The commenter strongly supports EPA's effort to provide flexibility by permitting the use for compliance of any allowances from other units at the same source. We urge EPA to ensure that the concept is also extended to the SO_2 rules." with "The commenter strongly supports EPA's effort to provide flexibility by permitting the use for compliance of any allowances from other units at the same source. We urge EPA to ensure that the concept is also extended to the NOx rules."

376. On page 893, replace "While these entities may see benefits associated with the CAIR SO_2 trading market (particularly given the substantial risk of a deteriorating NOx SIP Call market upon the departure of all 'affected EGUs'), few will likely be willing to also take on substantial SO_2 reduction projects to meet the CAIR SO_2 obligations." with "While these entities may see benefits associated with the CAIR NOx trading market (particularly given the substantial risk of a deteriorating NOx SIP Call market upon the departure of all 'affected EGUs'), few will likely be willing to also take on substantial SO_2 reduction projects to meet the CAIR SO_2 obligations."

377. On page 895, replace

"**Comment:**
The commenter feels that they have already made substantial SO_2 reductions, preliminary analysis indicates that the proposed EPA levels will be more stringent and may require further controls to be installed. Even though the commenter plans to reduce emissions at its existing units to off-set emissions from a new unit, the reductions being proposed by EPA and later allocated by the State, from preliminary analysis, appear to be more stringent than those contemplated by the commenter.

Response:

EPA acknowledges that many sources have already made SO_2 emission reductions in response to regional and State and local programs. The CAIR is intended to provide additional regionwide reductions necessary to assist States in attaining the $PM_{2.5}$ and ozone standards. As a result, some sources are expected to install emission control equipment."

with

"**Comment:**
The commenter feels that they have already made substantial NOx reductions, preliminary analysis indicates that the proposed EPA levels will be more stringent and may require further controls to be installed. Even though the commenter plans to reduce emissions at its existing units to off-set emissions from a new unit, the reductions being proposed by EPA and later allocated by the State, from preliminary analysis, appear to be more stringent than those contemplated by the commenter.

Response:
EPA acknowledges that many sources have already made NOx emission reductions in response to regional and State and local programs. The CAIR is intended to provide additional regionwide reductions necessary to assist States in attaining the PM2.5 and ozone standards. As a result, some sources are expected to install emission control equipment."

378. On page 895, replace "The creation of safety valves of $2,000 for SO_2 and $3,000 for SO_2 is an effective means for improving the economic efficiency of attainment plans." with "The creation of safety valves of $2,000 for SO_2 and $3,000 for NOx is an effective means for improving the economic efficiency of attainment plans."

On page 900, replace "The commenter will not be in a position to support any form of SO_2 for SOX and opposite trading until all ambient plans are developed that provide firm attainment budgets for the respective pollutants." with "The commenter will not be in a position to support any form of SO_2 for NOx and opposite trading until all ambient plans are developed that provide firm attainment budgets for the respective pollutants."

379. On page 895, replace "This will provide immediate SO_2 and mercury reduction benefits" with "This will provide immediate NOx and mercury reduction benefits"

380. On page 903, replace "For example, what if a cap decrease compelled installation of more scrubbers or more SO_2 post combustion control equipment?" with "For example, what if a cap decrease compelled installation of more scrubbers or more NOx post combustion control equipment?"

381. On page 904, replace "While most States have the authority to adopt more stringent SO_2/ SO_2 emission limits, or can require compliance with their own trading programs established for purposes that are different from the Acid Rain program, it is not clear what authority States would have to require retirement of allowances issued by EPA under title IV." with "While most States have the authority to adopt more stringent NOx/

SO_2 emission limits, or can require compliance with their own trading programs established for purposes that are different from the Acid Rain program, it is not clear what authority States would have to require retirement of allowances issued by EPA under title IV."

382. On page 905, replace "The SO_2 Budgets for each State are developed from information from electric power plants. This may not be sufficient if non-EGUs are incorporated into the allowance and trading programs. In States with large concentrations of industrial sources of SO_2, such as petroleum refiners, chemical manufacturers, or smelters, these sources may be as large as EGUs for SO_2 emissions in those sections of their States. The SO_2 Budgets should have a mechanism to increase the budget if non-EGU sources are incorporated by regulation." with "The NOx Budgets for each State are developed from information from electric power plants. This may not be sufficient if non-EGUs are incorporated into the allowance and trading programs. In States with large concentrations of industrial sources of NOx, such as petroleum refiners, chemical manufacturers, or smelters, these sources may be as large as EGUs for NOx emissions in those sections of their States. The NOx Budgets should have a mechanism to increase the budget if non-EGU sources are incorporated by regulation."

383. On page 906, replace "If EPA continues to utilize an emissions allowance trading/banking control approach as the primary means to provide incentive to early reductions and system retrofit flexibility, it also needs to backstop that flexibility by adopting a strong set of unit-based (or facility-based) performance standards for an integrated set of air pollutants (including SO_2, SOx, HAPs, and other ambient PM-2.5 precursors) in addition to the State level budgets." with "If EPA continues to utilize an emissions allowance trading/banking control approach as the primary means to provide incentive to early reductions and system retrofit flexibility, it also needs to backstop that flexibility by adopting a strong set of unit-based (or facility-based) performance standards for an integrated set of air pollutants (including SO_2, NOx, HAPs, and other ambient PM-2.5 precursors) in addition to the State level budgets."

384. On page 908, replace "SO_2 emissions from power plants also continued a downward trend, measuring 4.5 million tons in 2002, a 13 percent reduction from 2000 and a 33 percent decline from 1990 emissions levels" with "NOx emissions from power plants also continued a downward trend, measuring 4.5 million tons in 2002, a 13 percent reduction from 2000 and a 33 percent decline from 1990 emissions levels".

385. On page 910, replace "As a precedent, the 'progressive flow control' provisions of the regional SO_2 control program in the northeast and mid-Atlantic States, has been proven to be an effective tool to provide affected sources with the flexibility inherent in banking, yet defines limits on banking that protects the timing and reduction level of the program." with "As a precedent, the 'progressive flow control' provisions of the regional NOx control program in the northeast and mid-Atlantic States, has been proven to be an effective tool to provide affected sources with the flexibility inherent in banking, yet defines limits on banking that protects the timing and reduction level of the program."

386. On page 913, replace "By creating Phase III of the Acid Rain program, the overall further success is improved by continuing the existing national market based system for SO_2 and the creation of a national market based system for SO_2 that would bring benefits to all states, as opposed to only those states east of a certain modeling domain." with "By creating Phase III of the Acid Rain program, the overall further success is improved by continuing the existing national market based system for SO_2 and the creation of a national market based system for NOx that would bring benefits to all states, as opposed to only those states east of a certain modeling domain."

387. On page 914, replace "Title IV provides for a rate-based SO_2 reduction program and does not provide for a SO_2 allowance system." with "Title IV provides for a rate-based NOx reduction program and does not provide for a NOx allowance system."

388. On page 916, replace "CAA §182(f) extends this requirement to SO_2 sources as well." with "CAA §182(f) extends this requirement to NOx sources as well."

389. On page 919, replace "The airshed for SO2 deposition in the Chesapeake Bay watershed is approximately 400,000 square miles, extending west to Indiana and Kentucky and south to South Carolina" with "The airshed for NOx deposition in the Chesapeake Bay watershed is approximately 400,000 square miles, extending west to Indiana and Kentucky and south to South Carolina".

390. On page 931, replace "In particular, EPA should identify the potential impact of increased fertilizer prices resulting from increased demand for NH3 and urea for control of SO_2 emissions and the potential impact of increased natural gas prices on fertilizer costs." with "In particular, EPA should identify the potential impact of increased fertilizer prices resulting from increased demand for NH3 and urea for control of NOx emissions and the potential impact of increased natural gas prices on fertilizer costs.

391. On pages 932 and 934, replace "Two other points should be considered when evaluating the impact of CAIR, specifically, and cap-and-trade programs more generally, on small entities. First, under CAIR, the cap-and-trade program is designed such that States determine how SO2 allowances are to be allocated across units. EPA notes in the RIA that a State that wishes to mitigate the impact of the rule on small entities might choose to allocate SO2 allowances in a manner that is favorable to small entities. Under the FIP, EPA could also require reductions and allocate SO2 allowances in a manner that would limit impacts on small entities. Finally, the use of cap-and-trade in general will limit impacts on small entities relative to a less flexible command-and-control program. "with "Two other points should be considered when evaluating the impact of CAIR, specifically, and cap-and-trade programs more generally, on small entities. First, under CAIR, the cap-and-trade program is designed such that States determine how SO2 allowances are to be allocated across units. EPA notes in the RIA that a State that wishes to mitigate the impact of the rule on small entities might choose to allocate SO2 allowances in a manner that is favorable to small entities. Under the FIP, EPA could also require reductions and allocate SO2 allowances in a manner that would limit impacts on small entities. Finally, the use of cap-and-trade in general will limit impacts on small

entities relative to a less flexible command-and-control program. “Two other points should be considered when evaluating the impact of CAIR, specifically, and cap-and-trade programs more generally, on small entities. First, under CAIR, the cap-and-trade program is designed such that States determine how $_{NOx}$ allowances are to be allocated across units. EPA notes in the RIA that a State that wishes to mitigate the impact of the rule on small entities might choose to allocate $_{NOx}$ allowances in a manner that is favorable to small entities. Under the FIP, EPA could also require reductions and allocate $_{NOx}$ allowances in a manner that would limit impacts on small entities. Finally, the use of cap-and-trade in general will limit impacts on small entities relative to a less flexible command-and-control program.”

392. On page 958, replace “g. Specific details for determining SO_2 allowances” with “g. Specific details for determining NOx allowances”.

393. On page 971, replace “Cinergy urges EPA to request comment in the SNPR on an alternative approach to integrate the IAQR SO_2 trading program with the NOx SIP Call program, including an ERC program, to transition to one program in 2015.” with “Cinergy urges EPA to request comment in the SNPR on an alternative approach to integrate the IAQR NOx trading program with the NOx SIP Call program, including an ERC program, to transition to one program in 2015.”

394. On page 977, replace “Although EPA does provide some background information and a narrative description of the general features of the contemplated emissions cap and trade program for SO_2 as well as some description of how EPA intends to redirect use of the Title IV allowance trading system, the IAQR Preamble is devoid of any proposed regulatory text.” with “Although EPA does provide some background information and a narrative description of the general features of the contemplated emissions cap and trade program for NOx as well as some description of how EPA intends to redirect use of the Title IV allowance trading system, the IAQR Preamble is devoid of any proposed regulatory text.”

395. On page 988, replace “A number of sensitivity runs were completed considering SO_2-only reductions and combined SO_2/VOC reductions at 10 and 25 percent. Only manmade emissions within the 2010 projected nonattainment areas were reduced. A plot of these areas is shown in Figure 1.1. No modeling runs were completed for VOC only runs, but as a first approximation it is possible to compare the model response from the SO_2 only runs against the SO_2/VOC runs to get an estimate of the signal from VOC only controls.” with “A number of sensitivity runs were completed considering NOx-only reductions and combined NOx/VOC reductions at 10 and 25 percent. Only manmade emissions within the 2010 projected nonattainment areas were reduced. A plot of these areas is shown in Figure 1.1. No modeling runs were completed for VOC only runs, but as a first approximation it is possible to compare the model response from the NOx only runs against the NOx/VOC runs to get an estimate of the signal from VOC only controls.”

396. On pages 987 through 990, in the **ATTACHMENT TO XI.A.14,** replace “SO2" with “NOx”

INTRODUCTION

The purpose of this document is to provide EPA's responses to public comments received on the proposed rule, "Rule to Reduce Interstate Transport of Fine Particulate Matter and Ozone (Clean Air Interstate Rule)" (eDocket Number OAR-2003-0053). A summary of these public comments and EPA's responses follows.

I. BASIS FOR RULE

I. A. EPA does not have proper authority for the rule

EPA's view that states have an obligation under §110(a)(1) to make submissions to meet the requirements of §110(a)(2)(D) is discussed in detail in the preamble to the final rule. The comments and responses below elaborate further on this point and address related issues.

I.A.1.
Comment:

A number of commenters asserted that under the statutory provisions of the CAA, EPA's promulgation of the CAIR is premature. Specifically, the commenters argued that the statutory deadline for submission of SIPs by states in §110(a)(1) does not apply to the requirements of §110(a)(2), including the requirement that such SIPs must comply with §110(a)(2)(D). According to the commenters, because the §110(a)(1) SIPs need not address the interstate pollution issues in accordance with §110(a)(2)(D), the states have no current obligation to prevent such interstate pollution and, by extension, there is no basis for the CAIR at this time.

Response:

The commenters correctly noted that EPA's position is that §110(a)(1) requires states to submit a SIP within 3 years after the promulgation or revision of a NAAQS. Thus, in the case of the new $PM_{2.5}$ and 8-hour ozone NAAQS promulgated by EPA in 1997, the statute by its terms required submission of a new SIP for each pollutant by the year 2000. The commenters implicitly conceded that §110(a)(1) requires the submission of new SIPs within 3 years, but took issue with what such SIPs must contain.

EPA's view is that the explicit provisions of the statute require SIPs for new or revised NAAQS to address the specific items listed in §110(a)(2), as applicable, including the so called "good neighbor" provision of §110(a)(2)(D).[1] That provision requires states to submit SIPs that prohibit, inter alia, emissions that "contribute significantly to nonattainment [of the NAAQS] in ...any other State." EPA believes that this is the most direct and plain reading of CAA §110(a), consistent both with the language and the structure of the provision. Even if the interaction of §110(a)(1) and §110(a)(2) were ambiguous on this point, EPA believes that its reading of the statute is the most reasonable and consistent with the purposes of the provision.

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[1] As discussed further below, EPA recognizes that there are some elements of §110(a)(2) that are not applicable in all SIP revisions, e.g., a SIP submission to revise a single rule that is an element of an existing SIP, and EPA recognizes that there are some elements of the §110(a)(2) list that by their nature may require longer than three years to develop, e.g., all of the specific rules in nonattainment areas required by §110(a)(2)(I). The latter items, EPA believes may properly be subject to the different timing requirements of §172.

Instead, the commenters attempted to construct an argument that there is a bright line distinction between what the statute requires for a new SIP pursuant to §110(a)(1) and what the statute requires pursuant to §110(a)(2). In the words of one of the commenters, EPA allegedly "ignores the description in §110(a)(1) of *which types* of SIP revisions must be submitted within three years after NAAQS promulgation" (emphasis in the original). According to this commenter, §110(a)(1) requires only the submission of a SIP which will "address implementation, maintenance, and enforcement of the air quality standards within the geographic borders of the state submitting the SIP." The commenters' view is evidently that the §110(a)(2)(D) requirement that a SIP must contain provisions to prevent nonattainment in "any other State" is completely separate from the requirements of §110(a)(1), and therefore not required within the 3-year time period prescribed by the statute.

EPA disagrees with the commenters' argument for several reasons. Most importantly, the explicit provisions of §110(a) do not provide the demarcation or distinction that the commenters advocate. Section 110(a), under a single rubric, sets forth the general timing and content requirements for SIPs. In §110(a)(1), the statute explicitly obligates states to adopt and submit to EPA a new SIP for any new or revised NAAQS. Such submission must: "provide[] for implementation, maintenance, and enforcement of such primary standard in each air quality control region (or portion thereof) within such State." The statute has a comparable requirement that the state must meet for the secondary standard as well. The commenters placed great emphasis upon the fact that §110(a)(1) refers to compliance with the NAAQS "within" the state. EPA is puzzled by this argument because, as the commenters would presumably concede, each state in its SIP can only provide for implementation, maintenance, and enforcement of the NAAQS "within" its own state borders. States are not empowered under the CAA to regulate sources in other states, only those over which they have legal authority. Hence the need for EPA to oversee the interaction of SIPs from the various states pursuant to §110(a)(2)(D) and for EPA to provide, as necessary, regional tools such as the CAIR in order to help address emissions from other states over which the state submitting the SIP could not exert legal authority.[2] EPA believes that the commenters misconstrue §110(a)(1) to require a SIP that addresses only the instate impacts of sources "within" the state.

Similarly, the commenters' argument that §110(a)(2)(D) requires plan components not required in §110(a)(1) does not comport with the explicit language of the statute. Rather than a separate unrelated list, EPA contends that §110(a)(2) provides components required for the SIPs submitted pursuant to §110(a)(1). The provision explicitly states that "*each* implementation plan submitted under this chapter" has to be adopted by the state after notice and comment and that "*each* such plan shall" meet the requirements listed in §110(a)(2) (emphasis added). In other words, §110(a)(1) provides the timing for the new plans and §110(a)(2) provides the criteria for

[2] There are other mechanisms available to states under the CAA not directly relevant to here, such as §126 which provides that a state may petition EPA to assess the interstate impacts of one or more stationary sources in another state, or §184 which provides that states in the Northeast Ozone Transport Region may collectively seek to reduce emissions from other states that make up the OTR.

the new plans. EPA believes that the nature or extent of what is necessary to meet each criterion of §110(a)(2) can differ based upon the facts and circumstances and timing of the submission, but the obligation exists nonetheless. For example, what one state might need to submit to meet §110(a)(2) could differ from what another state might need to submit; what a state might need to submit at one point in time to meet §110(a)(2)(D) could be very different from what it might need to submit at a later point in time where there is data and analysis to indicate that there is interstate transport contrary to §110(a)(2)(D).

Again, the commenters claimed that §110(a)(1) and §110(a)(2) distinguish between sources located within and outside of the state, here arguing that because §110(a)(2)(D) requires that the SIP account for nonattainment in other states, that the §110(a)(2)(D) requirement must apply to some plan other than that required in §110(a)(1). According to the commenters, "§110(a)(2)(D) does not address plans to provide for implementation, maintenance, or enforcement of the NAAQS within the state submitting the SIP, i.e., the plans required by §110(a)(1)." EPA believes that this erroneous interpretation of the statute ignores the fundamental nature of the SIP process. A state, through its SIP, can only directly regulate those sources that are within its boundaries and thus are subject to its legal control. The "state submitting the SIP" could only be submitting a plan that would regulate its own instate sources. The state in question simply could not submit a plan that would implement, maintain, or enforce the NAAQS in another state. The very theory behind §110(a)(2)(D) is that a state may need to submit a SIP regulating its own instate sources more, or sooner, or differently, *because* of the effects that the emissions from such instate source have in other states. Rather than providing unrelated requirements as suggested by the commenters, EPA contends that §110(a)(2) provides a list of requirements that the §110(a)(1) SIP must address, as appropriate. What is necessary to meet those requirements might differ from state to state, or might vary over time for the same state, but §110(a) still imposes an obligation that states must meet, as appropriate.

The commenters attempted to bolster their argument that Congress did not intend for the §110(a)(1) SIPs to meet the requirements of §110(a)(2) by asserting that Congress did not explicitly say so and did not provide an explicit cross reference to §110(a)(2) within §110(a)(1). EPA does not believe that clearly related statutory requirements must always cross reference one another, even within the subsections of a single section applicable to the same subject, and especially when the plain wording and obvious context of the provisions indicates that relationship. Here, the juxtaposition of the obligation to submit the plan and the list of requirements for the plan is sufficient. Moreover, EPA contends that the explicit statement that the §110(a)(1) plan must provide for the "implementation, maintenance, and enforcement" of both the primary and secondary standards clearly indicates that Congress did not intend the SIPs submitted by the states under §110(a)(1) to be blank sheets of paper. To the contrary, EPA believes that the §110(a)(1) language indicates an expectation by Congress that the states would take the appropriate steps within 3 years and that the plans submitted by the states would require something substantive, if possible, based on the facts and circumstances at the time of the submission. Given this context, it makes sense that Congress would provide more specifics as to the contents of the §110(a)(1) plans in the next succeeding provision of the statute, §110(a)(2), and that Congress would word the latter provision to provide that "each" implementation plan would be expected to meet the applicable requirements set forth in §110(a)(2). Finally, given

that Congress was sufficiently aware of the impact of interstate transport of pollutants to provide an explicit obligation that states must have SIPs provisions that would prevent such impacts in §110(a)(2)(D), it seems unlikely that Congress would intend §110(a)(1) to require a SIP that could ignore that requirement. Section 110(a)(2) provides that SIPs must include provisions to prevent interstate transport. If §110(a)(1) were read to permit states to submit SIPs that fail to address that requirement, especially in the face of extensive data and analysis that clearly shows such transport, states would potentially submit new SIPs that the Agency would be obligated to disapprove. EPA believes it unlikely that Congress would in one provision, §110(a)(1), require states to submit SIPs that could ignore interstate transport, and in the next provision, §110(a)(2), in effect require EPA to reject those SIPs. In addition to causing confusion and the waste of state and EPA resources, such a reading would undermine the objective of states and EPA working together to insure expeditious attainment of the NAAQS.

The commenters argued that had Congress meant states to comply with §110(a)(2)(D) within the three years provided by §110(a)(1), it would have explicitly so provided. As discussed above, EPA believes that Congress has in fact done so. To use the logic of the commenters, however, had Congress intended to mandate that states could ignore interstate transport considerations until some more distant future date, it could have expressly so provided. Section 110(a)(2)(D) does not provide that states may meet it some specific number of years after promulgation of a NAAQS, nor does it contain an explicit reference to §172(b). In fact, it is another subsection, §110(a)(2)(I), that specifically references the requirements of subpart D which includes §172(b). This would suggest that Congress was capable of providing explicitly for the schedule of §172(b) for state submission of elements in §110(a)(2), when it intended to do so. Given the overarching statutory directive that states should achieve the NAAQS as expeditiously as practicable, and that Congress provided at least a presumptive initial attainment date of no later than 5 years after designation in §172(a)(2)(A), EPA believes it unlikely that Congress was mandating delay in compliance with §110(a)(2)(D), even where available data and analysis makes early action to address interstate transport possible.

As an additional argument, commenters asserted that the §110(a)(1) SIPs due within 3 years could not be intended to address §110(a)(2)(D) requirements because there are other items on the list in §110(a)(2) that states could not possibly accomplish within this timeframe. To illustrate this claim, the commenters pointed to §110(a)(2)(C), which requires the SIP to include a permit program for stationary sources in attainment and nonattainment areas, and to §110(a)(2)(I) which requires the SIP to meet the applicable requirements of subpart D, i.e., the plan requirements for nonattainment areas. By the commenters' logic, the SIP required by §110(a)(1) within 3 years could not possibly require any of the elements in §110(a)(2), because some of those elements would take longer to develop and because the timing for those plan elements should be governed not by §110(a)(1), but rather by the timing provisions of §172. Section 172(b) provides that EPA may provide up to 3 years after formal designation of nonattainment areas for states to submit nonattainment area SIPs. Section 107(d) provides that EPA may designate nonattainment areas up to 3 years after the promulgation of a NAAQS. The commenter argued that because at least two of the items in §110(a)(2) are things that could take as long as six years after creation of a new NAAQS to complete, it necessarily follows that no

items on the §110(a)(2) list could be required in the 3 years provided for submission of the plan contemplated by §110(a)(1).

The commenters previously conceded that the §110(a)(1) SIPs must provide for the "implementation, maintenance, and enforcement" of the primary and secondary NAAQS "within" the state, yet in this context argue that the §110(a)(2) requirements could not possibly be applicable to the §110(a)(1) plan. It is unclear how the commenters believe that a state could at the same time develop a plan that provides for "implementation, maintenance, and enforcement" of the NAAQS, yet need not include a single item off the §110(a)(2) list. EPA believes that the absolutist position taken by the commenters is inappropriate. Clearly, §110(a)(2) contains a list of requirements against which EPA must judge state SIP submission. This same list applies not only to the §110(a)(1) SIP submitted by a state within 3 years after a new or revised SIP, but also to other SIP submissions that a state may from time to time submit for EPA approval to revise its existing applicable SIP. Thus, there are some items on the §110(a)(2) list that may not be applicable for every SIP revision submitted for EPA approval. For example, a state submitting a state rule that restricts VOC emissions from a single type of consumer product need not submit an ozone SIP revision that would meet each and every item on the list in §110(a)(2), such as §110(a)(2)(C) pertaining to permits for new or modified stationary sources. A preexisting SIP that EPA had already approved for a given nonattainment area and pollutant would typically already have complied with the other provisions of §110(a)(2), thereby negating an obligation to review the complete SIP for each minor SIP revision. It does not follow, however, that none of the items on the §110(a)(2) list apply to the SIP submitted by states pursuant to §110(a)(1). A new SIP, for a new or revised NAAQS, is a much broader endeavor that does require consideration of more items on the §110(a)(2) list. In particular, given what EPA and the states know with respect to the interstate transport of $PM_{2.5}$ and ozone, new plan provisions complying with §110(a)(2)(D) are not just relevant, but vital.

EPA agrees that there are certain provisions of §110(a)(2) that are governed not by the timing requirements of §110(a)(1), but instead by the timing requirements of §172. The statute draws a distinction between those requirements that relate merely to nonattainment air quality and those that relate to designated nonattainment areas. As noted above, §110(a)(1) provides that states must submit a SIP providing "for the implementation, maintenance, and enforcement" of the NAAQS in each area of the state with 3 years (or within a shorter period if prescribed by the Administrator) following promulgation of a new or revised NAAQS. Section 110(a)(2) sets forth the applicable elements of a SIP. These provisions apply to all areas within the state, regardless of designation. Section 110(a)(2)(D)(I) explicitly provides that the state must address all "emissions activity within the state" and does not limit that requirement only to nonattainment areas. By contrast, §172(b) establishes a SIP submission schedule for nonattainment areas. Section 172(b) provides, inter alia:

> At the time the Administrator promulgates the designation of any area as nonattainment with respect to a [NAAQS] under section 107(d)..., the Administrator shall establish a schedule according to which the State containing such areas shall submit a plan or plan revision ... meeting the applicable requirements of subsection (c) of this section and section 110(a)(2) ... Such schedule shall at a minimum, include a dates or dates,

> extending no later than 3 years from the date of the nonattainment designation, for the submission of a plan or plan revision ... meeting the applicable requirements of subsection (c) of this section and section 110(a)(2).

Section 172(b) thus establishes the schedule for submissions due with respect to nonattainment areas under section 172(c) and 110(a)(2).

Moreover, §172(c) SIP submissions apply *only* to areas designated as nonattainment. Specifically, §172(b) provides that "[a]t the time" EPA designates an area as nonattainment, EPA shall set a schedule "according to which the State containing such area shall submit" a SIP. Section 171(2) provides further clarification by providing that for purposes of part D of title I of the CAA, "[t]he term 'nonattainment area" means, for any air pollutant, an area which is designated 'nonattainment' with respect to that pollutant within the meaning of section 107(d)." By its terms then, section 172 does not apply to areas designated attainment or unclassifiable (even if such areas are not in fact attaining the NAAQS) or for areas not yet designated. Thus, §110(a)(1) provides the only submission schedule for areas not designated nonattainment. For those areas, the commenters' argument that §172(b) should establish the timetable for SIPs that meet §110(a)(2)(D) clearly fails. Given that many areas of the states subject to the CAIR likely will be designated attainment for the $PM_{2.5}$ and 8-hour ozone NAAQS, EPA believes that the §110(a)(1) schedule is the only schedule (and thus the reasonable schedule) to follow for purposes of the CAIR.[3]

Following the plain wording of the statute, therefore, it is clear that some of the items on the §110(a)(2) list do depend upon the existence of formally designated nonattainment areas, and some do not. As the commenters suggest, §110(a)(2)(I) is such a provision applicable after designation, and therefore states much comply with the timing of §172. By its terms it requires that the SIP shall: "[i]n the case of a plan or plan revision for an area designated as a nonattainment area, meet the applicable requirements of part D of this subchapter (relating to nonattainment areas)." Other components of the SIP listed in §110(a)(2) do not require prior designations in order for a state to address them, e.g., §110(a)(2)(B)(pertaining to monitoring); §110(a)(2)(C)(requiring a program for enforcement of measures and a permit program for new or modified sources); and §110(a)(2)(E)(requiring states to provide for adequate resources).[4] While EPA agrees that there is overlap between the submission requirements under §§110(a)(1)

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[3]This reasoning does not apply, of course, to situations in which EPA may later exercise a SIP call pursuant to §110(k)(5). EPA can take action under that provision without respect to the years that have elapsed subsequent to a new or revised NAAQS, when facts and circumstances subsequently indicate that a state SIP is "substantially inadequate" to meet the requirements of §110(a)(2).

[4]Further detail on EPA's view of which elements states must meet in the SIPs is provided in the Memorandum entitled "Reissue or the Early Planning Guidance for the Revised Ozone and Particulate Matter (PM) National Ambient Air Quality Standards (NAAQS)," from Sally L. Shaver, dated June 12, 1998.

and (a)(2) and §172(c), EPA believes that the plain language of §§110(a)(1) and (a)(2) authorizes EPA to require the §110(a)(2)(D) SIPs on the schedule described today, and that there is nothing that compels a contrary conclusion in the language of §172. EPA believes that the content of this obligation may vary depending upon the time and circumstances.[5]

Finally, EPA believes that the commenters are unduly focused upon the fact that states are now well beyond the original 3-year period following the promulgation of the $PM_{2.5}$ and 8-hour ozone NAAQS. From the passage of time alone, the commenters seem to suggest that the 3-year timing of §110(a)(1) could never have applied. As EPA explained in the proposal, EPA acknowledges that more than 3 years have transpired since the 1997 promulgation of the $PM_{2.5}$ and 8-hour ozone NAAQS. During the pendency of the NAAQS litigation there was substantial uncertainty as to whether the courts would ultimately uphold the $PM_{2.5}$ or 8-hour ozone NAAQS and, as a practical matter, this made it significantly more difficult for states to submit §110(a)(1) SIPs for $PM_{2.5}$ and 8-hour ozone that would address §110(a)(2)(D).

In light of these complicating circumstances, EPA proposed to require that states submit a SIP that complies with §110(a)(2) as expeditiously as practicable, but not later than 18 months from the effective date of promulgation of the CAIR. Thus, following this timing, states will have adopted and submitted to EPA plans that address the significant contribution issue of §110(a)(2)(D) in advance of the nonattainment area SIPs for $PM_{2.5}$ and 8-hour ozone. EPA believes that providing the CAIR at this time as a tool for addressing the interstate component of $PM_{2.5}$ and 8-hour ozone nonattainment will greatly assist states in the development, adoption, and submission of SIPs that will comply with §110(a)(2)(D). Were EPA to delay development of this tool, downwind states would inevitably be put in the more difficult position of attempting to develop SIPs independently and those SIPs might not address nonattainment as effectively, upwind states would be put in the more difficult position of not knowing how best to limit emissions to address significant contribution to downwind nonattainment, and EPA would be put in the more difficult position of having to assess potentially inconsistent and uncoordinated SIPs on a piecemeal basis, thereby injecting additional delay and uncertainty that would be inconsistent with the overall objective of assuring compliance with the NAAQS by all states as expeditiously as practicable.

I.A.2.
Comment:

Commenters also asserted that EPA has ignored other statutory provisions that allegedly contradict the Agency's view that states have an obligation to comply with the §110(a)(2)(D)

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[5]What is necessary or appropriate to meet §110(a)(2) may vary, depending upon the specific facts and circumstances surrounding the new or revised NAAQS at issue. See, e.g., 60 FR 12492, 12505 (March 7, 1995), "Proposed Requirements for Implementation Plans and Ambient Air Quality Surveillance for Sulfur Oxides (Sulfur Dioxide) National Ambient Air Quality Standard." In the context of a proposed 5-minute NAAQS for SO2, EPA tentatively concluded that existing SIP provisions for the 24-hour and annual SO_2 NAAQS were probably sufficient to meet many elements of §110(a)(2).

obligation within the three year timeframe set forth in §110(a)(1). In particular, the commenters argued that §107(d) of the Act and certain provisions of the Transportation Equity Act for the 21st Century (TEA-21) governing the designation of $PM_{2.5}$ or 8-hour ozone nonattainment areas preclude EPA from interpreting the CAA to require states to meet the §110(a)(2)(D) obligation within 3 years after promulgation of the NAAQS. According to the commenters, the timing for designations imposed by §107(d) and TEA-21 negate the timing requirement of §110(a)(1), so that the states have no currently overdue obligation to prevent interstate pollution and, by extension, there is no current basis for the CAIR.

Response:

With respect to §107(d), commenters correctly noted that the provision governs designations for new or revised NAAQS. The normal statutory timing for EPA action on such designations is as expeditiously as practicable, but not more than two years after NAAQS promulgation or revision, unless there is insufficient information within the two year period, in which case the Agency may take up to one additional year. Thus, by its terms, the statute normally requires that EPA make designations for a new or revised NAAQS within at most 3 years.[6] From this initial point, however, the commenters incorrectly conclude that because the three year timeline for submission of a new SIP and the three year timeline for designations would run concurrently, it would be impossible for any state to submit a SIP addressing interstate transport within 3 years because it would have to do so, at least potentially, prior to the designation of nonattainment areas. In the view of the commenters, states could not be expected to determine whether and to what extent their instate sources significantly contributed to nonattainment areas in other states within the initial three year timeframe, in advance of nonattainment area designations. To bolster this argument, the commenters emphasized a statement by EPA in the NOx SIP Call in which EPA described the general process for determining the presence of a significant contribution. In this statement, EPA noted that "the initial inquiry is to determine the geographic scope of 'nonattainment' downwind." According to the commenters, EPA thus recognized that it would be impossible to comply with §110(a)(2)(D) absent a "determination of the geographic scope of nonattainment." The commenters evidently construe this statement to mean that EPA must have completed the designations prior to any state having to comply with §110(a)(2)(D).

EPA disagrees with the commenters' view of the normal interaction of §110 and §107(d). EPA believes that at the root of the commenters' error, is the assumption that EPA must necessarily have completed the designations process before EPA or any state could assess the existence of, or extent of, significant contribution from one state to another. In this respect, EPA

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[6]In this instance, however, Congress has acted to adjust the schedule for $PM_{2.5}$ and 8-hour ozone nonattainment area designations. Pursuant to TEA 21 and the 2004 Consolidated Appropriations Act, Congress has altered the timing for such designations. These alterations in the schedule do not in and of themselves negate the commenter's argument that under the normal structure of the Act, that Congress did not intend states to address the issue of interstate transport in advance of designations.

contends that the commenters fail to comprehend both the law governing designations, and the process by which EPA determines significant contribution.

First, EPA believes that the statute simply does not compel the conclusion that states do not need to comply with §110(a)(2)(D) until some future point after completion of the nonattainment area designation process. Section 110(a)(1) provides, inter alia:

> Each State shall ... adopt and submit to the Administrator, within 3 years (or such shorter period as the Administrator may prescribe) after the promulgation of a national primary ambient air quality standard (or any revision thereof) ... a plan which provides for implementation, maintenance, and enforcement of such primary standard in each [area] within such State."

There is a similar requirement for a secondary NAAQS. Section 110(a)(2) provides, inter alia:

> Each implementation plan submitted by a State under this Act shall be adopted by the State after reasonable notice and public hearing. Each such plan shall– ...(D) contain adequate provisions – (I) prohibiting, consistent with the provisions of this subchapter, any source or other type of emissions activity within the State from emitting any air pollutant in any amounts which will– (I) contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary standard.

In short, a plain reading of the statute indicates that each plan required by §110(a) must be adopted and submitted to EPA within 3 years, and that each such plan is to meet the applicable requirements of §110(a)(2)(D).[7]

The provisions of §110(a)(1) and §110(a)(2)(D) are not, however, limited to "nonattainment" areas. By their explicit wording, both provisions apply to all areas, regardless of whether EPA has formally designated the areas as attainment, nonattainment, or unclassifiable, pursuant to §107(d). As to causes, §110(a)(2)(D) compels states to address any "emissions activity within the state," not solely emissions from formally designated nonattainment areas or in any other terms that suggest designations of upwind areas must first have occurred. As to impacts, §110(a)(2)(D) refers only to prevention of "nonattainment" in other states, not to nonattainment in designated nonattainment areas or any similar formulation explicitly requiring that designations for downwind nonattainment areas must first have occurred. By comparison, other provisions of the Act do clearly indicate when they are applicable to designated nonattainment areas, rather than simply to nonattainment more

[7] For reasons discussed in more detail elsewhere, EPA interprets the requirement of §110(a)(2)(D) to be among those that Congress intended to be covered by the three year timeframe of §110(a)(1). EPA agrees that other requirements, such as those of §110(a)(2)(I) are subject to the different timing requirements of §172(b).

generally (e.g., §§107(d)(1)(A)(I), 181(b)(2)(A), and 211(k)(10)(D)). Because §110(a)(2) refers only to "nonattainment," not to nonattainment "areas," EPA concludes that §110(a)(2)(D) refers not to nonattainment areas (which would presuppose the existence of formally designations that could not occur until later), but rather to air quality that does not attain the NAAQS.[8]

EPA believes that this plain reading of the provisions is also the most logical approach. Were EPA to read §110(a)(2) to mean that states had no obligation whatsoever to address interstate transport unless and until there were formally designated nonattainment areas pursuant to §107, that would be inconsistent with the larger goal of the Act to encourage expeditious attainment of the NAAQS. For example, it is clear from currently available air quality monitoring data and modeling that large areas of the eastern portion of the country are in violation of both the $PM_{2.5}$ and 8-hour ozone NAAQS. It is also clear from currently available air quality modeling studies that NOx and SO2 emissions from sources in upwind states are contributing to violations of the $PM_{2.5}$ and 8-hour ozone NAAQS in downwind states. Following the example of the NOx SIP Call, EPA has an effective analytical approach to determine whether that interstate contribution is significant, in accordance with §110(a)(2)(D). Thus, EPA currently has the information and tools that it needs to determine what the initial $PM_{2.5}$ and 8-hour ozone SIPs from states should include as appropriate NOx and SO2 emission reductions in order to prevent emissions that significantly contribute to nonattainment in other states. The designation process under §107 determines the precise boundaries of the downwind nonattainment areas in other states, but because both $PM_{2.5}$ and ozone are regional phenomena, information as to the precise boundaries of nonattainment areas is not necessary to implement the requirements of §110(a)(2)(D). No air quality purpose would be served by waiting until the formal designation of nonattainment area boundaries.

On the contrary, EPA believes that taking action now is necessary to protect public health. The regional NOx and SO2 reductions required under the CAIR will help many nonattainment areas currently in violation of the $PM_{2.5}$ and 8-hour ozone NAAQS to attain the standard. For the millions of people living in those areas, the CAIR will advance the date by which these areas will meet the $PM_{2.5}$ and 8-hour ozone NAAQS. As noted in the CAIR

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[8] Similarly, §176A(a) authorizes EPA to establish a transport region whenever "the Administrator has reason to believe that the interstate transport of air pollutants from one or more States contributes significantly to a violation of a [NAAQS] in one or more other States." This provisions makes clear that it is the violation of the NAAQS that triggers the authority to form a transport region when an upwind state contributes significantly to a downwind state with air quality that does not meet the standard, regardless of whether the downwind state is formally designated nonattainment pursuant to §107(d). EPA believes that §110(a)(2)(D) should be read in the same fashion, in light of the parallels between §110(a)(2)(D) and §176A(a). Both provisions address transport and both are triggered when upwind emissions "contribute significantly" downwind. Given their similar purposes, EPA believes it is appropriate to apply a consistent approach to these two comparable provisions, and this suggests that the term "nonattainment" in §110(a)(2)(D) should be viewed as synonymous with the phrase "a violation of the [NAAQ]" in §176A(a).

proposal, EPA "has estimated that attainment of the $PM_{2.5}$ NAAQS alone would prolong tens of thousands of lives and prevent tens of thousands of hospital admissions each year, as well as hundreds of thousands of doctor visits, absences from work and school, and respiratory illnesses in children." 69 FR 4,566, at 4,571 (Jan. 30, 2004).

EPA believes that the commenters' view of the relationship between §110(a)(2) and §107 also demonstrates a misunderstanding of the method by which EPA analyzes whether there is a contribution from an upwind state to a downwind state, and whether that contribution is significant. As described in more detail in the NPR, EPA used the detailed data from the extensive network of air quality monitors to identify which states have monitors that are currently violating the $PM_{2.5}$ and 8-hour ozone NAAQS. Thus, in the NPR, EPA stated that data for the three year period from 2000 - 2002, "120 counties with *monitors* exceed the annual $PM_{2.5}$ NAAQS and 297 counties with *monitor* readings exceed the 8-hour ozone NAAQS." 69 FR 4566, 4581 (Jan. 30, 2004)(emphasis added). The geographic distribution of monitors with data registering current violations indicated that there is nonattainment of both the $PM_{2.5}$ and 8-hour ozone NAAQS throughout a significant portions of the eastern United States and in other more isolated portions of the country like southern and central California. For future state analyses, EPA used various modeling tools to predict that in the absence of the CAIR, there would be a certain number of counties with monitors that would continue to violate the $PM_{2.5}$ and 8 hour ozone NAAQS in 2010 and 2015. In subsequent steps, EPA analyzed whether the emissions from upwind states contributed to the ambient conditions at particular monitors registering NAAQS violations in downwind states, and thereafter determined whether those emissions are "significant" as that term is meant in §110(a)(2).

In none of these steps, however, did EPA need to know the precise boundaries of the nonattainment areas that may ultimately result from the §107 designation process. EPA referred in the NPR to certain numbers of counties with monitors violating the NAAQS, but this was not intended to decide the appropriate boundaries for designated nonattainment areas, merely to provide a general idea of the number of geographic locations that are likely to be designated nonattainment, either individually or as part of larger metropolitan areas. EPA can make certain assumptions about the proper boundaries for designated nonattainment areas, as indeed EPA did as part of the evaluation of the role that local control measures might play in achieving attainment, but this is not the critical question. The determination of attainment or nonattainment in a given area is based primarily upon the monitored ambient readings of the applicable pollutant in the area. Thus, it is the readings at the monitors that are the appropriate information for EPA to evaluate in assessing current and future interstate transport, not the exact dimensions of the area that may ultimately comprise the formally designated nonattainment area. Indeed, the designated area boundaries are likely to vary from area to area based upon a variety of factors, e.g., EPA's starting presumption is that the entire OMB Consolidated Statistical Metropolitan Area (CSMA) should be designated nonattainment if any monitor in that CSMA shows a violation, but the ultimate designated nonattainment area may be larger or smaller based

upon other factors.[9] Thus, a given designated nonattainment area might be as small as a single county or as large as an entire metropolitan area, based upon the data at one monitor. The ultimate size of that nonattainment area will have a bearing on other components of the state's SIP, but that does not negate the fact that interstate transport from another state or states has an impact at that monitor, and if it is a significant contribution, the other state or states must address that impact to comply with §110(a)(2)(D).

Significantly, the monitor data that EPA relied upon for the CAIR is also a primary element in the designation process. A county with a monitor violating one or both of the NAAQS is presumptively suitable for designation as nonattainment, unless there is an adequate justification for designation of some smaller portion of that county. Under §107(d)(A)(I), however, designated nonattainment areas do not include only those areas that have a monitor that registers violations of the NAAQS, but also any area that contributes to nonattainment in a nearby area. EPA uses a number of factors to determine whether other areas that have monitors that show attainment of the NAAQS nevertheless contribute to monitored nonattainment in another nearby area, such as the local meteorological conditions, geographic features, and commuter patterns.[10] Were EPA to base the CAIR upon designated nonattainment areas, the commenter might argue that EPA should only base the analysis on monitors that show violations of the NAAQS, rather than upon entire designated nonattainment areas because they might include areas that were only contributing to nearby nonattainment, rather than monitoring nonattainment. In any case, EPA believes that basing the analysis upon the monitors alone, without regard to the precise boundaries of the nonattainment areas that result from the formal designation process under §107 is the better approach. Following this line of reasoning, EPA sees no reason that the Agency cannot determine whether there is significant contribution until after formal designation of nonattainment areas, and therefore does not believe that §107 bars the Agency from proceeding with the CAIR at this time. At the time of the CAIR proposal, EPA had the requisite information to proceed.

In summary, EPA disagrees with the commenters' assertion that the requirements of §107 contradict the Agency's interpretation of §§110(a)(1) and 110(a)(2) to require states to comply with §110(a)(2)(D) within 3 years. EPA believes that the reference in §110(a)(2) to prevention of "nonattainment" refers to air quality, not to formal designation status pursuant to §107. EPA believes that a plain reading of the provisions of §110(a) compels this conclusion, and that this question is therefore resolved under step one of a Chevron analysis. Even if the statute were ambiguous on this point, however, EPA believes that under step two of a Chevron analysis, its interpretation of the provision is a reasonable one.

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[9] See, e.g., for $PM_{2.5}$, "Designations for the Fine Particle National Ambient Air Quality Standard," memorandum from Jeffrey R. Holmstead, Assistant Administrator, To EPA Regional Administrators, dated April 1, 2003. See also, "Additional Guidance on Defining Area Boundaries for $PM_{2.5}$ Designations," memorandum from Lydia N. Wegman, Director, AQSSD, dated February 13, 2004.

[10] See, 70 FR 944 (Jan. 5, 2005)($PM_{2.5}$); 69 FR 23,858 (April 30, 2004)(8-hour ozone).

For similar reasons, EPA likewise disagrees with the commenters' assertion that the provisions of TEA-21 preclude EPA's interpretation of the timing requirements of §§110(a)(1) and 110(a)(2). TEA-21 did address the need to create a new network of monitors to assess the geographic scope and location of $PM_{2.5}$ nonattainment. TEA 21 did provide that such a network should be up and running by December 31, 1999. TEA 21 did lay out a schedule for the collection of data over a period of 3 years in order to make subsequent regulatory decisions. From these facts, the commenters conclude that TEA 21 necessarily contradicts EPA's conclusion that states must now take action to address significant contribution in their initial §110(a)(1) SIPs, merely because the initial three year period following the new or revised NAAQS has expired.

EPA believes that nothing in TEA-21 explicitly or implicitly altered the timing requirements of §110(a)(1) for compliance with §110(a)(2)(D). The provisions of TEA-21 pertained to the installation of a network of monitors for $PM_{2.5}$, and to the timing of designation decisions for $PM_{2.5}$ and 8-hour ozone. To be specific, however, TEA-21 explicitly explained its purposes, and the two relevant purposes for the new NAAQS were: (1) to gather information "for use in the determination of area attainment or nonattainment designations" for the $PM_{2.5}$ NAAQS; and (2) to insure that states had adequate time to consider guidance from EPA concerning "drawing area boundaries prior to submitting area designations" for the 8-hour ozone NAAQS. TEA-21 §6101(b)(1) and (2). With respect to timing, TEA-21 similarly only referred to the dates by which states and EPA should take their respective actions concerning designations. For $PM_{2.5}$, TEA-21 provided that states were required "to submit designations referred to in section 107(d)(1) ... within 1 year after receipt of 3 years of air quality monitoring data." TEA-21 §6102(c)(1). For 8-hour ozone, TEA-21 required states to submit designation recommendations within 2 years after the promulgation of the new NAAQS, and required EPA to make final designations within one year after that. TEA-21 §6103(a) and (b). In all of these provisions, TEA-21 only addresses SIP timing in the context of the designation process of §107(d). As explained in more detail above, EPA does not believe that the timing of §110(a)(1) and §110(a)(2)(D) depend upon the prior designation of areas in accordance with §107(d).

EPA would also note that legislation subsequent to TEA-21 further supports its conclusion. In the 2004 Consolidated Appropriations Act, Congress has further amended §107 to provide specific dates by which states and EPA had to make $PM_{2.5}$ designations. 42 USC §7407 note. States are now required to have made their initial recommendations for $PM_{2.5}$ designations by February 15, 2004. EPA is now required to have taken action on those recommendations and made its final designations no later than December 31, 2004. Again, these requirements pertained only to formal designations, and do not directly affect the obligations of states to meet other SIP requirements. Neither TEA-21 nor the 2004 Appropriations Act language deleted §110(a)(1) or §110(a)(2)(D) from the CAA, nor did they amend the language of such provisions. EPA believes that had Congress meant to relieve states from the other obligations of the CAA, it would have said so more explicitly.

With respect to $PM_{2.5}$, the commenters argued that because Congress has mandated more time for making formal designations pursuant to §107, it necessarily follows that states should not have to meet the requirements of §110(a)(1). The commenters' logic is evidently that

because it has taken longer than 3 years after the 1997 NAAQS to collect $PM_{2.5}$ data, it necessarily follows that states no longer have an obligation to submit SIPs pursuant to §110(a)(1) and no obligation to comply with §110(a)(2)(D) within that 3 years. EPA does not believe that the mere passage of time eliminates the obligations, even if it makes the original timing impossible. Because EPA now has the data to establish the presence and magnitude of interstate transport that should be considered significant contribution under §110(a)(2)(D), the Agency believes that it is appropriate to require states to address such intestate transport in the §110(a)(1) submissions.

With respect to 8-hour ozone, the commenters tried a different tack, and argued that EPA is diverging from the Agency's stated basis for early action to combat interstate transport in the NOx SIP Call. According to the commenters, EPA set up a dichotomy in the NOx SIP Call for state compliance with §110(a)(2)(D), i.e., either the state had to comply within the 3 years contemplated by §110(a)(1), or the state had to comply within the 3 years following designations in accordance with §172(b). In support of this purported "either/or" situation, the commenters pointed to EPA's statement that: "[i]n the current situation [the NOx SIP Call], EPA believes that it is appropriate to require the submissions to meet section 110(a)(2)(D) in accordance with the schedule in section 110(a)(1) rather than under the schedule for nonattainment areas in section 172(b)." 63 FR at 57,373. In that statement, EPA was emphasizing that under some circumstances, the state submission of the plan meeting §110(a)(2)(D) could come early on the schedule of the §110(a)(1) plans and that in that under other circumstances the state submission of the plan meeting §110(a)(2)(D) could come later on the schedule of the §172(b) plans.

The commenters asserted that the relevant "circumstances" that affected EPA's view of the timing were the availability or non-availability of technical information sufficient to evaluate nonattainment and significant contribution. Indeed, EPA agrees that having this information is necessary, and lack of this information has historically made it difficult for states and EPA to address interstate transport early in the SIP process, such as in conjunction with the plans due within 3 years of a new or revised NAAQS as required by §110(a)(1). Obviously, the content of the SIP submission that would be required to meet §110(a)(2)(D) would vary, depending upon the data and analyses available at the time of the submission. EPA believes, however, that the commenters relied too much on the theory that if the initial 3 years following a NAAQS have already elapsed, it necessarily follows that EPA cannot expect states to comply with §110(a)(2)(D) except under the schedule contemplated in §172. When, as here, states have yet to submit the initial plans required by §110(a)(1), and EPA and states already have the data and analysis to evaluate significant contribution, EPA does not agree that it is appropriate to delay the submission of plans that would address that significant contribution.

In addition, the commenters did not point out that EPA had further explained in the NOx SIP Call that §110(a)(1) provides the most appropriate schedule for reasons other than information availability. In that rulemaking, EPA evaluated the requirements of §110(a) and §172, and discussed the fact that state plans governed by §110(a)(1) had to address all areas within the state, regardless of designation, whereas §172(c) submissions would apply only to areas specifically designated as nonattainment. Because §172 would not apply to areas ultimately designated attainment or unclassifiable, it would not provide a schedule for a plan

governing requirements that might be necessary statewide to meet §110(a)(2)(D). EPA noted that the NOx SIP Call would entail states obtaining reductions of NOx emissions from sources potentially located in all areas, regardless of designated status. EPA therefore explicitly concluded that: "Since certain portions of the 23 jurisdictions covered by this rule likely will not be designated nonattainment for the 8-hour standard, EPA believes that section 110(a)(1) schedule is the only schedule (and thus is the reasonable schedule) to follow for purposes of the SIP call." 63 FR at 57,373. EPA believes that pursuant to the CAIR, states will likewise need to consider controls on sources in areas that are designated attainment or unclassifiable and that, under these circumstances, it would be inappropriate to conclude that the schedule of §172 is the most appropriate. Thus, even though the initial three year period following the promulgation of the NAAQS has elapsed, it does not necessarily follow that the substantive obligation of the states to submit a plan that meets the requirements of §110(a)(1), including §110(a)(2)(D) have vanished. To the contrary, the delay that resulted from the litigation over the NAAQS and the subsequent events justify EPA providing the states with a reasonable amount of time to submit such plans, but that time should be as short as reasonably practicable to ensure expeditious attainment of the NAAQS. For these reasons, EPA is requiring states to submit plans that address §110(a)(2)(D) requirements within 18 months from the date of the final CAIR.

I.A.3.
Comment:

As an additional point, commenters claimed that EPA's interpretation of the requirements of §110(a)(1) to support the timing of the CAIR are inconsistent with the Agency's previous statements in connection with other NAAQS and SIP Call situations. Specifically, the commenter alleged that EPA's current view contradicts EPA's earlier statements in three other situations: (I) the 1995 proposal for a possible new SO_2 NAAQS; (ii) the 1998 final notice for the NOx SIP Call; and (iii) the 1995 SIP call in connection with the Ozone Transport Commission Low Emissions Vehicle (OTC LEV) action. According to the commenters, these actions indicate that EPA has not previously interpreted the three year timing of §110(a)(1) to apply to the §110(a)(2)(D) requirement. EPA disagrees with the commenters' characterization of the Agency's prior statements as inconsistent with its interpretation of §110(a)(1) here.

Response:

With respect to the 1995 SO_2 NAAQS proposal, EPA believes that the commenters are overlooking the overall context of the statements made by the Agency. The action at issue was EPA's consideration of various options to protect the public from exposure to short-term high concentration sulphur dioxides into the ambient air.[11] Among the options, EPA proposed the creation of a new "5 minute" SO_2 NAAQS that would supplement the existing 24-hour and annual SO_2 NAAQS. In the context of discussing the possible new NAAQS, EPA described its views on how states could comply with the requirements of §§107, 110, and 172.

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[11] See, Proposed Requirements for Implementation Plans and Ambient Air Quality Surveillance for Sulphur Oxides (Sulphur Dioxide) National Ambient Air Quality Standards, 60 FR 12,492 (March 7, 1995).

The commenters claimed that EPA's prior statements were inconsistent with today's action because the Agency said that it "interprets the section 110(a)(1) deadline as being satisfied by the submission of SIP elements whose content does not depend on the designation of an area." 60 FR at 12,505. Far from an inconsistency, this statement reflects EPA's longstanding position with respect to the interaction of §110(a)(1), §110(a)(2), and §172. As discussed in more detail above, EPA believes that three year deadline for states to submit SIPs does apply to those elements from §110(a)(2) that do not depend upon designations, e.g., §110(a)(2)(B)(pertaining to monitoring); §110(a)(2)(C)(requiring a program for enforcement of measures and a permit program for new or modified sources); and §110(a)(2)(E)(requiring states to provide for adequate resources). By contrast, other elements of §110(a)(2) that do depend upon prior designation of nonattainment areas are governed by the timing requirements of §172(b), e.g., §110(a)(2)(I) (pertaining to subpart D requirements for nonattainment areas). EPA contends that state compliance with §110(a)(2)(D) should occur in accordance with the three year deadline of §110(a)(1). What a state must do to comply with §110(a)(2)(D) is, of course, dependent upon factors such as the particular NAAQS at issue, the sources that cause the emissions, and what controls are available to reduce the emissions. An extremely important factor is the availability of data and modeling to evaluate the existence of and effects of interstate transport. When, as here, there is already ample data and analysis to establish the presence of contribution and to assess what portion of that contribution is significant, compliance with §110(a)(2)(D) includes addressing that significant contribution within 3 years. Sections 110(a)(1) and (a)(2) apply to all areas in upwind states, regardless of designation as attainment, nonattainment, or unclassifiable. Because §110(a)(2)(D) is phrased in terms prevention of "nonattainment" rather than prevention of nonattainment in "nonattainment areas," EPA believes that this distinction is clear by a plain reading of the statute.

To bolster claims of Agency inconsistency, the commenters alleged that in connection with the SO_2 NAAQS, EPA had specifically determined "that for a new SO_2 NAAQS, §110(a)(1) would be satisfied by SIP elements described by in §110(a)(2)(B)(addressing monitoring requirements) and §110(a)(2)(E)(addressing authority and resources to carry out an implementation plan)." Thus, the commenters suggested that EPA had previously interpreted §110(a)(1) not to require states to comply with §110(a)(2)(D) within 3 years. EPA believes that the commenters have read the Agency's statements too narrowly and out of context. Prior to the statements relied upon by the commenters, EPA had already stated:

> For the most part, *States have already adopted*, as part of their overall SIP for current SO_2 NAAQS, *rules or regulations which satisfy the majority of the general SIP requirements in section 110(a)(2) of the Act* and the existing 40 CFR part 51. At this time, EPA does not envision that States will have to develop substantial new general regulations for the statewide SIPs for the revised SO_2 NAAQS. The EPA will issue appropriate guidance in the future in the even that this assessment changes.

60 FR at 12,504. (emphasis added). It was only after these introductory statements that EPA indicated that states should, "in particular," make efforts to comply with §110(a)(2)(B) and §110(a)(2)(E). 60 FR at 12,504. EPA did not state, explicitly or implicitly, that states could

ignore the requirements of §110(a)(2)(D) for a new 5 minute SO_2 NAAQS. The commenters misconstrue "in particular" to mean "only."

As indicated in the earlier discussion in the proposal, EPA believed that states already had adequate SIPs for the 24-hour and annual SO_2 NAAQS that met most of the §110(a)(2) requirements. Although EPA did not explicitly enumerate and discuss the applicability of each of the §110(a)(2) requirements, it does not follow that §110(a)(2)(D) was not among them. This is not surprising given the fact that by its very nature, the 5 minute SO_2 NAAQS was not likely to be the basis for interstate transport in many locations. Unlike 8-hour ozone or $PM_{2.5}$ nonattainment, which is widespread and endemic across a large area of the country, there would probably have been few areas that would have failed to meet a 5 minute SO_2 NAAQS due to a significant contribution from other states. EPA's view was that nonattainment of a 5 minute SO_2 NAAQS would have been very localized, in most instances the result of large local sources with emissions that caused short term spikes of ambient SO_2 in the near vicinity. 60 FR at 12,493. Given this context, it is unremarkable that EPA would not have specifically discussed the obligation of the states to meet §110(a)(2)(D) with respect to interstate transport for the proposed 5 minute SO_2 NAAQS, or to have concluded preliminarily that existing SO_2 SIP provisions were adequate to prevent 5-minute SO_2 NAAQS violations elsewhere.

Moreover, it is important to bear in mind that the language quoted by the commenters was only in a proposal, which EPA did not finalize. EPA was merely exploring options for addressing the concern that there would be short term sulphur oxide exposure that states could not otherwise be alleviate. The tentativeness of this view is amply reflected in the proposal itself:

> The EPA believes that, until a problem with maintaining a new 5-minute NAAQS is identified, it is reasonable to view the already-existing substantive SIP provisions [for the 24-hour and annual SO_2 NAAQS] as adequate and that it would be absurd to require areas to adopt additional control requirements or emissions limitations prior to identification of particular problem sources.

60 FR at 12,505. Obviously, the situation with the $PM_{2.5}$ and 8-hour ozone NAAQS is completely different. The extensive networks of monitors for both pollutants has already provided ample information about the extent of $PM_{2.5}$ and 8-hour ozone nonattainment. Unlike the 5-minute SO_2 NAAQS, violations of $PM_{2.5}$ and 8-hour ozone are not typically the result of intermittent emissions at single sources that would have to be identified at some point in the future when violations occurred. Both $PM_{2.5}$ and 8-hour ozone nonattainment result, in part, from the aggregate emissions of many sources in upwind areas, and EPA already has the analytical tools necessary to confirm the existence of the contribution and to identify the amount of contribution that is significant from these sources for purposes of §110(a)(2)(D). Thus, to the extent that EPA's statements in the context of the 5 minute SO_2 NAAQS were even arguably inconsistent, EPA believes that the statements were applicable only to the specific facts and circumstances surrounding that proposed NAAQS.

As its second example of alleged EPA inconsistency with past interpretations of §110(a)(1) and (a)(2), the commenters pointed to the Agency's statements in connection with the final NOx SIP Call rule issued in 1998.[12] The commenters correctly noted that EPA acknowledged that it had not "historically required an affirmative submission under §110(a)(2)(D), applicable to specific sources of emissions, in response to the promulgation of a new or revised NAAQS." 63 FR at 57,373. The commenters also noted EPA's acknowledgment that the circumstances surrounding the 8-hour ozone NAAQS and the NOx SIP Call were "exceptional." From this, however, the commenters implied that EPA's interpretation of §110(a)(1) to require state compliance with §110(a)(2)(D) within 3 years is a unique aberration, not to be repeated.

Again, EPA believes that the commenters misconstrue EPA's earlier statements. While it is correct that EPA had not "historically" required states to make a submission like that of the NOx SIP Call within 3 years of a new NAAQS, what made that situation unusual was not the Agency's interpretation of §110(a)(1), but rather the overwhelming body of data and analysis that made such an approach possible and necessary. In the past, EPA has not typically had the data and analysis to support early action to counter interstate transport. EPA specifically explained in the NOx SIP Call why it had not "historically" sought such early action on interstate transport:

> In part, this is because sufficient technical information was not available to determine which sources "contribute significantly" to nonattainment in a downwind area. In the absence of such a determination, States were unable to regulate sources under this provision in any meaningful way.

63 FR at 57,373. As the commenters previously pointed out, it took EPA a significant period of time after the promulgation of the 1- hour ozone standard to develop an approach to deal with interstate transport for that NAAQS. This delay was not occasioned by a lack of interstate transport; it resulted from a lack of sufficient data and analytical tools to evaluate interstate transport across broad geographic areas and to develop an effective approach to eliminate that transport.

The experience of the NOx SIP Call has provided EPA with an appropriate and effective means to analyze whether there is a significant contribution and to aid states in their submission of SIPs to comply with §110(a)(2)(D). Although EPA stayed that portion of the NOx SIP Call that pertained to the 8-hour ozone NAAQS, EPA has proceeded with implementation of the NOx SIP Call for the 1-hour ozone standard. The majority of EPA's conceptual approach, including the method for determining significant contribution, was upheld by the courts. See, *Michigan v.* EPA, 213 F.3d 663 (D.C. Cir. 2000), cert. denied, 532 U.S. 904 (2001), and Appalachian Power v. EPA, 251 F.3d 1026 (D.C. Cir. 2001). EPA thus believes that the commenters put undue

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[12]See, Finding of Significant Contribution and Rulemaking for Certain States in the Ozone Transport Assessment Group Region for Purposes of Reducing Regional Transport of Ozone; Rule, 63 FR 57,356 (Oct. 27, 1998).

emphasis upon the Agency's "historical" approach before it had the necessary information to make earlier evaluation of significant contribution possible, and insufficiently appreciates the effectiveness and utility of such early evaluation.

As a third example of alleged EPA inconsistency, the commenters pointed to EPA's changing statements concerning the proper interpretation of the timing requirements §110(a)(1) in connection with the OTC LEV rulemaking.[13] The commenters noted that EPA had changed its position with respect to the required timing for the proposed control measure between the proposal and the final rule. After recounting and quoting selectively from various statements made by EPA over the course of the OTC LEV rulemaking, the commenters argued that EPA had finally concluded that SIPs to comply with §110(a)(2)(D) are only governed by the schedule for nonattainment area SIPs provided in §172.

EPA disagrees with both the characterizations and the conclusions of the commenters. EPA acknowledges that it changed its views concerning the timing for adoption of the OTC LEV for compliance with §110(a)(2)(D), and that it was in error in its initial views of the timing requirements. EPA has already acknowledged that error in the final OTC LEV action. 60 FR at 4,778, n.10. EPA believes that the commenters are further compounding the error of EPA's earlier statements concerning the timing requirements of §110(a) by taking them out of context.

First, and most importantly, EPA's statements on this timing issue in the OTC LEV rulemaking were in the context of a §110(k)(5) SIP call. If EPA determined that the Ozone Transport Commission's recommended control measure was "necessary," EPA concluded that it was obligated to find that the ozone SIPs of the OTC states that lacked the necessary measure were inadequate under §110(a)(2)(D), and therefore to make a SIP call under §110(k)(5). The entire debate about the proper timing for such an action was thus unrelated to §110(a)(1). Neither §110(a)(1) nor §110(a)(2) provide the schedule under which EPA can make a SIP call.

EPA's position was that it could utilize the SIP call mechanism when appropriate "to find *at any time* that a SIP is inadequate due to transport."[14] 60 FR at 4,717 (emphasis added).

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[13] See, Final Rule on Ozone Transport Commission; Low Emission Vehicle Program for the Northeast Ozone Transport Region, 60 FR 4,712 (Jan. 24, 1995)(final rule); see also, "Proposed Rulemaking on Ozone Transport Commission; Emission Vehicle Program for the Northeast Ozone Transport Region," 59 FR 21,720 (April 26, 1994)(proposed rule), and , "Supplemental Notice of Proposed Rulemaking on Ozone Transport Commission; Emission Vehicle Program for the Northeast Ozone Transport Region," 59 FR 48,664 (Sept. 22, 1994)(supplemental notice).

[14] In a footnote, the commenters acknowledged that EPA had explained its authority under §110(k)(5) to take action "at any time" if the Agency determined that a SIP failed to comply with §110(a)(2)(D). The commenters implied that the ruling of the court in Virginia v. EPA, 108 F.3d 1397 (D.C. Cir.), modified on reh'g on other grounds, 115 F.3d 499 (D.C. Cir. 1997), overruled EPA on this conclusion. EPA believes that the court, at the least, did not reach

Second, it is important to note that in the OTC LEV rulemaking, EPA was making a finding that states had an interstate transport impact contrary to §110(a)(2)(D) *in advance of* required SIP attainment demonstrations for the nonattainment areas.[15] In other words, EPA was making an early determination that states must take action to rectify interstate transport, rather than waiting until after submission of SIP elements governed by the timing of §182. Section 182 provides SIP submission requirements for the 1-hour ozone NAAQS, analogous to the generic nonattainment area submission requirements of §172. In the process of taking early action on §110(a)(2)(D) for the OTC LEV measure, EPA stated:

> While, for the reasons described above, EPA is drawing an exception with respect to a finding of SIP inadequacy based on the absence of a LEV program from these SIP, EPA still believes it *should generally* allow states the first opportunity to address transport and their attainment demonstrations together in their forthcoming SIP revisions *before the Agency exercises its SIP-call authority more broadly* to address non-LEV deficiencies.

60 FR at 4,718 (emphasis added). The commenters focused on the portion of this statement about according states the first opportunity to address transport on their own without EPA assistance, and from this implied that EPA should never take action prior to submission of the nonattainment area SIPs, which necessarily post date designations of nonattainment areas. EPA would emphasize that this may generally be appropriate, but it is not universally appropriate, as the Agency stated in the very passage quoted by the commenters. What made the "exception" to the "general" rule necessary and appropriate, was the availability of information that states were not going to be able to comply with §110(a)(2)(D) in advance, thereby obviating the need to adopt a wait and see approach to determine what the states would ultimately do to

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this point. The Virginia court decided that EPA could not premise the §110(k)(5) SIP call on the absence of a specific control measure which EPA could not require the states to adopt. This decision did not entail any consideration of the timing for EPA making a SIP call on the basis of a state failing to comply with §110(a)(2)(D) on other grounds. EPA's use of the SIP call mechanism to address the §110(a)(2)(D) requirement when the Agency has sufficient information to determine that there is a significant contribution has more recently been upheld by the courts in Michigan v. EPA, 213 F.3d 663 (D.C. Cir. 2000), cert. denied, 532 U.S. 904 (2001)(NOx SIP Call), and Appalachian Power v. EPA, 251 F.3d 1026 (D.C. Circ. 2001)(technical corrections). Even though EPA stayed the NOx SIP Call as it related to the 8-hour ozone NAAQS, it proceeded with the NOx SIP Call for the 1-hour ozone standard and the courts approved that action.

[15] EPA originally intended to take action prior to November 15, 1994, the date by which the states had to submit ozone attainment demonstrations pursuant to §182. 59 FR at 21,727. The effective date of the final rule was February 15, 1995, and therefore after the November 15, 1994, submission deadline. EPA's action in the final rule was a specific SIP call related to the OTC LEV measure, not a broader finding of SIP inadequacy to meet §110(a)(2)(D). 60 FR at 4,718.

rectify the identified significant contribution. Moreover, EPA had explained that early action in the form of the OTC LEV was especially necessary given that the control measure would depend upon mobile source fleet turnover extending over a lengthy period of time, thereby militating for early action rather than waiting.[16] EPA continues to believe that early action to assess significant contribution, where possible, gives states a head start on obtaining the emissions reductions that will be necessary for both upwind and downwind states to achieve the NAAQS. While it is true that the Virginia court ultimately rejected EPA's OTC LEV rule, it did so because of the specific facts and circumstances surrounding the control measure at issue in that case. More recently, the Michigan court upheld EPA's approach to addressing the significant contribution requirement of §110(a)(2)(D) with respect to the 1-hour ozone standard.

Third, the Agency's ultimate statement concerning the deadline applicable for SIPs meeting §110(a)(2)(D) in the final OTC LEV rulemaking was itself partially in error. The commenters quoted a part of EPA's explanation of its mistake, and from that part drew the conclusion that the schedule of §172 necessarily applies to all significant contribution situations. EPA believes that its statement in the final rule was not clear and that the commenters have read the statement too broadly. The Agency's complete explanation was: "[i]n the SNPRM, EPA incorrectly stated that the Act creates no deadline for submission of SIPs demonstrating compliance with section 110(a)(2)(D), and inadvertently omitted language it had drafted to explain that section 172(b), read in conjunction with section 172(c)(7), does establish a deadline for such SIPs for nonattainment areas." 60 FR at 4,717 n.10. Obviously, §172(c)(7) does provide that nonattainment area SIPs must meet the "applicable requirements of" §110(a)(2), and states must submit such nonattainment area SIPs on a schedule set by EPA, but no later than 3 years after designation pursuant to §172(b). As explained in more detail above, however, §172 by its explicit terms applies only to nonattainment areas. Section 110(a)(1) does not draw that distinction and applies to all areas within a state, regardless of designation. Thus, to state that a nonattainment area must submit a plan consistent with the "applicable" provisions of §110(a)(2) within the schedule contemplated by §172(b) does not fully answer the question of timing. EPA's error was in the overbroad statement that "neither section 110 nor any other provision of the Act specifies when states must submit SIP revisions to address the transport issue." 59 FR at 48,669. It is apparent in the plain language of the statute that §110(a)(1) requires submissions within 3 years, and that the submissions must meet the applicable requirements of §110(a)(2), including §110(a)(2)(D). What SIP submission would be necessary to meet §110(a)(2)(D) at different points in time might vary, but the obligation exists nonetheless.

Finally, among other points that should not be lost, the commenter quoted extensively from the OTC LEV proposal to support its argument that "any schedule for states to meet §110(a)(2)(D) SIP obligations should be consistent with the schedule for nonattainment area

[16] PA noted that vehicle would remain on the road long after the impending attainment dates, and thus failure to require vehicles with less emissions sooner would constitute an irrevocable loss of emissions reductions until those vehicles are replaced many years later. 60 FR at 4,717.

SIPs under Part D." [UARG at 9]. Thus, the commenter specifically quoted the following passage:

> EPA recognizes that upwind States ... have an independent obligation to adopt measures for purposes of their own timely attainment. The measures upwind areas adopt for their own benefit may well be sufficient to prevent contribution to nonattainment downwind. While upwind areas may still contribute to pollutants downwind after they have reached attainment, their independent obligation to attain should go a long way to reduction emissions that contribute to downwind nonattainment.

59 FR at 21,728. Even on its face, EPA does not believe that the quoted language supports the commenters' argument that EPA cannot take action to encourage states to remedy interstate transport in advance of nonattainment area SIP submissions governed by the schedule of §172. More importantly, EPA believes that the commenter has misconstrued the statement because it has taken it out of context, ignoring statements immediately preceding and following the quoted language. Immediately before the language quoted by the commenter, EPA had already stated: "...EPA believes that the focus should be on the need for upwind States that contribute to nonattainment downwind to adopt the [OTC] LEV program not for their own benefit, but for the benefit of the downwind areas that could not otherwise attain on time." 59 FR at 21,728. Immediately after the language quoted by the commenter, EPA had already stated:

> [i]t nevertheless seems that reductions in upwind areas may be necessary to prevent significant contribution to nonattainment downwind, even if the upwind areas would have to achieve those reductions for their own benefit, anyway. In other words, it does not seem that upwind areas' own need to reduce emissions for their own attainment should render those reductions unnecessary.

59 FR 21,728.

EPA does not believe that the purported inconsistencies with earlier statements are actual inconsistencies, but in any case these statements could not be construed to override the plain meaning of §110(a)(1) and (2). States do have an obligation to submit SIPs that comply with §110(a)(2)(D) and have not yet done so. Based upon the data, modeling, and analyses currently available, states need to make submissions that address the interstate transport identified in the CAIR final rule.

I.A.4.

Comment:

Commenters also asserted that EPA's view that States must now make SIP submissions pursuant to section 110(a)(1) is contradicted by a variety of earlier statements made by EPA in other contexts. In particular, the commenters identified statements in specific documents which they believe preclude EPA from requiring submission of new SIPs in the following documents: (i) the "Implementation Plan for Revised Air Quality Standards, Appendix I," 62 FR 38,423 (July 18, 1997)(the "1997 Implementation Plan"); (ii) Congressional statements in TEA-21; (iii)

EPA statements in the May 6, 1998, "Early Planning Guidance for the Revised Ozone and Particulate Matter (PM) National Ambient Air Quality Standards (NAAQS)" (the "Early Planning Guidance"); (iv) EPA statements in the June 12, 1998, reissue of the Early Planning Guidance, and (v) EPA statements in the November 17, 1998, "Proposed Implementation Guidance for the Revised Ozone and Particulate Matter (PM) National Air Quality Standards (NAAQS) and Regional Haze Program" (the "1998 Proposed Implementation Guidance").

Response:

EPA disagrees that the statements in these documents, many of which the commenters take out of context or mischaracterize, contradict EPA's view that States must now submit SIPs to comply with section 110(a)(2)(D). Even if EPA's earlier statements were overbroad or in error, subsequent facts and circumstances compel a different approach at this juncture.

With respect to the 1997 Implementation Plan, the commenters extracted certain statements which they believe indicate that EPA in fact does not have authority to require states to comply with the CAIR to meet §110(a)(2)(D). EPA believes that the statements must be read in the context of the document and in light of what was known and planned at the time. The 1997 Implementation Plan provided only a "roadmap" to meet the enumerated goals. It did not purport, explicitly or implicitly, to supersede or contradict the requirements of the CAA. As the document stated, EPA hoped and intended to complete the next review of the NAAQS before states would have to take significant steps to implement the $PM_{2.5}$ NAAQS. From this, the commenters infer that EPA's view then was that states had no obligation to make any submission under §110(a)(2)(D). This is simply not the case, as amply demonstrated in other documents cited by the commenters, albeit not in provisions from those documents cited by the commenters. In any case, the commenters attempt to bootstrap the argument that EPA cannot now require compliance with CAIR because at the time of the 1997 Implementation Plan, EPA could not have done so due to lack of monitoring, analyses, or other necessary technical support. EPA believes that this is a diversion from the proper focus of this rule, which is that states do have an obligation to make a SIP submission that complies with §110(a)(2)(D). States have not met that obligation. The content of the SIP that states might have submitted in 2000 or any year since might have differed, but based on the data and analyses now available, the SIP submission for states covered by this rule must address the emissions that have been identified as contrary the prohibitions of §110(a)(2)(D).

The commenters also assert that the provisions of T-21 supersede the timing requirements of §110(a)(2)(D). As discussed in responses above, EPA does not believe that this legislation altered the timing of SIP submissions to meet §110(a)(1) for §110(a)(2)(D). As with the 1997 Implementation Plan, the commenters seek to dispute what could now be required based upon what might have been required in earlier years.

With respect to the Early Planning Guidance and the reissue of that document, the commenters selectively quote certain phrases that they contend contradict EPA's interpretation of the statute. EPA believes that this guidance document from 1998 must be viewed in toto and in light of its historical context. By its explicit terms, the guidance document reflected EPA's (then) "current views," i.e., before EPA had the benefit of the data and analyses that are now

available. Nevertheless, the guidance document explicitly stated that states had an obligation to submit SIPs within 3 years in accordance with §110(a)(1), and that these SIP submissions must meet the requirements of §110(a)(2). In "Appendix A" to the document, EPA listed and summarized the specific provisions that these SIP submissions should address, and this list includes §110(a)(2)(D) to address interstate transport. Contrary to the assertions of the commenters, EPA did not in this guidance indicate that states had no obligation under §110(a)(2)(D). To the contrary, in "Appendix B" to the document, EPA explicitly discussed the fact that states covered by the NOx SIP Call would need to address NOx emissions in their SIP submissions in order to comply with §110(a)(2)(D). Again, the commenters seem to confuse what the content of the SIP submission might have been for the $PM_{2.5}$ NAAQS in 1998 or other earlier years, with whether there was any obligation to make a SIP submission at all.

Finally, as to the 1998 Proposed Implementation Guidance, the commenters again quote selected passages that they believe demonstrate EPA inconsistency with respect to the requirements of §110(a). EPA believes that, as with the other documents, this one must be read in light of the facts and circumstances known at the time, and with the recognition that this was merely proposed guidance that EPA did not finalize. The document contains a number of assumptions that the course of events have superseded and rendered historical artifacts at most. The commenters make much of EPA's statements that a multi-state regional planning effort would be needed to address regional reductions and the time that would be necessary in order to organize such an effort. From this, the commenters infer that states did not have an obligation under §110(a)(2)(D) and that EPA's statements in this documents confirm that. In short, EPA did not state in this document that states had no obligation under §110(a)(2)(D). To the contrary, EPA clearly assumed that there was a need to address regional emissions and was postulating an approach to insure that states were able to achieve the necessary regional reductions. As events unfolded, however, EPA did not finalize guidance suggesting this approach, states did not choose this approach, and EPA developed another approach to help states address regional reductions based on the model of the NOx SIP Call. Again, EPA acknowledges that the nature and content of SIP submissions varies over time. What states might have done in 1998, or 2000, or another year might have been different. At this point in time, however, the states have an unmet obligation to make a SIP submission that addresses the requirements of §110(a)(2)(D), and the now existing data, modeling, and analyses indicate that the states covered by this rule have to make a SIP submission addressing the emissions identified in this rule.

I.A.5.
Comment:

A number of commenters asserted that prior EPA statements in connection with the NOx SIP Call preclude EPA from requiring States to make SIP submissions to comply with section 110(a)(2)(D) now. In essence, the commenters claim that because one stated basis for the NOx SIP Call was to alleviate NOx emissions that were significantly contributing to violations of the 8-hour ozone NAAQS, it necessarily follows that compliance with the NOx SIP Call eliminates and all significant contribution to downwind violations of the NAAQS.

Response:

See the discussion in Section III B of the preamble to the final rule.

I.A.6.

Comment:

One commenter, generically supported by others, asserted that certain earlier EPA statements contradict EPA's view that states must now submit SIPs to comply with section 110(a)(2)(D. In particular, the commenters identify statements in: (i) a June 1999 brief filed by EPA in connection with litigation over the 1997 8-hour ozone and $PM_{2.5}$ NAAQS; (ii) a February 2002 Federal Register notice pertaining to SIP revisions for Wyoming; (iii) a July 2000 Federal Register notice rescinding an earlier finding concerning the sunsetting of the 1-hour ozone NAAQS, and (iv) the stays of the finding pertaining to the 8-hour ozone portion of the NOx SIP Call and the section 126 rule. By their theory, these statements reflect EPA's view that there was no $PM_{2.5}$ NAAQS, or no need to comply with any requirement applicable to the $PM_{2.5}$ NAAQS, for an extended period during the pendency of the litigation over the NAAQS. The commenters assert that there was no $PM_{2.5}$ or 8-hour ozone NAAQS, and thus states could have had no obligation to comply with section 110(a)(2)(D) during this time.

Response:

EPA believes that the commenters are in error. With respect to the June 1999 brief, EPA notes that the brief pertained only to $PM_{2.5}$. In the context of explaining why the court should not vacate the $PM_{2.5}$ NAAQS, EPA did inform the court that it did not believe that individual sources would need to take action to comply with the $PM_{2.5}$ standards during the pendency of the litigation: "At this time, no individual sources are being required to take any steps towards attainment of the $PM_{2.5}$ standards, and the steps the States are currently taking would be necessary regardless of the levels of those standards." [17] From this, however, the commenters incorrectly assume that no immediate control measures for individual emissions sources translates to no obligation on the part of the states to comply with the requirements of section 110(a)(1) and (2). To the contrary, EPA explained to the court in the brief that it did anticipate that states had certain obligations that would need to be met, even though meeting those obligations would not result in the imposition of control requirements on sources. Thus, EPA did not indicate that there was no obligation for state to make a submission within 3 years after promulgation of the NAAQS in accordance with section 110(a)(1). EPA clearly noted that the states had such an obligation, and that it would continue if the court did not vacate the standards.[18] The brief did not mention section 110(a)(2)(D), which is not surprising because the basic information needed to evaluate the controls necessary to alleviate such transport did not exist at that point in time. Prior to the existence of the monitoring network, the data, and the analyses concerning interstate transport, states might have met the section 110(a)(2)(D) obligation with a SIP submission noting the then lack of information concerning interstate transport and meeting the other section 110(a) requirements regarding the legal framework for regulating $PM_{2.5}$. EPA would not have expected states to have established specific controls at that time in the absence of the analysis completed for today's action. Such is not the case at this

[17] Brief on Remedy for Respondent U.S. EPA at 2, American Trucking Assoc. v. EPA, No. 97-1440 and consolidated cases, June 15, 1999.

[18] Id. at footnote 9.

point in time. EPA believes that the commenters incorrectly assume that because states lacked information about interstate transport in the year 2000, it necessarily follows that they had no obligation to comply with section 110(a)(1) or (2) at all, and that this state of affairs continues even now.

With respect to the February 2002 Federal Register notice concerning the Wyoming SIP submission, EPA acknowledges that it contains statements that were in error. In particular, that notice stated that EPA was not taking action on the SIP submission with respect to changes related to $PM_{2.5}$ "because there is no $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS) at this time." 67 FR 5,487 (Feb. 6, 2002). This statement was incorrect. No court had vacated the $PM_{2.5}$ NAAQS and they were therefore clearly in effect. Similarly, the statements that EPA was not taking action to implement the $PM_{2.5}$ NAAQS pending the next review cycle of the PM NAAQS were also clearly in error. In accordance with the CAA and subsequent statutory directives, EPA was proceeding to implement the $PM_{2.5}$ NAAQS through such actions as establishing the monitoring network, collecting data, beginning the designations process, and beginning to develop draft guidance on implementation of the NAAQS. Because no court had vacated the $PM_{2.5}$ NAAQS, EPA was obligated to proceed with implementation of the NAAQS and so, albeit on a slower track because of the need to create the monitoring network and collect essential data for implementation. EPA notes, moreover, that the SIP submissions did not address section 110(a)(2)(D) requirements and thus Wyoming, like other states does have an obligation to make a submission to meet those requirements. Although not within the CAIR region, Wyoming and other non-CAIR states will need to make a submission in accordance with guidance that EPA will develop.

Commenters also point to EPA's statement in the July 2000 Federal Register notice rescinding an earlier finding concerning the sunsetting of the 1-hour ozone NAAQS as evidence that states had no SIP submission obligation with respect to 8-hour ozone under section 110(a)(2)(D) within 3 years after promulgation of the NAAQS. The commenters focus on EPA's statement that: "[w]ithout a fully enforceable, Federal 8-hour standard, EPA does not have the ability to require States to implement an 8-hour standard." 65 FR 45,187 (July 20, 2000). EPA notes that the context of this statement was whether EPA should rescind the 1-hour ozone standard when there was continuing uncertainty about the 8-hour ozone standard due to extensive ongoing litigation. The statement that the commenters highlight was not intended to convey that states had no obligations whatsoever under the CAA during the pendency of the litigation, merely that if EPA had rescinded the 1-hour standard in a given location and the 8-hour standard were eliminated, EPA could not then require the state to implement the 8-hour standard. The commenters construe this statement to mean that no state had any obligation to meet the basic requirements of section 110(a)(1) and (2) during the pendency of litigation. EPA notes that the statement did not purport to address the obligations of states to make the initial SIP submissions under section 110(a)(1) and (2). Moreover, even if EPA had meant to imply that states did not have to comply with any aspect of the CAA for the 8-hour ozone NAAQS during the pendency of the litigation, that litigation and any attendant uncertainty has been resolved and there is no doubt that the states have an obligation to meet section 110(a)(2)(D) at this point in time.

The commenters also cite the stay of the 8-hour ozone portion of the NOx SIP Call as further evidence that states had no obligation to comply with the timing of section 110(a)(1) during pendency of the NAAQS litigation. This issue is discussed in more detail in Section III B of the preamble to the final rule. In short, EPA believes that the commenters incorrectly infer from the admitted uncertainty concerning the outcome of litigation over the NAAQS that there is uncertainty whether the statute imposes a SIP submission obligation and a schedule on which states are intended to meet that obligation. From the mere fact that more than 3 years have transpired, due in part to the litigation over the NAAQS, the commenters infer that the statute does not impose the obligation. EPA believes that the proper reading of the statute is that section 110(a)(1) imposes the obligation and provides for a three year schedule for the first SIP submission, addressing the applicable requirements of section 110(a)(2), including section 110(a)(2)(D)(i).

Finally, regardless of the accuracy of these earlier EPA statements or the commenters' characterization of them, the statements are not controlling with respect to today's action. There is, at this point in time, no doubt about the existence and applicability of the $PM_{2.5}$ and 8-hour ozone NAAQS. States have an obligation under section 110(a)(1) to make a SIP submission within 3 years after promulgation of a new or revised NAAQS. The statute does not explicitly or implicitly state that this obligation, or the timing for this obligation, is suspended during the pendency of litigation over the NAAQS in question. Moreover, even if there were no obligation during the pendency of the litigation, it does not follow that there is no such obligation now. To the contrary, EPA believes that there can be no serious argument that states have an obligation to make SIP submissions that comply with section 110(a)(1) now. In addition, given the data, modeling, and analyses now available, it is now clear that the states covered by this rule have an obligation to make SIP submissions that address interstate transport as contemplated by section 110(a)(2)(D)(i). EPA recognizes that, as practical matter, that it was difficult for states to know how to respond during the pendency of the litigation. At this point in time, however, there should be no such confusion. In recognition of the fact that time has transpired beyond what the statute contemplated, EPA has determined that it is appropriate to require states to make submissions that meet the obligations of section 110(a)(2)(D)(i) within 18 months from the date of today's action.

I. B. Rule is not needed/premature.

EPA's view that states have a current obligation to make submissions to meet the requirements of §110(a)(2)(D) is discussed in detail in the preamble to the final rule. In particular, the preamble discusses arguments raised by a number of commenters that: (a) states do not need to comply with §110(a)(2)(D) until after completion of the designations process of §107(d); (b) states do not need to comply with §110(a)(2)(D) until submission of nonattainment plans under §172; and (c) states do not need to comply with §110(a)(2)(D) until after the next review of the $PM_{2.5}$ and 8-hour ozone NAAQS. The comments and responses below elaborate further on these points and also address other related issues raised by commenters.

I.B.1.

Comment:

Commenters asserted that CAIR is premature because EPA at this time has no basis to make a finding under §110(k)(5) that any state SIP for $PM_{2.5}$ or 8-hour ozone is "substantially inadequate" to comply with applicable SIP requirements. The commenters argued that §110(k)(5), by its explicit terms, only provides EPA with authority to issue a "SIP call" after the submission of the SIPs that are purportedly inadequate. In other words, the commenters argued that in the absence of the required SIP, there can be no SIP call. As further proof of this point, the commenter quoted that portion of §110(k)(5) which provides that: "[a]ny finding under this paragraph shall, to the extent the Administrator deems appropriate, subject the State to the requirements of this Act to which the State was subject when it developed and submitted the plan for which such finding was made, except that the Administrator may adjust any dates applicable..." From the latter provision, the commenters infer that a State must necessarily have developed and submitted a plan in all instances before EPA could take action under §110(k)(5).

Response:

EPA believes that the commenters have incorrectly concluded that EPA is basing this action on a SIP call pursuant to §110(k)(5). Although EPA did discuss that provision in the proposal in the context of describing the legal context for related actions, such as the NOx SIP Call, EPA did not state that §110(k)(5) is the basis for the CAIR. As previously explained, EPA believes that states currently have an outstanding statutory obligation to submit SIPs pursuant to §110(a)(1) that would meet the requirement of §110(a)(2)(D) concerning interstate transport. The failure of states to have submitted such a plan to date does not preclude EPA from taking this action. Under the general authority to develop regulations in §301(a)(1), EPA has the power to develop regulations that it believes will be necessary to allow the agency to carry out its functions. This general authority includes the ability to take actions that will provide for better and more effective implementation of the SIP process. In this instance, the issuance of this rule will aid states in meeting their obligations to comply with §110(a)(2)(D).

Following its incorrect line of reasoning, the commenters further argued that if EPA could issue a §110(k)(5) SIP call in circumstances such as these, EPA would be engaging in "federal preemptive intervention in states' authority to develop SIP provisions in the first instance," contrary to the CAA. Again, the commenters err in their belief that EPA is utilizing §110(k)(5) as the basis for the CAIR, and EPA is in fact relying on other authority to take early action. Aside from the question of authority, EPA also disagrees with the commenters' underlying premise that it is wrong for EPA to take action at this time to help states address interstate transport. Although EPA shares the commenters' concern about the role of states in the development of SIPs, EPA disagrees that it is inappropriate for EPA to provide states with assistance to address interstate pollution, and to provide that assistance at a point early in the SIP development process. As the commenter noted, past experience with ozone has indicated that adopting a "wait and see" approach to interstate transport was not necessarily the most effective or timely way to deal with the issue. As the commenters correctly pointed out, it took "nearly 20 years after the 1979 promulgation of the 1-hour ozone NAAQS to determine what, if any, additional provisions [state] SIPs should contain to address adequately any significant contribution to other states' nonattainment of the NAAQS." For this extended period during

which transport was "debated and studied," the commenters argued that the states had time and opportunity to develop SIPs that would meet the requirements of §110(a)(2)(D).

EPA does not believe that 20 years of continued ozone nonattainment, due in large part to interstate transport of ozone, is a precedent to repeat for $PM_{2.5}$ and 8-hour ozone. Given the degree of knowledge about the existence and extent of interstate transport, such delay would not be appropriate or consistent with expeditious attainment of the NAAQS. What the commenters did not discuss was the fact at the end of 20 years of debate and study, EPA and the states did devise an approach to address the problem of interstate transport for the 1-hour ozone standard. The approach was that taken by EPA and the states in the NOx SIP Call, in which EPA determined which states contributed significantly to downwind nonattainment in accordance with §110(a)(2)(D) and provided states with tools to address that significant contribution. This conceptual approach was approved by the courts. See, Michigan v. EPA, 213 F.3d 663 (D.C. Cir. 2000), cert. denied, 532 U.S. 904 (2001)(NOx SIP Call), and Appalachian Power v. EPA, 251 F.3d 1026 (D.C. Circ. 2001)(technical corrections). This approach has already begun to show results.

Instead of acknowledging the success of the NOx SIP Call approach, a number of commenters advocate that the states should be given an opportunity "in the first instance" to develop their own approaches to address significant contribution under §110(a)(2)(D). As noted above, EPA is not convinced that an extended period of delay is warranted, let alone required. EPA already has sufficient data and modeling to analyze which states have NOx and SOx emissions that contribute to downwind nonattainment of the $PM_{2.5}$ and 8-hour ozone standard, and using an approach analogous to the NOx SIP Call, EPA can already ascertain which states have emissions that are contributing significantly to downwind nonattainment of those standards. Thus, following the model of the NOx SIP Call, EPA is providing states with tools to address the problem of interstate transport now. EPA notes that §110(a)(2)(D) requires states to submit SIPs that prevent emissions that significantly contribute to nonattainment. Instead of abandoning the states and forcing them to devise their own approaches to what all agree is a regional problem, EPA is in fact providing tools that many states will find helpful. Thus, rather than a trespass upon state prerogatives to develop a SIP that complies with §110(a)(2)(D) as alleged by the commenter, EPA believes that is providing timely assistance to the states. To the extent, however, that a state prefers to take an alternative approach to meet the obligations to prevent emissions that significantly contribute to downwind nonattainment, it retains the right to do so in accordance with the normal principals of the federal-state relationship in SIP development.

In summary, EPA believes that the commenters incorrectly assumed that the basis for the CAIR is a §110(k)(5) SIP call. EPA is relying on its general authority to approve or disapprove SIPs as meeting the §110(a)(2)(D) requirement, and fulfilling its role in the federal-state partnership by providing early assistance to states to help them meet that obligation. EPA does not believe that the CAA should be read to preclude EPA from taking necessary early action to address interstate transport of $PM_{2.5}$, ozone, or their precursors. When, as here, EPA can utilize extensive data and modeling to identify interstate transport, to quantify the transport that significantly contributes to downwind nonattainment, and to provide states with tools to address that transport, EPA may do so. Given past experiences, EPA can anticipate that states will have

difficulties in dealing with transport absent regional tools to address the problem. Rather than putting states in the position of submitting SIPs that cannot adequately address the problem, EPA believes that is preferable to provide the tools at the same time that states are developing their $PM_{2.5}$ and ozone SIPs, thereby allowing them to utilize their resources to focus upon other aspects of the nonattainment problem, such as designing and adopting local controls to address the local emissions component of the problem.

I.B.2.
Comment:

Commenters asserted that CAIR is not necessary to alleviate significant contribution to nonattainment of the 8-hour ozone NAAQS, because of the implementation of the 1998 NOx SIP Call. The commenters note that in the NOx SIP Call for the 1-hour ozone and the 8-hour ozone NAAQS, EPA "required the same states to achieve the same NOx emission reductions" for both NAAQS. Even though EPA stayed the NOx SIP Call with respect to the 8-hour NAAQS, the commenters note that States nevertheless did proceed with their obligation to obtain NOx emission reductions. Moreover, EPA has taken action to approve the SIPs submitted by the States to meet those obligations. By this line of logic, the commenter suggests that all of the States covered by the NOx SIP Call must, therefore, necessarily have already achieved the amount of NOx emission reductions that EPA could require for compliance not just with the 1-hour ozone NAAQS, but also the 8-hour ozone NAAQS to meet §110(a)(2)(D).

Response:

EPA notes that it stayed the 8-hour basis for the NOx SIP Call in September of 2000, and that stay has remained in place until now.[19] Thus, the SIP submissions by the states in response to the NOx SIP Call were submitted to meet §110(a)(2)(D) only for the purpose of the 1-hour ozone NAAQS, and EPA's approval of those SIPs was likewise only on that basis. Thus, it is inaccurate to assert that the states covered by the NOx SIP Call have necessarily already complied with §110(a)(2)(D) for purposes of the 8-hour ozone NAAQS.

More importantly, however, EPA believes that the commenters incorrectly construe the stayed 8-hour basis of the NOx SIP Call as the only reductions that such states could ever need to achieve in order to comply with §110(a)(2)(D). Stated simply, the data and analyses available to EPA at that point in time did indicate that those emissions reductions were necessary to comply with §110(a)(2)(D). Subsequent data and analyses in connection with this action have identified additional NOx reductions that are necessary in order to eliminate emissions that run afoul of §110(a)(2)(D). EPA's rationale is discussed in further detail in Section III B of the preamble to the final rule.

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[19] See, "Stay of the Eight-Hour Portion of the Findings of Significant Contribution and Rulemaking for Purposes of Reducing Interstate Ozone Transport," 65 FR 56,245 (Sept. 18, 2000)(indefinite stay of the finding with respect to the 8-hour ozone NAAQS); see also, "Interstate Ozone Transport: Response to Court Decisions on the NOx SIP Call, NOx SIP Call Technical Amendments, and Section 126 Rules," 69 FR 21, 604 (April 21, 2004)(confirming continued stay of the finding with respect to the 8-hour ozone NAAQS).

Comment:

Commenters made a number related arguments concerning the 8-hour ozone NAAQS and the prior obligations of States to meet §110(a)(2)(D) for NOx emissions in the NOx SIP Call. These arguments concerned: (i) the actions of the States to comply with the NOx SIP Call; (ii) EPA's statements about reevaluating the need for additional controls in 2007; and (iii) EPA's purported commitment to do nothing more with respect to NOx emissions from these States until some future date. The commenter's view is that EPA should not take any further action whatsoever to implement NOx controls until after at least 2007.

Response:

These comments are addressed in Section III B of the preamble to the final rule.

I.B.3.

Comment:

One commenter asserted that because EPA was proposing to designate relatively larger nonattainment areas for $PM_{2.5}$, and starting with the presumptive boundaries of the Consolidated Metropolitan Statistical Area (CMSA), this would supersede the need for the regional reductions contemplated by CAIR. The specific complaint of the commenter was that EPA might designate 10 counties in the metropolitan Detroit area as part of the $PM_{2.5}$ nonattainment area, even though only a few of those counties would be monitoring nonattainment. The commenter suggested that designation of larger nonattainment areas would alleviate the need for regional reductions from CAIR.

Response:

EPA believes that the commenter confuses the purpose of the CAIR rule and the purpose of nonattainment area boundaries. CAIR is based on §110(a)(2)(D)(i) which is intended to require each state SIP to include provisions that prevent emissions from sources in that state from significantly contributing to nonattainment in, or interference with maintenance in, another state. In short, it is intended to help alleviate transport of pollutants from an upwind state over which the downwind state has no direct jurisdiction or authority to obtain emissions reductions. By contrast, the purpose of the designations process under §107(d) is to determine the appropriate boundaries for nonattainment areas within a state (although such areas occasionally encompass more than one state, as in the case of metropolitan Washington) in order to make sure that the nonattainment area includes the local sources that contribute to nonattainment. By statute, counties with monitors that violate the NAAQS, or that have emissions that contribute to nonattainment in another nearby area, are to be designated nonattainment. See, §107(d)(1)(A)(I). By guidance, EPA has laid out the factors that it considered in evaluating whether a county (or portion of a county) "contributes" to the violations in a nearby county with a violating monitor. In recognition of the fact specific nature of this inquiry, EPA developed guidance for ozone and for $PM_{2.5}$ that allowed consideration of various factors, including such matters as the degree of commuting from adjacent counties, in order to make the designations. Within the boundaries of the designated nonattainment areas, the CAA requires states to develop SIPs that comply with the requirements of the statute, especially with the requirements of §172(c). EPA intends to issue a implementation rule that will address in more detail how states meet the nonattainment area SIP requirements. It is important to note, however, that CAIR is

intended to insure that upwind states take appropriate action to alleviate significant contribution so that downwind states may develop nonattainment area SIPs that achieve reasonable reductions of local emissions and do not have to overcompensate for the influx of significant contribution from upwind states. Thus, the designation of nonattainment areas does not eliminate the obligation to reduce regional emissions that constitute a significant contribution under §110(a)(2)(D), the designation process compliments that effort. The designation of relatively larger nonattainment areas does not supplant the need for regional reductions like those achieved by this action.

I. C. Prefer legislative approach

I.C.1.
Comment:

A large number of commenters, reflecting a broad spectrum of states, industry, and other organizations, expressed a preference for a legislative approach to achieve emissions reductions. Many of the commenters stated that EPA's efforts to obtain emissions reductions through a regulatory approach such as the CAIR will be less certain and will be subject to more litigation. In addition, a number of the commenters expressed the view that some form of multi-pollutant legislation would be the best approach to harmonize and simplify what might otherwise be inconsistent and complicated regulatory programs, including requirements that apply to attainment of the NAAQS, requirements related to regional haze, any program to achieve emission reductions of mercury, any action to address carbon dioxide, and other related issues.

Response:

EPA agrees that a legislative approach would also be an effective way to address the problems identified in this rule, and might be preferable in some respects. However, in the absence of new legislation, EPA believes that the current provisions of the CAA already provide an effective approach to address interstate transport of pollutants, and that such an approach has already been approved by the courts. See, Michigan v. EPA, 213 F.3d 663 (D.C. Cir. 2000), cert. denied, 532 U.S. 904 (2001).

I.D. Rule Should Extend Nationally to Address Regional Haze

I.D.1

Comment:

The states and tribes of the Western Regional Air Partnership, and a number of stakeholders involved in that organization, expressed varying levels of interest in or willingness to consider an expansion of the CAIR into the region covered by the WRAP in order to address haze. All agreed that more a detailed proposal of the legal and technical terms of such an expansion was needed before they could decide whether to endorse such an expansion. Another commenter noted that a proposed expansion would need to be adopted through notice and comment rule making.

Response:

As expressed in a May 14 letter from Administrator Leavitt to Governor Napolitano of Arizona and Governor Vallo of Acoma Pueblo, the EPA chose to focus in this rule making on the CAIR as originally proposed for the purpose of obtaining the health and welfare benefits related to implementation of $PM_{2.5}$ and Ozone standards. The EPA agrees that more details regarding the technical and legal contours of an expansion of the CAIR would be needed in order to provide the public with an opportunity for informed comment, and that such an expansion would necessitate a separate notice and comment rule making process.

Subsequent to the comment period for the CAIR, we proposed a cap and trade program for SO_2 as one alternative to NAAQS-based increments as a strategy to achieve the goals and objectives of the PSD program. If the EPA pursues the development of a new national cap and trade program for NOx and/or SO_2, for the purpose of addressing PSD or regional haze, or both, in doing so we would work with western States, Tribes, and stakeholders to address their concerns.

I.D.2

Comment:

The commenter agreed that CAIR should be limited to those states in the eastern U.S. where nonattainment is a concern. Commenter stated that evidence shows no indication that the interstate transport of pollution in the western states is affecting any attainment of the NAAQS, and that except, California and other limited areas, nonattainment for ozone and $PM_{2.5}$ is not a significant problem in the west. The commenter stated that any proposal to expand the cap and trade approach of the CAIR must also include consideration of the WRAP SO_2 milestones and different NOx requirements in the west. Commenter requested more explanation of the technical and legal basis for expansion of the CAIR to western areas where nonattainment is not an issue, and expressed willingness to work with EPA and western stakeholders to develop an appropriate proposal to expand the cap and trade approach to western states.

Response:

As noted above, EPA has decided not to extend CAIR to western States in this rulemaking. EPA appreciates the interests of western States and stakeholders in taking the

WRAP SO_2 program into account in any national cap and trade program, and in addressing the differing factors regarding NOx in the west. EPA will work closely with western States, tribes, and stakeholders if we decide to extend a CAIR-like approach nationwide.

I.D.3
Comment:

Commenter agreed that there are advantages to having one national program for controlling NOx and SO2 emissions from power plants. Commenter stated that proposal did not contain sufficient detail on how expansion of the program to the West would improve upon the existing regulatory programs affecting Western facilities, and therefore could not be endorsed until more information is provided. Commenter expressed a commitment to continue participating in dialogue with both EPA and other regional stakeholders to determine if expansion is appropriate and a would seek to have a number of unspecified issues addressed.

Response:

See previous response.

I.D.4
Comment:

An expanded program would need to ensure that: 1) SO_2 milestones and schedules are harmonized with those developed by the Western Regional Air Partnership 2) NOx requirements for the west do not require the installation of SCR (as in Clear Skies), and 3) maximum regulatory certainty is provided.

Response:

See previous response.

I.D.5
Comment:

If EPA proposes a western expansion of CAIR consistent with Clear Skies, commenter stated that regulatory relief should be provided for power plants meeting NSR, regional haze and Reasonable Attribution BART requirements. In addition, commenter believes that under a western CAIR, the best non-duplicative role for the WRAP should be an advisory role to western States' development and submittal of SIP requirements for meeting regional haze regulation, as well as potential new western CAIR requirements for NOx and SO2. Another commenter asserted that EGUs meeting WRAP milestones for SO2, and SO2 requirements for CAIR, should satisfy BART, including BART for reasonably attributable visibility impairment, as well as New Source Review and Prevention of Significant Deterioration requirements.

Response:

Any regulatory relief for EGUs in an expanded CAIR region would be dependent on the exact terms of that expansion, which have not been determined (nor again has any decision been made to expand a CAIR-like approach nationally). In general it is likely that such relief would be similar to that provided to EGUs in the current CAIR region. The EPA does not anticipate

that an expanded rule would result in any change to the current role of the WRAP or other RPOs in the regional haze planning process.

I.D.6
Comment:

Sulfur dioxide and oxides of nitrogen contribute to a suite of public health and environmental problems in the western United States and the other states not covered by EPA's proposed rule. Commenter urges EPA to remedy this serious deficiency in the geographic scope and, ultimately, the fundamental protections provided by its proposal. Commenter believes it would be arbitrary and capricious, contrary to law, an abuse of discretion, and seriously misguided public policy for EPA to leave vast portions of the country unprotected from the harmful impacts of interstate air pollution. Commenter states that States nationwide were required to submit plans under section 110 of the Clean Air Act, by July 2000, addressing a variety of air quality management provisions including the far reaching interstate air pollution abatement requirements, and that these plans are now nearly 4 years overdue. (Commenter also included a spreadsheet intended to demonstrate the viability of NOx pollution reductions employing the aggressive application of combustion technology.)

Response:

The legal and technical bases used to determine the geographic scope of CAIR based on significant contribution to ozone and $PM_{2.5}$ nonattainment are explained in the NFR and are not arbitrary or capricious. See responses above regarding expansion based on regional haze.

I.D.7
Comment:

Commenter believes there a number of reasons that EPA should consider a broader geographic area to be regulated under this rule, including the leveling of requirements between states, allowing for the participation of additional and potentially more cost-effective to control units, increasing the size and availability of skilled labor work force, and increasing participation in and the effectiveness of the trading program, as well as providing increased air quality benefits to areas struggling with air quality issues, including regional haze and visibility impairment.

Response:

The EPA agrees there could be some advantages to an expanded geographic scope for CAIR, but such an expansion would also raise numerous technical and legal challenges which could delay promulgation and implementation of the rule. Therefore the EPA has determined that it is appropriate to focus in this rulemaking on obtaining the health and welfare benefits related to implementation of $PM_{2.5}$ and Ozone standards.

I.D.8
Comment:

In the view the commenter, EPA should not foreclose the voluntary option of ultimately including Western States and EGUs in the CAIR. Commenter acknowledges the many advantages and efficiencies of having one national program for controlling NOx and SO2 emissions from the electric power sector, so long as any expansion of the CAIR respects and is

consistent with the regulatory decisions currently being made by States and EPA through the WRAP process.

Commenter urges EPA to keep an open mind on approaches that could allow for involvement of the Western States and EGUs, consistent with the above criteria. One such approach might be to provide Western States and EGUs with option of voluntarily electing to participate in the cap-and-trade program proposed under the transport rule. A voluntary elective approach - instead of mandatory control program - may provide an effective way to achieve expansion to the West with minimal risk of litigation.

Response:

It is not entirely clear what the commenter means by a "voluntary" approach. Any program would need to be consistent with the constraints on EPA's authority to dictate the contents of SIPs under the CAA and controlling case law. One possible approach could be to determine emission reduction requirements based on highly cost-effective emission reductions, as in the CAIR, and allow the States the option of meeting this requirement via participation in the cap and trade program. The EPA has not made any determinations at this time as to the extent the program, if proposed, would be "voluntary" or "mandatory."

I.D.9

Comment:

The EPA should allow States not subject to CAIR to opt into the program to satisfy their regional haze requirements.

Response:

As explained in the CAIR NFR preamble at section VII, allowing states outside the CAIR region, which have not been shown to contribute significantly to nonattainment, to participate in the cap and trade program could result in emission shifting to states in the CAIR region. To prevent this, States outside the CAIR region are not allowed to participate in the program. Any expansion of the CAIR cap and trade region should be done not based on individual State opt ins, but rather in a systematic way which takes into account the potential for emission shifting.

I.D.10

Comment:

EPA should establish a contribution trigger for applicability of the CAIR to regional haze (similar to the approach used for PM and ozone NAAQS nonattainment), defined at 0.67percent or 1 percent of a State's required light extinction reduction based on the uniform rate of progress goal in 2018.

Response:

The EPA has not determined whether it would use such a significant contribution test in the regional haze context. However, it should be noted that in the 1999 Regional Haze Rule EPA determined that all 50 states contain sources whose emissions are reasonably anticipated to cause or contribute to regional haze in a Class I area, and are therefore subject to regional haze

rule requirements. See 64 FR 35714, 35720–22. In that rule, EPA stated that it "does not believe that is appropriate to establish criteria for excluding States or geographic areas from consideration as potential contributors to regional haze visibility impairment." Id. At 35721.

I.D.11
Comment:

One State commented that it would be inappropriate to have two NOx zones, one for haze and one for NAAQS attainment, due to technical uncertainties and legal complications.

Response:

The EPA has not determined whether, in the event we propose to extend a CAIR-like program nationally for regional haze, a NOx cap and trade program would consist of two zones. We will work closely with States and RPOs in developing any proposal.

I.E. General

I.E.1.
Comment::

Michigan is concerned that any litigation of the IAQR will delay implementation of the rule. As the EPA considers comments received and completes the final IAQR, thought needs to be given to existing programs such as the acid rain and NOx SIP Call programs, which have already withstood legal challenge. Incorporating similar concepts may be crucial in avoiding litigation of the IAQR. [[(1181, p.2)]]

Response:

EPA agrees that incorporating aspects of existing rules that have already survived legal challenge improves the likelihood that litigation will not delay implementation of CAIR. As described in detail in the preamble EPA has incorporated such concepts where appropriate.

I.E.2.
Comment:

We applaud EPA in proposing this important program to rigorously address interstate pollution transport. Such a program is badly needed in order for downwind states like New Hampshire to finally achieve healthy air quality. While not specifically stated in the IAQR preamble, we believe that the goal of the rule is to reduce NOx and SO2 related interstate air pollution transport to a level that downwind states can reach attainment by their federally mandated attainment dates by implementing a realistic level of local controls. New Hampshire looks forward to working with EPA to achieve this goal. [[(p.1)]]

See response below.

I.E.3.
Comment:

The proposed IAQR targets fossil-fuel fired electric generating units ('EGUs') for regulatory controls that would require substantial reductions in emissions of NOx and SO2 especially at large coal-fired EGUs. Oglethorpe Power has a substantial ownership interest in these types of EGUs as well as other types of EGUs, like natural gas and oil-fired combustion turbine units that will also be affected by the IAQR. Therefore, this rulemaking directly and substantially affects the interests of Oglethorpe Power. [[(p.1)]]

In general, Oglethorpe Power believes that the approach suggested by EPA in the IAQR proposal is a good one. EPA's general direction is to use a cap and trade program with marketable allowances applied across a large geographic region. This program should have realistic caps and deadlines for compliance applied to all affected sources in an equitable fashion to solve various nonattainment area concerns. Given this, Oglethorpe Power believes that it can support EPA in its efforts. [[(p.2)]]

As EPA moves forward towards promulgation of the IAQR, with its large consequential costs to EGUs, it should remain mindful of the substantial investment utilities like Oglethorpe Power have already made to reduce emissions of NOx and SO2. [[(p.2)]]

See response below.

I.E.4.
Comment:

NPRA generally supports the proposed rule and the use of the cap and trade program in all states to achieve the desired emissions reductions. [[(p.1)]]

See response below.

I.E.5.
Comment:

The USCHPA and BCSE recognize the need to address the NOx and SO2 precursors to ground level ozone and $PM_{2.5}$ and support EPA's efforts to reach attainment of the ambient air quality standards for these pollutants. CHP could be an important part of the solution to this problem. [[(p.1)]]

See response below.

I.E.6.
Comment:

I am writing in support for proposed Interstate Air Quality Rule for NOx and SO2. If the rule is implemented effectively, reductions of both pollutants would provide significant relief from the effects of acid rain on streams and lakes in the Appalachian mountains. These waterways provide some of the best remaining trout habitat in the eastern U.S. Trout fisheries in the eastern mountains provide the states in the region with millions of dollars of economic benefits. Unless acid rain is curtailed, these fisheries, and the benefits they provide, will continue to decline. A number of recent studies have shown that cuts of the magnitude required by the rule will have significant benefits for lakes and streams in the East currently threatened by acid rain. A 1998 Trout Unlimited study modeled the effects of cuts of approximately this magnitude and predicted that such cuts would significantly reduce the number of streams in Virginia that will ultimately succumb to acid rain. In New York, estimates show that reductions of this magnitude will promote the recovery of many lakes. EPA modeling estimates that the number of acidic lakes in the East will drop from six percent to one percent by 2030 if these cuts take effect.

See response below.

I.E.7.
Comment:

Thank you for the opportunity to comment on the proposed rule that would cut sulfur dioxide and nitrogen oxide emissions from coal fired electric power plants east of the

Mississippi. As a member of the Adirondack Council, we have been fighting for years to end the devastating damage caused by acid rain to the ecological integrity of the Adirondack Park, I urge the EPA not to back down or in any way dilute the proposed regulation. [[p. 1]]

See response below.

I.E.8.
Comment:

I am writing to encourage you to bring this rule into enactment without change, or stronger if possible, despite strong opposition from power generation companies. [[p. 1]]

See response below.

I.E.9.
Comment:

I am pleased to see the Environmental Protection Agency propose new limits on electric generating units in the eastern region of the United States. The Interstate Air Quality Rule will impose new caps on emissions of sulfur and create a Cap and Trade Program for nitrogen with similarly stiff caps over the next ten years. [[(p.2)]]

I am particularly pleased that the agency has recognized that downwind counties in New York State often cannot comply with Federal air quality standards when so much of our overall pollution problem is due to the transport of pollutants from upwind sources. [[(p.2)]]

See response below.

I.E.10.
Comment:

I write in support of the EPA's proposed regulation to cut emissions of sulfur dioxide and nitrogen oxide from electric power plants.

As a property owner in the Adirondack Park, I am acutely aware of the damage that acid precipitation has caused in high elevation red spruce trees and in the lakes and ponds of the region. The Adirondack Council has long advocated for action to address this issue.

The agency's proposed action on acid rain is encouraging to all of us who care about the environmental health of the nation. [[p. 1]]

See response below.

I.E.11.
Comment:

I support the intention of this regulation. [[(p.1)]]

See response below.

I.E.12.
Comment:

We understand the need to address interstate transport of pollution to assist state and local air agencies with attaining the fine particulate matter and 8-hour ozone standards. We commend EPA for taking a leadership role on this issue. [[(p.1)]]

See response below.

I.E.13.
Comment:

I applaud the EPA's New Interstate Air Quality Rule, in that it will reduce or end Acid Rain Damage in New York's Adirondack Park. [[(p.1)]]

See response below.

I.E.14.
Comment:

There is no air quality issue of greater importance to Massachusetts than the interstate transport of air pollution from upwind sources. Transport of pollutants causes Massachusetts' residents and businesses to bear a disproportionate burden of the health, environmental and economic impacts of air pollution. We are pleased that EPA has proposed this rule to address the interstate transport of pollutants. [[(1171, p.1)]]

See response below.

I.E.15.
Comment:

I grew up in Upstate New York on the border of the Adirondack Park. My family and I vacation there every year and I don't like what has happened and is still happening to the fresh water lakes there due to acid rain. I would rather pay higher rates for electricity and have the power generation companies put in place NOx and SO2 reduction technologies than to continue allow these pollutants to ruin a place a value highly. Thanks for your attention to this matter. [[(p.1)]]

See response below.

I.E.16.
Comment:

With a few exceptions, we believe the proposed rule is appropriate and reasonable. [[(p.1)]]

See response below.

I.E.17.
Comment:

I appreciate the EPA's acknowledgment that emissions originating in one upwind state contribute to high levels of fine particulates arid ozone in many states a considerable distance away. I also appreciate the EPA's recognition that emissions of SO_2 and NOx from coal-fired power plants arc the most important source of this transported air pollution. Chemical reactions in the atmosphere create ozone from those NOx emissions, and convert both SO_2 and NOx emissions from those sources into fine particulates. [[(0927, p.1)]]

New Jersey appreciates the initiative the USEPA has taken to begin to address the transported pollution problem. [[(0928, p.5)]]

See response below.

I.E.18.
Comment:

Again, Associated believes the proposed rule represents a considerable effort by EPA to clarify and better define the reductions needed regarding interstate transport of fine particulate matter and ozone. [[p.3]]

See response below.

I.E.19.
Comment:

Illinois EPA fully supports US EPA's efforts to reduce the levels of transported pollutants. We urge US EPA to move forward with an aggressive national control program to reduce interstate transport of ozone and fine particulate matter. [[(0942, p.1)]]

See response below.

I.E.20.
Comment:

The preamble of the proposed Interstate Air Quality Rule (IAQR) describes the framework for a program, that the NESCAUM states believe, with modifications, is appropriate toward mitigating the transported pollution that plagues our region. This program builds on the federal Acid Rain Program, the OTC NOx Budget Program, and the NOx SIP Call, which were some of the first multi-state transport initiatives. As proposed, EPA's IAQR is another step forward, though certainly not the final step, in resolving the transport problem. [[(0941, p.1)]]

See response below.

I.E.21.
Comment:

All LPPC members are committed to environmental excellence and among the 24 members utilities we have some supporting more environmentally stringent provisions and

others suggesting a narrower scope. LPPC looks forward to help shaping a regulatory program that achieves the goals of the Clean Air Act (CAA or Act). [[(p.2)]]

See response below.

I.E.22.
Comment:

ExxonMobil has considerable interest in, and will potentially be impacted by, the IAQR, and looks forward to working with EPA on its cost-effective implementation. [[(p.1)]]

Reductions in the transport of ozone and fine particulate precursors will be required for many areas to attain the National Ambient Air Quality Standards(NAAQS). [[(p.2)]]

See response below.

I.E.23.
Comment:

In general Hoosier Energy supports emissions trading as the most cost-effective way of achieving given emission reduction goats. We believe it provides needed flexibility for small systems such as our selves. [[p.2]]

See response below.

I.E.24.
Comment:

Cinergy Generally Supports the Interstate Air Quality Transport Rule as an Aggressive and Expeditious Means of Bringing Areas Into Attainment With the National Ambient Air Quality Standard for Fine Particulate Matter.

If the IAQR Is Implemented as Proposed, Substantial Environmental Benefits Will Be Achieved Through Regulation of the Power Generation Sector. EPA's modeling shows that the Phase II NOx and SO2 caps in the proposed IAQR will achieve significant environmental benefits by bringing a substantial number of counties with nonattainment areas either into or close to attainment of NAAQS. Cinergy notes that these substantial gains will be achieved at considerable cost to utilities and their customers. These costs would be much greater if a command-and-control approach were being taken. Thus, Cinergy supports a cap-and-trade mechanism as the best means to promote efficient, cost minimizing emissions reductions. [[pp. 3-4]] [[See docket number 0762, pp. 13-20 for extensive discussion of this issue.]]

See response below.

I.E.25.
Comment:

The proposed transport rule is an important milestone in implementing a market-based, integrated, and coordinated approach to air quality regulation. [[(p.7)]]

See response below.

I.E.26.
Comment:

Please see 235 comment letters from citizens who generally expressed their support for the proposed rule making.

See response below.

I.E.27.
Comment:

On February 25 of this year, the Adirondack Council testified at public hearings held by the Environmental Protection Agency in support of the proposed Interstate Air Quality Rule (now called the Clean Air Interstate Rule). As we said then, we believe that the Interstate Rule will result in substantial public health benefits, far in excess of its cost. Thousands of premature deaths of American citizens with respiratory illnesses may be avoided each year. We applaud these steps on behalf of all New Yorkers. [[(p.2-3)]]

See response below.

I.E.28.
Comment:

EEI is generally supportive of the policy objectives underlying EPA's proposed rules and shares EPA's commitment to make further, sensible emission reductions from power generating facilities. The proposed rule has a worthy goal making a substantial contribution toward attainment of the new national ambient air quality standards for eight-hour ozone and $PM_{2.5}$. It also takes a laudable approach the kind of cap-and-trade program that has proven to be so successful since passage of the Clean Air Act Amendments (CAA) of 1990. And yet, EPA's proposal would achieve the largest air pollution reductions of any kind not specifically mandated by Congress. [[p. 2]]

See response below.

I.E.29.
Comment:

NCDAQ generally commends EPA for this proposed rule that will address the transported contributions to downwind nonattainment for both ozone and fine particulate matter. The proposed action would require significant reductions of emissions of nitrogen oxides (NOx) and sulfur dioxide (SO_2) from EGUs in other states. North Carolinas Clean Smokestacks Act (CSA), which was enacted in 2002, will require reductions of NOx and SO2 from the States 14 largest coal-fired power plants of more than 70 percent from 1998 levels. The reductions proposed in the IAQR in the other states are needed to ensure that North Carolina can attain and maintain the health-based air quality standards for fine particulate matter and 8-hour ozone. [[(p.1)]]

See response below.

I.E.30.
Comment:

Austin applauds the EPA for performing the analyses for the interstate transport rule. [[(p.1)]]

See response below.

I.E.31.
Comment:

The Potomac Appalachian Trail Club (PATC) wishes to comment favorably on the new Interstate Air Quality Rule that is pending implementation. We believe it is urgent to make more progress on improving air quality through reductions in fine particulate and ozone concentrations. The proposed rule should reduce the harmful effects of upwind sources of air pollution on people and ecosystems.

We hope that you implement the new rules, and applaud your initiative in pushing them through.[[p. 1]]

See response below.

I.E.32.
Comment:

The Virginia DEQ appreciates and applauds EPAs effort to develop a multi-pollutant rule for states to use in view of the apparent unwillingness of Congress to address this issue with legislation. During the Southern Appalachian Mountain Initiative (SAMI) study all eight of the states involved offered strong support for multi pollutant legislation controlling NOx, SO_2, and Mercury at a level at least as stringent as proposed in the Clear Skies legislation. Virginia is considering passage of similar legislation at the state level and the Department of Environmental Quality is supporting these efforts. [[(p.1)]]

See response below.

I.E.33.
Comment:

Tennessee is generally in favor of the proposed approach for addressing the regional transport of CAA pollutants. [[(p.1)]]

See response below.

I.E.34.
Comment:

This proposed program would reduce the precursors of $PM_{2.5}$ by requiring significant reductions of sulfur dioxide and nitrogen oxide emissions from electric generating units. These precursor emissions produce a significant portion of the fine particulates which are found in the monitoring filters at locations throughout the eastern United States including Ohio. [[(p.1)]]

Ohio EPA supports the proposed rule and the reductions required by it. Major sources in the state will have to provide for additional controls beyond what is currently being done in order to meet this rule. However, attaining the fine particulate standard represents a major goal of our agency and we believe that these reductions are the minimum necessary for Ohio to meet the health-based standard at some, but not all of the monitors in the state. Although the IAQR will bring about substantial improvement, there will remain a significant amount of work to be completed in order to achieve attainment of the standard in the urban/industrial core of our major metropolitan areas. [[(p.1)]]

See response below.

I.E.35.
Comment:

I would like to commend EPA for taking steps to create aggressive national controls that will help State and local air quality agencies in their plans to achieve and maintain the tough new Ambient Air Quality Standards (NAAQS) for both 8 hour ozone and $PM_{2.5}$. [[(p.1)]]

Modeling that has been conducted for Arkansas, Mississippi and Tennessee (ATMOS) clearly indicates that interstate transport of pollutants is a major problem for many areas, including Knox County Tennessee. Knox County emission inventories indicate a total amount of SO_2 emissions somewhere in the vicinity of 3,000 tons per year. Adjacent counties emit up to ten times that amount from a single electric generating unit (EGU). [[(p.1)]]

The topography of Knox County includes the Cumberland Mountains to the west and the Great Smoky Mountains to the east. The prevailing winds flow from southwest to northeast, creating a valley area with little means for the emissions to escape. Our monitors are influenced by emissions from as far away as Atlanta Georgia, following the ridge and valley system through Chattanooga Tennessee and into the Knoxville area. [[(p.1)]]

See response below.

I.E.36.
Comment:

The NAM's mission is to enhance the competitiveness of manufacturers and improve American living standards by shaping a legislative and regulatory environment conducive to U.S. economic growth. Due to our dedication to that mission, the NAM commends the EPA for proposing a rule that uses a market-based cap-and trade approach, rather than an inflexible command-and-control regime, to take the first step toward attaining national ambient air quality standards (NAAQS) for eight-hour ozone and fine particulate matter ($PM_{2.5}$). The NAM also appreciates the EPAs intention to provide greater regulatory certainty without sacrificing environmental quality and improvement. [[0706, p. 2]]

See response below.

I.E.37.
Comment:

[[Docket number 0292 and 0407 are identical documents]]

As a member of Adirondack Council, I have just been informed that a new Air Quality Rule is being considered. I commend you on this and hope to see this initiative come to fruition. Please let me know if there is anything that environmental supporters can do to further this effort. –Thank you [[p. 1]]

See response below.

I.E.38.
Comment:

We strongly endorse EPA's interpretation of the very large body of scientific research and decades of monitoring and data analysis conducted by scores of scientists studying the transport of air pollutants on regional scales. EPA correctly focuses the proposed reductions on the largest sulfur oxides and nitrogen oxides emitting sources in the eastern portion of the United States. We particularly endorse the principle of requiring fossil-fueled electric generating units (EGUs) in much of the eastern United States to significantly reduce emissions of these air pollutants from currently mandated regulatory levels. [[(0714, p.1)]]

By this proposal, EPA is hoping to build on previous programs such as Title IV of the Clean Air Act and the NOx SIP Call, to address a regional transport problem that has been apparent to many state air pollution control agencies for many years as they struggled through repeated efforts to craft strategies for attainment of the ozone NAAQS and as they anticipate similar efforts related to fine particulate matter in the future. [[(0714, p.1)]]

See response below.

I.E.39.
Comment:

Such a proposal, aimed at achieving rabid reductions in emissions will be extremely important to States' capability to craft viable air quality attainment strategies for most of the areas in the country about to be designated nonattainment for the 8-hour ozone and/or annual $PM_{2.5}$ ambient air standards. [[(0960, p.1)]]

See response below.

I.E.40.
Comment:

PSEG believes that the analysis in the IAQR more than justifies the need for NOx and SO2 reductions from EGUs in the states covered under this proposal. Similar to the case with the NOx SIP Call and the one-hour ozone NAAQS, the analyses provided by EPA as part of the proposed IAQR demonstrate the need for a substantial reduction in transported emissions of

NOx and SO2 in order for downwind eight-hour ozone and $PM_{2.5}$ nonattainment areas to achieve compliance with the NAAQS. EPA's modeling indicates that from 22 to 96 percent of the ozone problem in the eastern United States is due to transport. [[(p.2)]]

PSEG supports the Administration's efforts to promulgate rules requiring reduction of NOx and SO2 emissions from electric generating units contributing to downwind ozone and $PM_{2.5}$ nonattainment. PSEG believes that the proposed IAQR, when implemented, will help improve air quality in the eastern part of the United States while, at the same time, reduce investment uncertainty in the electric generating sector. We are hopeful that this proposal also will re- invigorate the legislative debate. [[(p.2)]]

PSEG supports EPA's goals in the proposed IAQR and believes that implementation of the rule will go a long way towards achieving compliance with the new eight-hour ozone and $PM_{2.5}$ standards. [[(p.6)]]

See response below.

I.E.41.
Comment:

We are pleased that EPA has taken steps toward addressing interstate transport of air pollution in order to assist states and localities attain and maintain the new 8-hour ozone and fine particulate matter National Ambient Air Quality Standards. [[(p.1)]]

See response below.

I.E.42.
Comment:

The TCEQ strongly supports the concepts embodied by the CAIR proposal and in principle, a cap-and- trade approach on the basis of the flexibility it affords. [[(p.1)]]

See response below.

I.E.43.
Comment:

Overall, the proposed regulation strikes the proper balance between the goals of reducing $PM_{2.5}$ transport and ozone transport in the near term. [[1790, p. 3]]

See response below.

I.E.44.
Comment:

The TCEQ supports the concepts embodied by the IAQR. Texas needs the regional reductions from all neighboring states that may influence our air quality in order to come into compliance with the 8-hour ozone standard. [[(p.1)]]

See response below.

I.E.45.
Comment:

EEI is generally supportive of the policy objectives underlying EPA's proposed rules and shares EPA's commitment to make further, sensible emission reductions from power generating facilities. The proposed rule has a worthy goal - making a substantial contribution toward attainment of the new national ambient air quality standards for eight- hour ozone and $PM_{2.5}$. It also takes a laudable approach - the kind of cap-and-trade program that has proven to be so successful since passage of the Clean Air Act Amendments (CAA) of 1990. In fact, EPA's proposal would achieve the largest air pollution reductions of any kind not specifically mandated by Congress. [[(p.2)]]

See response below.

I.E.46..
Comment:

The Adirondack Council welcomes and strongly supports the proposed Interstate Quality Air Rule.

We believe the environmental Protection Agency is taking appropriate action through its authority under Section 110 to implement and enforce the Clean Air Act. [[p.4]]

In conclusion, the Adirondack Council strongly endorses the Interstate Air Quality Rule and commends EPA for this action, but we believe more can be done to protect public health and the environment. We urge EPA to look for opportunities to implement the program more quickly and to examine the feasibility of even deeper reductions than currently proposed. [[p.9]]

See response below.

I.E.47.
Comment:

After reviewing the CAIR, PSEG continues to support the Administration's efforts to promulgate rules requiring reduction of NOx and SO2 emissions from electric generating units contributing to downwind ozone and $PM_{2.5}$ nonattainment. [[(p.2)]]

PSEG continues to support EPA's goals in the proposed CAIR and believes that implementation of the rule will go a long way towards achieving compliance with the new eight-hour ozone and $PM_{2.5}$ standards. The proposal also will also go a long way towards reducing the amount of uncertainty surrounding the planning of capital investments in the electric generating sector. Given our own experiences with installing emission control equipment, PSEG believes that the proposed NOx and SO2 emission reduction levels and compliance timetables, implemented through a regionwide cap-and-trade program, are feasible and achievable considering the current status of emission control technologies, the availability of suppliers and skilled labor and other relevant factors. [[(p.6)]]

See response below.

I.E.48.
Notes:

Docket numbers 1845 and 1854 are duplicate comment letters of 1767.

Comment:

As stated in our March 30, 2004 comments on the first proposal of this rule, NCDAQ generally commends EPA for this proposed action that will address the transported contributions to downwind nonattainment for both ozone and fine particulate matter. The proposed action would require significant reductions of emissions of nitrogen oxides (NOx) and sulfur dioxide (SO_2) from EGUs in other states. North Carolinas Clean Smokestacks Act (CSA), which was enacted in 2002, will require reductions of NOx and SO2 from the States 14 largest coal-fired power plants of more than 70 percent from 1998 levels. The reductions proposed in the CAIR for states upwind of North Carolina are needed to ensure that North Carolina can attain and maintain the health-based air quality standards for fine particulate matter and 8-hour ozone. However, NCDAQ offers comments on several issues raised in this supplemental proposal. [[(p.1)]]

See response below.

I.E.49.
Comment:

Given the magnitude of the proposed reduction levels, LPPC supports EPAs use of existing Clean Air Act authorities- to the fullest extent possible- in order to establish an integrated framework for reducing power plant emissions in a coordinated and most cost-effective manner. In addition, we appreciate EPA's efforts to recognize regional differences in air quality and develop regulatory strategies to address those differences. While the targets and time schedules for reducing NOx, SO_2 , and mercury in the proposed rules are more ambitious than Clear Skies, it is important that the control levels and compliance deadlines finally adopted are technically and economically feasible and consistent with objectives to ensure adequate supplies of reasonably priced power. Accordingly, given the stringency of the proposed reduction requirements, we and agree that the use of emissions trading, facility-wide averaging, and such mechanisms for flexible compliance are important tools for achieving these reductions at the lowest possible cost to industry and the communities we serve. [[p.2]]

See response below.

I.E.50.
Comment:

Montana-Dakota Utilities Co. supports EPA in its effort to assure that all Americans live in areas that are in attainment with the NAAQS. Montana Dakota Utilities Co. also believes that it is equally important that the country is supplied with cost-effective and reliable electrical power, and that coal fired power generation is and will continue to be a vital part of that supply. [[p. 5]]

See response below.

I.E.51.
Comment:

Finalize the Clean Air Interstate Rule by September 2004. The science demands action. NOx and SO2 pollution pose serious human health risks. Power plants are the predominant source of SO_2 pollution and a major source of NOx.. Technologies to control these pollutants have been available for years. And the human health costs of delay are severe. EPA should move swiftly to finalize its NOx and SO2 power plant clean up standards by September 2004. [[(p.22)]]

Response:

The above comments were generally supportive of EPA's efforts in CAIR. To the extent that these comments raised specific substantive issues we have addressed such substantive issues elsewhere.

I.E.52.
Comment:

I am a Republican and a fly fisherman. I want the pollution reduced and acid rain problem solved. Include tax breaks to complying power plants to ease the economic hardships. The US needs more power and coal should be one of the options, but pollution should be minimized.

Response:

As described in the preamble and Section __ of this RTC, EPA has concluded that CAIR can be fully implemented without imposing undue economic hardship on the utility sector. Moreover, EPA lacks the statutory authority to provide tax breaks for companies that states choose to regulate to implement CAIR.

I.E.53.
Comment:

In recent years, the EPA has seemed to turn its back on its core mission to protect public health, and has instead sought to restrain the long overdue steps of Clean Air Act progress in order to protect big industry and especially the power sector. Today's regulatory proposals are prime examples of this trend. [[p.1]]

See response below.

I.E.54.
Comment:

EPA stands for Environmental Protection Agency.
Under President Bush you are the BBPA, Big Business Protection Agency.
More people are getting sick from bad air.
Shame on you!
Where is your integrity?

Your business is supposed to be protecting the general public. Everyone is affected by a dirty, poisonous environment. So are you! [[p.1]]

See response below.

I.E.55.
Comment:

Please see the 11 comment letters for comments generally not in support of the rulemaking.

See response below.

I.E.56.
Comment:

As a citizen and a voter, I hold you accountable for protecting the environment from pollution. I do not expect you to endorse rule changes that will favor major polluters, and lower the standards by which their levels of toxic emissions are measured. I strongly oppose the proposed rule changes, and will express my opposition to the way this administration has interfered with environmental protection when I vote in November. [[(p.1)]]

See response below.

I.E.57.
Comment:

I am writing concerning the weakening and delay of implementation of critical Clean Air standards for the nation's coal-burning power plants. As you know, these plants, many in the Midwest, emit dangerous levels of soot and smog are causing thousands of premature deaths, hundreds of thousands of asthma attacks, and other illnesses each year. The Environmental Protection Agency and states must clean up dangerous soot and smog and provide most citizens with air that meets public health standards by 2010. Current law requires deep reductions in coal-burning power plants' sulfur and nitrogen emissions within this decade in order to meet these public health standards. [[p. 1]]

President Bush and his administration has proposed regulatory changes that delay deadlines for meeting public health standards, allowing violations of soot and smog health standards to continue until 2015 or later. Power plant pollution cuts are delayed and weakened. The administration plan would allow more than twice as much SO_2 for nearly a decade longer (2010-2018), compared with enforcement of the current Clean Air Act. After 2018, SO_2 emissions will still be one and a half times higher than if current law is enforced. The administration plan allows more than one and a half times as much NOx for nearly a decade longer (2010-2018), and one third more NOx even after 2018. The full pollution reductions are likely to be further delayed, to as late as 2025, because of emissions 'banking' provisions. [[p. 1]]

I believe that these changes are detrimental to public health and in direct opposition to the intent of the Clean Air act. I request that the EPA act to enforce the Act as written rather than weaken the law. [[p. 1]]

See response below.

I.E.58.
Comment:

This proposal once again falls well short of the cleanup that EPA said could be achieved under the Clean Air Act. In 2001, for example, EPA told the electric power industry that it believed sulfur dioxide emissions could be capped at two million tons a year by 2012 under existing law. By contrast, this proposal would allow 75 percent more pollution, and postpone the cleanup. This proposal also would appear to put new barriers in the way of states like Pennsylvania and New Jersey to prevent them from using tools in the Clean Air Act that enable them to seek a reduction in emissions from big upwind polluters. [[p.6]]

To sum it up, the transport proposal is too little, too late, and is no substitute for new source review, which is designed to protect local communities. [[p.6]]

Response:

For the reasons described more fully in Sections VI and VIII of the RTC and the preamble EPA disagrees with these commenters contention that CAIR is not a significant and appropriate reductions of NOx and SO2 beyond those required by current standards. In the final rule EPA has not relieved sources of their obligations under other Clean Air Act programs. To the extent that EPA may have previously suggested that caps tighter and/or earlier than the reductions required by CAIR may have been possible our analysis, contained in the preamble, demonstrates the appropriateness of the levels and timing of the reductions required by this rule.

I.E.59.
Comment:

EPA has declared that transport is a national issue that is to be addressed by the federal government. How will interstate contribution be addressed for areas who become designated nonattainment after the effective date of the IAQR? [[(p.3)]]

Response:

EPA will review the progress made under CAIR as it is implemented and take action, as appropriate, to deal with issues that arise in the future.

I.E.60.
Comment:

Leech Lake would also like to see a review of the rule every 5 to 10 years. This would only ensure the rule is making progress and include or exclude states as they come in or out of compliance with the rule. This would also allow for the review of the significance levels to protect human and environmental health as technology advances. [[p. 1]]

Response:

EPA will review the progress made under CAIR as it is implemented and take action, as appropriate, to deal with issues that arise in the future.

I.E.61.

Comment:

It's time to take the future into consideration. We MUST find ways to CONSUME less, or we will quickly run out of stuff to consume. Please support a method of 'credit' for the Clean Air Interstate Rule, that will force more efficiency. I think this act is an important step to reflecting the actualities of environmental damage. [[(p.1)]]

I.E.62.

Comment:

Several commenters expressed concern regarding the ecological and economic importance of improving air quality at National Parks, including but not limited to visibility, and accordingly urged EPA to issue a "stringent clean air in the parks rule;" to "resist pressure to weaken park air quality protections." One commenter urged EPA to establish "stricter standards that would post fines and punishments for failure to comply," and ensure that "output from plants and automobiles should be reduced, by using scrubbers to remove pollution from stacks of old plants, and scratching plans for future roads in or near the park."

Response:

As explained in the NFR preamble, the EPA believes that CAIR will provide substantial benefits for National Parks and Wilderness areas, and would in fact deliver greater visibility benefits than implementation of the Best Available Retrofit Technology (BART) portion of the visibility provisions than would source-by-source application of BART. Fines and other appropriate enforcement techniques will be required of States to ensure achievement of required emission reductions, whether through participation in the cap and trade program or by other means determined by States. Finally, mobile source emissions are being addressed in separate rules and through the regional haze planning process conducted by States and Tribes through Regional Planning Organizations.

I.E.62.

Comment:

Numerous commenters urged EPA to make the rule apply nationally, without specifying that this nationwide applicability should be based on the visibility provisions of the CAA or providing any other suggested basis of authority in the CAA. Many commenters coupled the call for a nationwide rule with a request that the NOx and SO2 requirements be "strengthened" by an unspecified amount. Georgia DNR commented that at least for the EGU sector, EPA should adopt a national rule requiring BACT for NOx and SO2. Minnesota PCA, citing concerns with both regional haze at Class I areas and issues of transport of PM and Ozone generally (including health effects below NAAQS levels), urged EPA to make the rule apply nationally, while also expressing a preference for comprehensive national legislation. Wisconsin DNR stated that a strong national program aimed at achieving rapid reductions in emissions from power plants will be extremely important to regional efforts to regional efforts to establish attainment strategies for

ozone and $PM_{2.5}$. The Northeast Environmental Justice Center and West Harlem Environmental Action objected that the proposed rule would apply only to power plants in the eastern U.S., allowing highly polluting manufacturing facilities to pollute, and would do little to deal with power plant emissions in the Western United States.

Response:

EPA's authority to require given measures in State Implementation Plans must be grounded in the provisions of the CAA. The legal and technical basis for determining the geographic scope of the rule, based on provisions related to interstate transport and NAAQS attainment, is described at length in the NFR Preamble and in other sections of this document. As noted in section I.D. above, EPA is continuing to consider whether a CAIR-like cap and trade program is appropriate for addressing the visibility provisions of the CAA on a nationwide basis. Other comments submitted in conjunction with a call for national rule, including the need for more stringent reductions, the need to address non-EGUs, and preferences for a legislative approach, are addressed elsewhere in this document.

I.E.63.

Comment:

The City has determined that the proposed rule will have an impact on Chicago because two coal fired power plants are located within the City limits and three additional coal-fired power plants are located in the Chicago metropolitan area. [[(p.1)]]

Because power plant emissions may significantly contribute to the City's nonattainment of the ozone and fine particulate matter ($PM_{2.5}$) National Ambient Air Quality Standards (NAAQS), the City of Chicago strongly believes that an effective cap-and-trade program must address local reductions for areas of potential nonattainment. To that end, the City of Chicago favors a system that sets a federal cap and allows states to allocate allowances rather than a national system that provides allowances directly to utilities. This approach will allow states to plan and implement programs that will achieve ambient air quality improvements in the regions that need them most. [[(p.1)]]

Response:

See sections 7 and 8 of the NFR preamble as well as Section XIII.N of the RTC.

I.E.64.

Comment:

Compared to current law, this proposal delays sul;fur and nitrogen cuts that cause fine particle regional haze pollution by up to 5 years while allowing approximately a 175 percent increase in allowable levels of both pollutants.

Response:

Commente did not provide an analysis explaining the assertion that the proposed rule would allow a 175 percent increase in allowable emissions. Today's rule will in fact result in significant emission reductions of both NOx and SO2, as explained in detail in the NFR. With respect to regulation of these pollutants for regional haze purposes, CAIR will reduce emissions

years earlier than would be required under the provisions for Best Available Retrofit Technology (BART) – specifically, in 2009 (NOx) and 2010 (SO_2), versus 2013 at the earliest for BART. Moreover, the precise level of BART reductions are yet to be defined, as States will determine those by applying EPA's forthcoming BART guidelines for EGUs. Finally, CAIR reductions are based on cost effective emission reductions from a broader universe of EGUs that includes units that are *not* subject to BART and might not be otherwise targeted by States for reductions for regional haze purposes.

II. STATUTORY APPROACH/INTERPRETATION

II.A. Two-step interpretation of significant contribution - the NOx SIP Call interpretation w/o 'maintenance' provision

II.A.1.
Comment:

In its determination of 'significant contribution', EPA establishes state-specific air quality linkages between emissions in a state and projected downwind ambient air quality (future potential nonattainment areas based on a set of 'baseline' air programs already promulgated under the Clean Air Act). These linkages are established for 2010 and for 2015. A fundamental flaw in EPA's analysis is that for the 2015 linkages, EPA does not consider the impact of the additional NOx and SO2 reductions that are imposed by the initial phase of the IAQR on projected air quality in 2015. EPA's modeling demonstrates that some areas are projected to achieve attainment by 2015 just assuming reductions that will be achieved by existing CAA rules. It is very likely that even more areas may achieve attainment with the initial phase of reductions under the IAQR. Notwithstanding our concern with the use of the 0.15 ug/m3 significance threshold noted above, we believe EPA must perform additional modeling analysis accounting for the air quality improvements in the initial phase of the IAQR to determine whether the air quality linkages it has projected in 2015 will still exist, and must re-evaluate the proposed phase 2 emission caps accordingly. [[(1099, p.12)]]

Response:

The commenter states that because the initial phase of CAIR control (now established for 2009 and 2010) will will result in NOx and SO2 reductions, EPA must evaluate the effect of those reductions as part of its obligation to determine the necessity for the 2015 CAIR controls. EPA disagrees with the premise. As stated in section II.A of the preamble to the final rule, EPA views the CAIR emission reduction requirements as a single action. It is implemented in two phases solely for reasons of feasibility. Thus, once a State's emissions are determined to contribute significantly to downwind nonattainment, the upwind State should reduce its emissions by the amount that results from implementation of highly cost-effective controls. The timetable for these reductions, but not their necessity, is determined by feasibility constraints.

However, although not required , EPA has in fact conducted the type of analysis suggested by the commenter. See our detailed Response to Comment in section III.C dealing with timing issues. Modeling summarized in section VI of the preamble shows that for both $PM_{2.5}$ and ozone, it is reasonable to find that 2015 CAIR controls will still be needed for downwind receptors to attain the standards, even accounting for the 2010 CAIR controls. For example, with respect to $PM_{2.5}$, our modeling indicates that even in the 2015 CAIR case (considering all CAIR controls but not considering local controls), a number of counties are still projected to be in nonattainment by a margin exceeding the average reductions reasonably attributable to aggressive yet feasible local controls (i.e. 1.26 ug/m3, meaning that we are projecting design values for these counties of greater than 16.26 ug/m3 in the 2015 CAIR control case). Table VI-11. These counties link to 21 of 23 upwind states in the CAIR region. If reductions attributable to 2015 CAIR controls are subtracted out, then 9 counties are projected to

be in nonattainment by at least this margin. Tables VI-10 and VI-11. Furthermore, as discussed in more detail in the comment response referred to above, we believe that 2015 CAIR controls will be needed to maintain the standard by many downwind receptors. This is because we project that many downwind receptors will be in borderline attainment (due to the steep margins needed to attain the standard at all) and could lapse into nonattainment because we project that $PM_{2.5}$ levels would worsen in 19 downwind receptor counties between 2010 and 2015, due to changes in local and upwind emissions. Air Quality Modeling Technical Support Document, November, 2004. This suggests a reasonable likelihood that, without CAIR, these areas would return to nonattainment.

With respect to ozone, our modeling for the 2015 CAIR case (i.e. considering both 2010 and 2015 CAIR controls) continues to project that 22 receptors will still be in nonattainment. These counties link to all but three of the upwind states. The three remaining states are linked to counties needing 2015 reductions from CAIR in order to maintain the standard, since they are unlikely to attain by a margin wider than already-documented historic changes in year-to-year 8 hour ozone levels. Since these estimates account for 2010 CAIR reductions and still show significant residual nonattainment throughout the CAIR region in 2015, the 2015 CAIR controls are reasonably justified. The need for 2015 controls to maintain the standards also justifies the standards.

Thus, even accepting the commenter's premise, our analysis accounts for 2010 CAIR controls and shows that 2015 reductions are needed to prevent significant contribution to nonattainment of the $PM_{2.5}$ and 8-hour ozone standards, and are needed to maintain those standards.

II.A.2.
Comment:

Need for Phase I Reductions Have Not Been Justified: As noted by UARG, [[See docket number 1017 for UARG's comment letter.]] to justify that Phase II reductions are needed, EPA must first evaluate the Phase I reductions to determine if, once those reductions have been implemented, covered states will still be contributing significantly to the nonattainment status of areas in any downwind states. For those states that would no longer be having such contributions, EPA cannot require this second round of reductions. [[p. 4]]

Response:

We do not accept that each part of the CAIR controls must be justified independently, as explained in the previous response. However, as also explained in that response, and in more detail in the Preamble and in the more extended comment response cited above, we believe that 2015 CAIR controls remain needed to prevent significant contributions to nonattainment of both the $PM_{2.5}$ standards and the 8-hour ozone standard, and are further needed to prevent interference with maintenance of those standards.

II.A.3.
Comment:

EPA has not addressed the full air quality impact of Phase I:

EPA has used a two-tep process in the IAQR to determine if a state contributes significantly. For the year 2010 EPA first determined a state's air quality impact on a downwind nonattainment area. If a state was above a selected threshold EPA proceeded to the second step. In the second step EPA determined the cost effective emissions that contribute to downwind nonattainment. EPA has not done the first step of the process for the year 2015. EPA needs to reevaluate the air quality effects of Phase I controls. EPA should redo its threshold analysis using the assumed controls for the year 2010 taking into account any local controls as well as those proposed under Phase I. For those states exceeding the threshold EPA should then proceed to the second step determining the cost effective emissions that contribute to downwind nonattainment. [[p. 4]]

Response:

Even assuming (against our view) that CAIR controls must be justified piecemeal, rather than as a single rule, our modeling indicates a need for CAIR controls in 2015 both to prevent contribution to nonattainment and to prevent interference with maintenance of the standards. In the 2015 CAIR case for $PM_{2.5}$, our modeling projects substantial residual nonattainment by a margin greater (for $PM_{2.5}$) than the average margin we project for aggressive local controls. Tables VI-11 and VI-8. These counties link to virtually every upwind State in the CAIR region. The remaining upwind states are linked to downwind receptors likely to attain by such a narrow margin (due to the steep reductions needed to attain in the first place) that CAIR controls are needed in 2015 to prevent interference with maintenance of the standards due to rising $PM_{2.5}$ inventories in the region both in 2015 and thereafter..

With respect to ozone, we continue to project substantial residual nonattainment in the 2015 CAIR case. Table VI-13. For many counties, the margin of projected nonattainment is by greater than 3 ppb, a margin often exceeded by year-to-year variations in historic ozone levels. We thus believe that 2015 CAIR controls are needed to prevent contributions to nonattainment. We also believe that the controls are needed to prevent interference with maintenance of the standards. Since we are projecting that even with CAIR controls many counties would be in residual nonattainment by substantial margins, we think it reasonable to assume that local controls would not result in attainment by wide margins. Given the documented wide year-to-year variations in historic 8-hour ozone levels and the reasonable likelihood of borderline attainment, we believe it reasonable to project that 2015 reductions will be needed to prevent interference with maintenance of the ozone standard.

II.A.4.
Comment:

In its proposal, EPA determined that a certain level of reductions would be highly cost-effective by 2010, and another, additional amount of reductions would be highly cost-effective by 2015. However, for some states, air quality linkages that existed for the 2010 evaluation may no longer exist in 2015. For those states, there would no longer be any 'significant contribution'

to downwind nonattainment in 2015, and the Phase II IAQR reductions should not be required. To justify the Phase II reductions, we believe that EPA should undertake additional air quality modeling to demonstrate whether air quality linkages remain for each covered state in 2015, assuming that the 2010 IAQR reductions are fully implemented. If no air quality linkage remains in 2015, then EPA should not include that state in Phase II of the IAQR program. Therefore, Alliant Energy also recommends the re-evaluation of Phase II requirements and that a clause requiring re-analyses be added into the final IAQR rule. [[p.5]]

Response:

As shown in the more detailed comment response in section III.C, there remain linkages for every upwind State with a downwind receptor for either attainment or maintenance purposes in the 2015 base case and 2015 CAIR case for both $PM_{2.5}$ and for ozone. Moreover, the margin of projected nonattainment, even in the 2015 CAIR case, indicates that local controls cannot reasonably be assumed to be sufficient to obviate the need for 2015 CAIR controls. We also do not accept the premise of the comment that CAIR controls must be reevaluated in 2015. CAIR is a single set of controls implemented in two phases only due to issues of feasibility.

II.A.5.

Comment:

EPA's analyses show that the IAQR will bring $PM_{2.5}$ values only slightly below 15 ug/m3. The states may have very limited options for controlling regional transport from this sector [[Power plants]] in the future, which will be particularly important in the event that the PM air quality standard is revised downward. EPA's documentation states that local measures may only be able to practically achieve less than 1 ug/m3 reductions. We urge EPA to ensure that the Phase II cap level be set after a re-examination of highly cost effective control levels associated with the cap and trade program in 2015 in light of current operating rates. [[(p.6)]]

Response:

We note the commenter's concerns. We also note that in our modeling, we assumed a slightly higher figure for the potential effect of local controls (1.26ug/m3), and still found that CAIR controls were needed for purposes of attainment (and maintenance) in both 2010 (for $PM_{2.5}$) and 2015 (assuming analysis for 2015 is necessary).

II.A.6.

Comment:

Phase II IAQR compliance applicability and goals should be re-visited based on the results of Phase I, since the rationale for the rule is the transport effect of upwind sources on downwind compliance and some States were only marginal contributors. [[(p.2)]]

Response:

As noted in earlier responses, our modeling shows links with every upwind State for either attainment or maintenance purposes even in the 2015 CAIR case. Our further analysis is that these linkages remain after considering the effect of local controls.

II.A.7.
Comment:

Establishing the scope and timing of Phase II requirements is premature at this point given that the level of attainment that will be achieved by Phase I and other regulatory programs is not known. The TLC recommends that EPA revisit the impacts of regional transport after the implementation of Phase I requirements, and determine at that time which states should be subject to Phase II requirements. Only upwind states that continue to contribute significantly to a downwind nonattainment area at that time should be subject to Phase II requirements. Given questions surrounding the modeling and changes in transport likely to take place in the next five to seven years, the 'significant contributor' status of each state should be reevaluated/remodeled after Phase I is complete. [[(1037, p.12)]]

Response:

As stated above, we disagree that reevaluation of 2015 controls is required, but in any case, we project that the 2015 controls will be needed from every upwind state to prevent continued contribution to nonattainment and interference with maintenance.

II.A.8.
Comment:

Phase II might be of limited benefit, given that the equipment necessary to be installed for Phase I would in most cases be adequate for Phase II. For instance, the significant SO_2 retrofits that would be made in Texas to meet Phase I requirements might be adequate for Phase II. If so, the continuing requirement for facilities after Phase I might be limited to the increased control-related operating and maintenance costs during Phase II. Setting Phase II requirements based upon actual information regarding what is achieved as a result of Phase I will result in a well-tailored and timely control strategy that would avoid the imposition of unnecessary and costly requirements. [[(1037, p.12)]]

Response:

As a prudential matter, we disagree with the type of bifurcation the commenter suggests. The emission budgets established in the rule already indicate the reductions required to prevent significant contribution to nonattainment. These need to be achieved no later than the deadlines established in CAIR. The types of wait-and-see suggestions by the commenter are thus inconsistent with the central requirement of the rule.

II.A.9.
Comment:

DES is concerned that the proposed IAQR is silent on the maintenance of the ozone and fine particle standards as well as on the possibility of future ratcheting-down of the emission caps in the event the IAQR program does not meet its public health and environmental goals. We believe EPA must fulfill its obligation under Section 110(a)(2)(d) of the Clean Air Act and develop provisions in the final rule that will prohibit emissions that would interfere with attainment and maintenance of the ozone and fine particle standards in downwind areas.
[[(p.2)]]

Response:

As detailed in the preamble and the more detailed comment response cited earlier, we believe that one justification for the CAIR controls is to prevent interference with maintenance of the standards. However, as in the NOx SIP Call, we are interpreting the 'interference with maintenance' requirement to complement the central requirement of preventing significant contribution to nonattainment. Thus, we do not read the maintenance requirement as providing broad authority to regulate an upwind state just because that state's emissions have some impact on downwind receptors, even receptors that are (or were) in nonattainment. Rather, in order to determine whether CAIR emission reducitons are needed beyond 2010 and 2015 to prevent upwind states from significantly interfering with maintenance in other states, we show that there is a quantified basis for concluding that receptor areas, after attaining, would be at significant risk of returning to nonattainment due to emission growth, or due to other factors such as documented historic variability in emission levels.

II.A.10.

Comment:

EPA should interpret CAA110(a)(2)(D) as considering the impacts of emission sources from a state on not only nonattainment areas but also, as provided for in that provision of the Act, should include '[&] emissions which will [&] interfere with maintenance by, any other State [&]' of the NAAQS. For example, studies conducted by the State of Iowa indicate that over 75 percent of the ozone measured in the eastern portion of the state results from interstate transport. While this area currently monitors as attainment with the 8-hour ozone standard the ability of the state to maintain the area in attainment is interfered with by transport of pollutants from downwind states. As such, EPA should hold all states to an equal standard of emission control based on total downwind impact regardless of downwind attainment/nonattainment designation status.
[[(p.9)]]

Response:

As stated in the preamble to the final rule, we are not reading the maintenance provision in section 110 (a) (2) (D) to separately identify upwind States subject to CAIR. Put another way, we are not giving the 'interfere with maintenance' requirement greater weight than the significant contribution requirement (since such a reading would give greater weight to the potentially lesser environmental effect). Cf. 63 FR at 57379 (NOx SIP Call) where EPA interpreted the "interfere with maintenance" statutory requirement "much the same as the term 'contribute significantly'", that is, "through the same weight-of-evidence approach." However, as stated in the Preamble and other comment responses, the CAIR controls can be justified by the need to prevent interference with maintenance of the standards by the same nonattainment downwind receptors.

II.A.11.

Comment:

EPA must demonstrate that additional Phase II reductions are needed based on the significant contribution threshold, considering Phase I reductions and reductions due to local, intrastate controls prior to the Phase II compliance period. [[p.2]]

Response:

As indicated in earlier responses (and sources cited therein), assuming against our views that such an analysis is needed, our modeling shows continued need for 2015 CAIR controls to prevent contributions to nonattainment and to prevent interference with maintenance even taking into account local controls and 2009/2010 CAIR controls.

II.A.12.

Comment:

EPA has indicated that it is acting under Section 110(a)(2)(D) of the Clean Air Act in making findings of significant contribution, yet EPA appears to be silent on its statutory obligation under that section to ensure that the SIPs submitted in response to the IAQR 'contain adequate provisions...prohibiting...any source or other type of emissions activity...from emitting any air pollutant which will...interfere with maintenance...with reference to any...standard.' EPA must also make findings on maintenance of the standard when it assesses the adequacy of SIPs that respond to the IAQR. [[(0941, p.2)]]

Response:

EPA agrees that there is an obligation that upwind emissions not interfere with maintenance of the standards by downwind receptors. The CAIR rules are justified in part on this requirement, as stated in the Preamble and the detailed comment response found in section III.C of this Response to Comment Document. .

II.A.13.

Comment:

The second phase of the IAQR is extremely premature. It should either be deleted or triggered only on the basis of 2011 $PM_{2.5}$ monitoring and non- attainment data:

As discussed in #1 and #3 above, [[See docket number 0734, pp. 2 and 3 for comments #1 and #3.]] there is ample reason to believe that current regulatory approaches will minimize $PM_{2.5}$ nonattainment issues by 2011. If EPA enacts the first phase of IAQR, contribution to interstate transport of $PM_{2.5}$ thereafter becomes insignificant for most states. DPL requests that EPA monitorthe decreasing $PM_{2.5}$ levels until at least 2011, before mandating a second phase. [[p. 5]]

Response:

As stated earlier, CAIR is one rule not two. In any case, our modeling reasonably shows that the 2015 CAIR controls remain necessary both to allow downwind receptors to attain and maintain the standards, taking into account phase 1 CAIR controls and potential local controls.

II.A.14.

Comment:

EPA indicates that some commenters have recommended to EPA 'a further refinement' of the 'highly cost effective' component of the 'contribute significantly' determination(69 FR 32720). EPA seeks comment on whether the test of this component should be further limited so that a source category would be included 'only if the proposed level of additional control of that

category would meet a specified contribution threshold.' (69 FR 32720) DEP strongly objects to further limitations on the scope of this proposal by parsing the categories of emitters in such a way that various sources can be excluded from its scope. [[(1809, p.2)]]

It also appears that EPA may be going beyond the scope of the present proposal and considering a preemptive and prospective limitation on future SIP calls. The current proposal already addresses only one source category-EGUs; EPA has no apparent intention of including any additional source categories in this proposal. Therefore, it is difficult to understand why EPA would be considering incorporating into its 'highly cost-effective' test a broad preemptive exemption for a source category that does not meet an entirely arbitrary contribution criterion (e.g. 0.5 percent, as discussed in the proposal). DEP strongly objects to any attempt to limit the scope of any future SIP call based on such an ill-defined and arbitrary provision. [[(1809, p.2)]]

Response:

As described in the Preamble, EPA has not adopted the proposed approach and is not adopting a future limitation on the cost effectiveness test.

II.A.15.

Comment:

While we support the USEPA's effort to add definition on this issue, it is too early in the contributory air quality modeling assessment effort to conclude that this percentage should be the appropriate or sole criteria to be applied. Therefore, added flexibility should be provided for, depending upon a particular state's situation, to use a lower individual state threshold, as well as for lesser contributing states or sources that individually may not meet the criteria, but do so collectively. Similar flexibility should be applied regarding the proposed two parts per billion threshold for ozone. [[(p.8)]]

Response:

EPA agrees that the metrics used in this rule need not be the sole measure of determining the significance of an upwind state's contribution. In addition, the commenter's suggestion that for collective consideration of contribution in appropriate instances is reflected in the collective consideration of emissions from Washington D.C. and Maryland in the final rule.

II.A.16.

Comment:

The Clean Air Act does not contain foundation for, and the USEPA should not use, an inappropriate cost-benefit test between upwind and local controls as a limitation in assessing the significant contribution to a downwind state. Any test based on air quality improvements only in downwind nonattainment areas ignores the benefits from upwind state controls on the upwind state itself and unfairly biases the test toward the use of local controls. In calculating the health benefits of this rule, the USEPA has itself included the beneficial effects in attainment areas in its estimates. It should not deny to a state that more comprehensive and equitable approach for evaluating the relative costs and benefits. [[(p.8)]]

Response:

As described in the Preamble, EPA is following what it considers to be an appropriate approach to balancing upwind and downwind controls.

II.A.17.

Comment:

As LPPC reads the proposed Rule, the level of reductions and the time period for achievement of those reductions are inextricably linked. As in the NOx SIP Call, EPA has adopted in the proposed rulemaking a two-step approach to making its 'significant contribution' determinations. In Step 1, EPA performed an air quality assessment to identify which upwind States contribute significantly to downwind nonattainment - before consideration of cost. In Step 2, the Agency conducted an assessment of control costs in order to determine the amount of emissions in each covered State that should be reduced in order to eliminate that State's significant contribution. In the proposed Rule, EPA explains that the two-step evaluation involved multiple technical assessments, including 'the availability and timing of emission reduction measures that can achieve highly cost-effective reductions.' In addition, in the section of the proposed Rule discussing how the Agency made its 'significant contribution' findings, EPA explains that 'engineering and financial factors suggest that only a portion of the emission reductions that EPA considers highly cost-effective can be achieved by January 1, 2010.' [[(pp.4-5)]]

Thus, under EPA's two-step methodology for assessing transport, the emissions in each State that 'contribute significantly' are those emissions that can be eliminated through application of highly-effective controls in a given time period. In other words, the 2010 / 2015 timetable is integral to EPA's findings of 'significant contribution' and to its proposed remedy. A more expedited timetable would not be feasible. [[(p.5)]]

Response:

This is an accurate summation of EPA's proposal on this point.

II.A.18.

Comment:

The proposed rule gives no indication that these levels of reductions are consistent with the timelines mandated under the Clean Air Act. [[(p.6)]]

We propose that rather than using Section 110(a (2)(D)(i) of the Clean Air Act solely as a SIP 'recall' provision, EPA make Section 110(a)(2 (D)(i) determinations when reviewing SIP submittals for the eight-hour standard. These determinations must be made when an attainment SIP is initially submitted. This would require some aggressive analyses by EPA of SIPs from states that have been determined to contribute to downwind areas; such analyses were done and upheld in court under the NOx SIP Call case. EPA must establish a process during the SIP submittal and approval process to show that all areas have addressed transport in downwind areas. [[(p.7)]]

Response:

EPA is not using section 110 (a) (2) (D) as a "SIP recall provision", but is setting forth what states need to do to comply with the provision prior to their initial submissions for the $PM_{2.5}$ and 8-hour ozone NAAQS.

II.A.19.

Comment:

The promulgation of Phase II requirements is premature. Though a variety of regulatory programs [[as discussed in commenter's letter docket number 1039]], significant reductions will be achieved in the very near future. U.S. EPA should allow for adequate time for review of the impact of the Phase I and other reductions before committing to a specific set of controls under Phase II. Not committing to Phase II now allows U.S. EPA the flexibility of assessing the initial reductions and tailoring Phase II(if necessary) to reflect the reductions accomplished in Phase I. [[p. 2]]

Response:

First, EPA has accounted for all reductions expected to be achieved through other regulatory programs in its base case estimates. We have also shown that Phase 1 CAIR controls do not obviate the need for 2015 CAIR controls.

II.A.20.

Comment:

Promulgation of the IAQR Would Be Premature:

In the preamble to the proposed lAQR, EPA asserts that the legal basis for the proposal is the Agency's interpretation of CAA 9 110(a)(1).

EPA therefore argues that states missed a deadline of July 2000 –3 years after the PM-2.5 and 8-hour ozone NAAQS were promulgated –to submit SIP provisions under section 110(a)(2)(D) to address significant contributions to PM-2.5 and 8-hour ozone nonattainment in other states.

EPA ignores the language of section 110(a)(1). That provision specifies that states are to adopt and submit within 3 years after NAAQS promulgation, 'a plan which provides for implementation, maintenance, and enforcement of such primary standard in each air quality control region (or portion thereof) within such State.' Thus, section 110(a)(1) does not address submission of SIPs to address implementation or maintenance of NAAQS in other states –i.e., 3 110(a)(2)(D)SIPs. [[docket number 1071, pp. 3-4]] [[See docket number 1071, pp 3-6 for extensive discussion of this issue.]]

Response:

EPA has responded to this issue fully in the preamble to the final rule.

II.A.21.
Comment:

EPA Must Evaluate Whether Compliance With Phase I of the IAQR Will Eliminate Air Quality Linkages: Under the significant contribution test, EPA must show two things. First, EPA must show that emissions from a State contribute in a measurable way to a NAAQS nonattainment area in a downwind State. EPA does this primarily through air quality modeling, using a zero-out approach, to establish whether 'air quality linkages' exist between the upwind State and one or more downwind nonattainment areas. Second, EPA must determine the amount of emissions that are highly cost-effective to reduce. Those emissions are the emissions from the State that are contributing significantly to downwind nonattainment. Both steps of the significant contribution test must be established together in order to find that section 110(a)(2)(D)of the Act has not been satisfied. If there is either no air quality linkage, or there are no emissions that can be cost-effectively reduced, then section 110(a)(2)(D)is satisfied.

In many cases, because EPA uses the zero-out modeling approach for assessing air quality linkages, the limiting factor in the significant contribution analysis will be the emissions that can be reduced in a highly cost-effective manner. In other words, in many cases, even when the highly cost-effective emissions have been reduced, and thus –by definition –the significant contribution no longer exists, there may still be an air quality linkage remaining between the upwind State's emissions and a downwind nonattainment area. However, in some cases, the opposite situation may exist. Emissions reductions less than those achievable in a highly cost-effective manner could result in elimination of the significant contribution, because those reductions break the air quality linkage that had existed. The break in that linkage may occur either because the State's remaining emissions no longer impact a downwind nonattainment area above the air quality threshold, or because the downwind nonattainment area that is the basis for the linkage is projected to attain. In either of those circumstances, section 110(a)(2)(D)is satisfied even if the emissions reductions turn out to be less than those achievable in a highly cost-effective manner.

In the proposed IAQR, several of the air quality linkages that EPA has found are weak, in the sense that the total man-made emissions from certain of the States are having downwind impacts that are only slightly above EPA's significant contribution thresholds, and/or are occurring in areas that have air quality only slightly worse than the NAAQS level. For example, in the case of Mississippi, EPA has found that the maximum downwind impact from Mississippi NOx and SO2 emissions is only 0.30 ug/m3 for PM-2.5, as compared to EPA's 0.15 ug/m3 threshold. Response: Another way to look at the relative 'strength' of linkages is to examine the degree of nonattainment projected in downwind receptors to which an upwind State is linked. For example, Mississippi is linked to Jefferson County, Alabama. This county is projected to be in nonattainment even in the 2015 CAIR case (after considering all CAIR controls) by over 2 ug/m3 greater than the current annual standard for $PM_{2.5}$. Tables VI-8 and VI-11. This exceeds the level we attribute to aggressive but feasible local controls by a considerable margin. It is reasonable to conclude that Mississippi is still contributing significantly to nonattainment in this situation. Given the fact that the air quality linkages are weak for certain of the States, EPA has an obligation to determine whether emissions reductions less than those that are highly cost-effective might result in breaking the air quality linkage that is the basis for the significant

contribution finding. Because the emissions from more than one State influence whether a downwind nonattainment area remains nonattainment, the inquiry needs to consider emissions from all States in assessing which downwind areas to focus on. Thus, a convenient starting point for this analysis would be the emissions reductions to be achieved in the first phase of the IAQR program. EPA must examine for which States air quality linkages would still exist, assuming the first phase emissions reductions are achieved. If the Phase I level of emissions reductions eliminate the significant contribution in the air quality sense for any States, then there would be no basis to require that State to achieve additional (Phase II) emissions reductions under the IAQR. [[docket number 1071, pp. 7-8]]

Response:

EPA does not accept the premise of weak linkages, or that CAIR is two rules which must be justified independently. In any case, as noted in earlier responses, and in the final preamble and detailed comment response in section III.C, EPA reasonably believes that the 2015 CAIR controls continue to be justified to prevent significant contribution to nonattainment and to prevent interference with maintenance.

II.A.22.

Comment:

The Clean Air Act does not envision the first step in SIP planning to be a federal assessment and design of control measures to address a national ambient air quality standard. Instead, the primary authority and responsibility for developing SIPs, which must contain provisions to satisfy [[Subsection]] 110 (a)(2)(D), lies with state and local governments. EPA's role is to either reject or accept the SIP based on certain criteria, including [[Subsection]] 110 (a)(2 (D), after the SIP has been submitted. If a SIP does not contain adequate provisions to address transport, then EPA can reject it or request it be modified. By allowing areas to address transport through the SIP process, local measures can be developed that reduce both local ozone and $PM_{2.5}$ concentrations and downwind contributions. This process is more likely to yield an optimum mix of local and 'regional' controls. Also, it requires more accountability for areas with the worst air quality to reduce emissions in and around the nonattainment area. [[(p.2)]]

Response:

As described elsewhere in this RTC Document and in the preamble to the final rule, EPA believes this rule provides an appropriate balance of upwind and downwind controls.

II.A.23.

Comment:

Promulgation of IAQR is not timely.: MOG joins in UARG's comments that promulgation of an IAQR would be premature. [[See docket number 1017 for UARG's comments.]] For the reasons stated in UARG's comments, the Clean Air Act does not require states to submit transport SIPs under CAA 9 110(a)(2)(D) within 3 years after promulgation of a new NAAQS. MOG also agrees that EPA lacks authority to find that $PM_{2.5}$ and 8-hour ozone SIPs, which have not even been submitted by the states, do not 'contain:n adequate provisions' to address the CAA's interstate significant contribution provision under CAA 110(k)(5). Additionally, MOG agrees that EPA's previous statements and guidance contradict its argument

in the proposed IAQR that states were required to submit revised SIPs by July 2000. As detailed in UARG's comments, EPA's proposed IAQR usurps the authority of the states under the CAA to determine in the first instance what control measures to adopt in SIPs to satisfy the requirements of CAA 110. [[p. 24]]

Response:

EPA's response to the issue is contained in the preamble and elsewhere in this RTC Document.

II.A.24.

Comment:

Phase II controls can be justified only if Phase I controls do not eliminate air quality linkages. EPA is proposing a two-phased approach to achieve emission reductions of NOx and SO2. EPA has not determined that the projected upwind-state-to-downwind-state air quality 'linkages' will exist after implementation of Phase I of the proposed rule (together with implementation of existing control requirements in the 'base case' through 2010). EPA must demonstrate that the measurable air quality contribution will remain for each targeted state after full implementation of the base case plus Phase I, before moving to implementation of Phase II.

Response:

As noted above, EPA disagrees that 2015 controls must be justified independently. However, our modeling shows that emissions from all upwind States continue to contribute to nonattainment of both standards in 2015, or interfere with maintenance of those standards. See detailed response in RTC III.C.

II.A.25.

Comment:

UARG, in conjunction with SAI, provides significant analysis of EPA's modeling assumptions concerning predicted air quality for $PM_{2.5}$ and ozone by 2010. MOG directs EPA to those detailed comments as support for our objection to the proposed rule that moves a state immediately to Phase II without appropriate assessment of air quality conditions for $PM_{2.5}$, and Ozone. [[p. 25]] [[See docket number 1017 for UARG's comment letter and docket number 1032 (attachment to UARG's comment letter) for SAI document.]] 1032

Response:

EPA disagrees, and the justification for the modeling underlying the rule is found in preamble section VI, the Technical Support Document, and other comment responses.

II.A.26.

Comment:

In its proposal, EPA asserts that a specified level of reductions would be highly cost effective by 2010 and a subsequent level of reductions would be highly cost effective by 2015. Regardless of the perceived cost effectiveness of emission reductions, the basis for requiring a second round of reductions must be closely scrutinized. With the first phase of reductions based solely on a tenuously low threshold contribution, implementation of the reductions through the first phase may reduce the relative contribution of a state to another's nonattainment such that a

second phase reduction is not necessary. If there is no air quality linkage remaining in 2015, EPA should not require sources in a state to further reduce emissions. [[(1000, p.9)]]

Response:

All the upwind States remain linked to a downwind receptor needing either to attain or to maintain the standards in 2015, as shown in the modeling summarized in section VI of the Preamble, and discussed in greater detail in the preamble and in the detailed response in section III.C of this document. .

II.A.27.

Comment:

Fifth, EPA seeks comment on whether a new proposed threshold parameter for defining 'highly cost-effective' – based on identifying source categories that emit relatively large amounts of relevant emissions and resulting in at least 16 counties being brought into attainment – should be incorporated into the 'significantly contributes' requirements of section 110(a)(2)(D) of the Clean Air Act. The NESCAUM states strongly oppose this approach as too restrictive, and believes it is arbitrary and capricious, and runs counter to the intent of the Clean Air Act. [[(1733, p.2)]]

We oppose EPA's new proposed threshold for the 'significant contribution' test. At 69 FR 32720, EPA proposes that when a multi-state call for SIP revisions to address interstate transport of air pollution is at issue, a source category should be included 'only if the proposed level of additional control of that category would meet a specified threshold.' EPA provides an example that first indicates that a threshold will be met when 'at least 0.5 percent of U.S. counties and/or parishes in the lower 48 States' were brought into attainment with a NAAQS as a result of the proposed level of control for that source category. According to EPA's example, this equates to a threshold of at least 16 counties coming into attainment as a result of the proposed level of control. EPA seeks comment on whether this test should be incorporated into the 'highly cost effective' component of the 'significant contribution' test. The proposal states that states 'retain authority to decide which sources to control to achieve the required amount of reductions, but EPA considers the costs of controls for more sources in determining what is a significant contribution.' [[(1735, p.6)]] We have several serious concerns with this proposal. EPA has failed to address a number of critical issues, including: (1) how EPA arrived at the 0.5 percent figure; (2) how EPA expects to apply its proposed test; (3) how EPA would model the contribution of each source category (e.g., individual categories or the incremental impact of regulating each category along with other source categories (e.g., EGUs non-EGUs, mobile sources)); (4) whether EPA knows how 0.5 percent translates to tons of NOx per day and whether EPA has provided these data to the public; and (5) whether EPA knows which source categories would be excluded, based on this test and whether EPA has made these data publicly available. More importantly, based on our reading of the SNPR and absent further information, we believe EPA's proposal fails to address situations where nonattainment is clearly a result of transport even if fewer than 0.5 percent is impacted. This approach to defining 'significant contribution' is arbitrary and capricious, and represents a vast departure from the goals and intent of the Clean Air Act. EPA's proposed approach substantially differs in intent and manner from the approach it used to determine significant contribution and highly cost-effective controls

for the NOx SIP Call. In the NOx SIP Call, EPA emphasized repeatedly that, while emissions from specific sources could seem inconsequential, the combined emissions from an area could be significant. Indeed, EPA specifically rejected arguments that emissions from particular sources must be found to be significant. The test proposed in the SNPR as a measure of significance is inconsistent with this framework. Moreover, if emission reductions for a source bring even one area into attainment, how can EPA conclude that emissions from that source category are not significant contributors to nonattainment in that area? Unless source categories are uniformly distributed throughout the region, it is arbitrary to say that a source category cannot be contributing significantly to nonattainment downwind just because it is not a significant contributor region-wide. A source category that is concentrated in a single area or a few areas may be significant to source downwind areas. Section 110(a)(2)(D)'s focus on area-specific impacts makes a test tied to broaden regional impacts arbitrary. In the SIP Call, EPA defined the highly cost-effective test in terms of cost per ton of NOx removed (or not emitted). If emissions reductions for a source can be achieved at a cost below the threshold, what difference would it make that total reductions from the individual source might not be large? Insofar as EPA proposes its new test as an element of the 'highly cost-effective' criterion, it has no relationship to it as defined previously, and so would be arbitrary. While one can imagine the proposed Transport Rule as an administratively convenient way of focusing on the most significant source categories, tests such as the one proposed have no place in the determination of significant contribution, which focuses on the impact of emissions in upwind areas on attainment in downwind areas. Such a test should not be used in any event until EPA first determines the level of reductions needed to ensure that, when combined with area level controls, source emission reductions will be sufficient to enable all areas to attain the NAAQS. [[(1765, p.7)]]

Furthermore, EPA's new proposed approach of looking at the impacts of particular source categories and assessing impacts based on whether or not 0.5 percent of counties and/or parishes downwind reach attainment considerably raises the bar for making findings of significant contribution, thus depriving downwind states of needed upwind reductions for attaining and maintaining the NAAQS. As constructed, we believe this approach is designed to rule out certain source categories from being regulated under a 110(a)(2)(D) finding. In addition, the 0.5 percent threshold and its application bears little to no relation to the notion that the remedy is supposed to address significant contribution to any and all affected areas, not just a grouping of 16 of the impacted counties or parishes. It appears to render the 11 (a)(2)(D) finding insufficient by definition. Furthermore, it does not address the requirement that impacts on maintenance be addressed in remedying a finding of significant contribution. [[(1735, pp.7-8)]]

In offering this proposal, EPA indicates that 'some have recommended a further refinement of this concept' (69 FR 32720). EPA should disclose from where this proposal came, and to provide the public with the scientific and technical basis for the proposal and the specific threshold discussed. [[(1735, p.8)]]

Response:

EPA is not adopting the alternative discussed in the comment.

II.A.28.
Comment:

EPA has not addressed the full air quality impact of Phase I. EPA has used a two-step process in the IAQR to determine if a state contributes significantly on a downwind nonattainment area. If a state was above a selected threshold EPA proceeded to the second step. In the second step EPA determined the cost effective emissions that contribute to downwind nonattainment. EPA has not completed this same process for the year 2015. EPA needs to reevaluate the air quality effects of Phase I controls. EPA should redo its threshold analysis using the assumed controls for the year 2010 taking into account any local controls as well as the proposed Phase I. For those states exceeding the threshold EPA should then proceed to the second step determining the cost effective emissions that contribute to downwind nonattainment. [[p.3]]

Response:

EPA disagrees that such analysis is necessary, but as noted in earlier responses, the 2015 CAIR controls remain justified after considering the potential impact of phase 1 controls (and local controls).

II.A.29.
Comment:

In its proposal, EPA determined that a certain level of reductions would be 'highly cost-effective' by 2010, and additional reductions would also be 'highly cost-effective' by 2015. In general, a 2-phase approach to emissions reductions is appropriate. However, for some states, air quality linkages that existed for the 2010 evaluation may no longer exist in 2015. For those states, there would no longer be any 'significant contribution' to downwind nonattainment in 2015, and the Phase II IAQR reductions would be unwarranted. Thus, to justify the Phase II reductions, EPA should undertake additional air quality modeling to demonstrate whether air quality linkages remain for each covered state in 2015, assuming that the 2010 IAQR reductions are implemented. If no air quality linkage remains in 2015, then EPA should not include that state in Phase II of the IAQR program. [[(p.5)]]

Response:

Such linkages continue to exist. See the detailed response in section III.C of this document.

II.A.30.
Comment:

U.S. EPA seeks comment on whether it should change the way it makes CAA section 110(a)(2)(D) finding that a source is contributing significantly to downwind nonattainment (p. 32720), and the state is failing to prohibit those emissions. We agree with the July 22, 2004 comments of STAPPA/ALAPCO in this regard and incorporate those comments by reference.

We agree with STAPPA/ALAPCO when they note that in the NOx SIP Call, U.S. EPA interpreted this section to require that a state reduce emissions by specified amounts, and based those amounts on the availability of highly cost-effective controls for certain source categories.

U.S. EPA has received comments recommending that EPA consider a source category's contribution to ambient concentrations above the attainment level in all nonattainment areas in affected downwind states and that a source category should only be included if the proposed level of additional control of that category would meet a specified threshold. U.S. EPA then suggests that only if [controls on the source category] would result in at least 0.5 percent of U.S. counties and/or parishes in the lower 48 states coming into attainment with a NAAQS should the state be subject to a 110(a)(2)(D) finding. We agree with STAPPA/ALAPCO that U.S. EPA should not adopt this test, especially since it appears as if the impact of this test has not been analyzed. We also agree with STAPPA/ALAPCO that: 'it is not clear how to determine scientifically what the correct threshold should be under this proposed methodology. EPA in its example selects an arbitrary threshold of bringing 0.5 percent of counties/parishes into attainment, but does not explain how it arrived a that threshold. A county/parish impact analysis fails to take into account the number of people, or the number of people sensitive to air pollution, who live in the counties that benefit from a multi-state SIP call. Second, this test overlooks the impact of multiple sources on nonattainment and that a multi-state SIP call may be the only way of controlling sources in upwind states that have an impact on downwind states. It may be that controls in the downwind state plus section 110(a)(2)(D) controls in upwind states result in the downwind state attaining the standard. It also may be that the other alternatives available to a state or locality for reaching attainment are measures that are less cost effective than the multi-state SIP call, and just because the multi-state SIP call controls do not bring those areas into attainment, does not mean they should be eliminated from the list of measures.' [[(p.3)]]

Response:

EPA is not adopting the alternative discussed in this comment.

II.A.31.

Comment:

We disagree with the test proposed by EPA for significant contribution. The threshold of at least a 0.5 percent percent contribution is arbitrary and capricious. We further disagree with the incorporation of this test into the 'highly cost effective' component of the 'significant contribution' test. EPA proposes that the test should be incorporated as a part of the 'highly cost-effective' component of the 'contribute significantly' requirement of CAA section 110(a)(2)(D) when a multi-State call for SIP revisions to address interstate transport of air pollution is at issue (32720). Not only is this test arbitrary, but it does not have a foundation in the Clean Air Act. This rulemaking should not attempt such a significant redefinition within the proposal for a multi-pollutant emission trading program. Furthermore, such a redefinition would appear to presuppose the ability of states to seek relief from upwind sources contributing to downwind attainment that goes beyond this proposal. Importantly, in the example provided as part of this 'suggested approach,' EPA goes on to state that: Since there are over 3,000 counties and parishes in the lower 48 States, basing the highly cost-effective control levels in the proposed CAIR on EGUs would meet this 0.5 percent criterion. [[(p.4)]]

In addition to setting a highly arbitrary criterion, EPA has conveniently decided that this proposed rule would satisfy that threshold. Finally, while EPA admits that states retain the authority to decide which sources would need additional reductions to achieve attainment, they

describe those authorities as such: Other CAA, mechanisms, such as SIP disapproval authority and State petitions under CAA section 126, are available to address more isolated instances of the interstate transport of pollutants. This extemporary analysis appears to serve no purpose but to declare this proposal as already satisfying downwind nonattainment area's threshold for contribution of nonattainment by upwind sources - which would presuppose any section 126 finding. Furthermore, this narrative would appear to consider this valuable state tool as only useful in leveraging reductions in very isolated cases. We disagree with such an assessment and believe that the history of the one-hour section 126 filings by OTC member states and the subsequent NOx SIP Call trading program offer a significant example of their importance. We restate our fundamental position that if cost is to be considered in determining whether a source is significantly contributing to downwind non attainment problems, the relative cost of reductions in the originating upwind area must be weighed against the cost of further local reductions in a downwind nonattainment area, before the downwind area is required to reduce emissions further and before the upwind source is relieved of any accountability. We believe that 'significant contribution' from upwind areas is a function of the relative level of pollution controls sources apply in upwind as compared to downwind areas, and the cost to the downwind area because of far-reaching transport of air pollution, complex meteorology, and the close proximity of nonattainment areas in the OTR. An upwind areas contribution should be considered significant if the area could reduce ozone in a downwind area at a cost less than that achievable through local controls in the downwind area. [[(p.5)]]

Response:

EPA is not adopting the alternative discussed in this comment.

II.A.32.

Comment:

EPA's legal rationale for its proposal is questionable on several grounds, including requiring contribution-SIPs within 3 years after establishment of NAAQS versus 3 years after designations; response: See preamble Section VII. quiring contribution-SIPs prior to requiring nonattainment-SIPs response: See preamble section VII; concluding that SIPs are 'substantially inadequate' to address significant $PM_{2.5}$ contributions to downwind states; the failure to allow states to choose which pollutants ($PM_{2.5}$ precursors) to controlResponse: As stated in section III of the preamble, EPA has reasonably determined that control of the $PM_{2.5}$ precursors NOx and SO2 are necessary to prevent significant contribution to nonattainment by downwind receptors. Control of the other major $PM_{2.5}$ precursors carbonaceous PM, ammonia, or crustal PM, would yield uncertain results due to uncertainties regarding transport mechanisms, synergistic mechanisms which might increase some pollutants if other are controlled, or inadequate contribution. The need to control NOx and SO2 is indicated by examining projected nonattainment wit the $PM_{2.5}$ annual standard in both the 2010 base case and 2015 base case. Carbonaceous PM inventories for these years will be greatly reduced by other regulatory controls, especially controls on mobile sources (including nonroad diesel engines). These reductions are reflected in the base case inventories, yet we project continued widespread nonattainment with the $PM_{2.5}$ standard. This indicates that reductions of NOx and SO2 precursors is essential for attainment. We further note that States are not precluded from controlling other PM sources, and other PM precursors, in order to themselves attain the

standard. ; and the fact that statements and guidance by EPA are directly contrary to positions taken in the proposal

Response:

See preamble section VII.

II.A.33.

Comment:

It is fundamentally unfair for EPA to tell states that they are not doing their job (by proposing this transport SIP-call), before EPA gives them a chance to do their job (through the development and implementation of nonattainment SIPs). The FCG believes that EPA is susceptible to challenge on each of these issues and endorses the legal positions taken by the Utility Air Regulatory Group (UARG) and the Class of '85. [[(pp.1-2)]]

The economics of EPA's proposal is also questionable. The administrative burden on already-stretched state and local programs to develop and implement SIP revisions is not insubstantial and does not appear to be considered by EPA. [[(p.2)]]

Response:

EPA disagrees. The statue requires submittal of these SIPs and EPA is easing the burden on states by telling them immediately what they need to do to have an approvable SIP.

II.A.34.

Comment:

The FCG's position is that EPA's entire proposal is premature - from a legal, scientific, environmental, economic and policy perspective –and that further analysis will likely show that Florida, in fact, will not significantly contribute to downwind states' $PM_{2.5}$ nonattainment areas in 2010 and 2015, and therefore negate EPA's conclusion to include Florida in this proposal [[(p.1)]]

Response:

We reasonably project that Florida contributes substantially to nonattainment of the $PM_{2.5}$ NAAQS in various Georgia and Alabama receptors. Preamble Table VI-8. For example, even in the 2015 CAIR case, Florida remains linked to Fulton County, Georgia and Jefferson County, Alabama each of which is projected not to attain by margins in excess of what could be attained by the average of aggressive though feasible local controls (1.26 ug/m3). Preamble Tables VI-8 and VI-11.

II.A.35.

Comment:

Scientifically, EPA's proposal is seriously flawed and underdeveloped. An example of flaws in EPA's modeling include the lack of modeling conducted after the Phase I reductions are implemented in 2010. [[(p.2)]]

Response:

The commenter is mistaken. See Preamble Tables VI-11 and VI-13 showing projected $PM_{2.5}$ and ozone levels in the CAIR region in 2015. In addition, the CAIR 2010 contribution on $PM_{2.5}$ loadings in receptor areas is obtained by subtracting the CAIR contribution shown in Table VI-10 from the 2015 CAIR impact figure in Table VI-11.

II.A.36.

Comment:

EPA's own analyses show that air quality will improve between now and 2010 through implementation of various programs that are already on the books and by 2015 there are expected to be few remaining nonattainment areas for 8-hour ozone or fine particulate even without the IAQR. The remaining projected nonattainment areas in 2015 are located in areas where mobile sources are known to be the main contributor to emissions, and local or subregional actions are expected to be more effective in actually achieving the additional reductions needed to meet attainment. [[(0966, p.2)]]

EPA has not provided any analysis to show that the areas purported to be 'significantly contributing' to nonattainment for Phase I of the IAQR program will continue to 'significantly contribute' to nonattainment after the proposed Phase I reductions are made. EPA's proposal requires a two part evaluation - first determine whether a state's emissions significantly contribute to nonattainment in a downwind state in a given year after all controls have been implemented that will be required by previous regulations (including Phase I IAQR controls in this case), and then determine the level of cost-effective additional controls needed to eliminate any significant contribution. EPA must undertake part one of the evaluation by modeling each state's remaining emissions after phase I of the IAQR is implemented to determine which, if any, states are still significant contributors to any of the remaining nonattainment areas to determine which, if any should be required to further reduce emissions. [[(0966, pp.2-3)]]

Responses:

EPA disagrees that such analysis is necessary, but in any case has shown that the 2015 standards remain needed to prevent contribution to nonattainment or interference with maintenance, taking into account phase 1 CAIR reductions, local controls, and reductions achieved through other regulatory programs.

II.A.37.

Comment:

EPA should model the downwind impacts assuming that Phase I emission reductions have been made to determine if Phase II is justified for each state. Only those upwind states that still contribute significantly to a nonattainment area should have Phase II requirements. [[(p.2)]]

Response:

See previous response.

II.A.38.

Comment:

[[Docket number 0773 and 0733 are identical documents]]

EPA relies on section 110(a)(2)(D) of the Clean Air Act (the 'Act'), 42 U.S.C. § 7410(a)(2)(D), as providing the legal authority for the Rule. This provision requires that state implementation plans (SIPs) prohibit emissions that contribute significantly to nonattainment with the NAAQS in other states. This provision requires both that (1) SIPs eliminate the significant contribution by requiring emission reductions and (2) that such reductions be achieved by the attainment deadlines. The Proposed Rule is contrary to law because the emission reductions do not meet the mandates of section 110(a)(2)(D) since they are inadequate to achieve compliance in New York State and are too late, occurring after the likely compliance deadlines for New York. [[(p.1)]]

Response:

EPA expects that the CAIR rule will result in many reductions prior to attainment deadlines, and will do so as quickly as is feasible. Issues relating to relationship of timing of the CAIR reductions with attainment dates is discussed further in the detailed comment response in section III.C of this document.

II.A.39.

Comment:

We believe that the IAQR should not provide for any automatic exemption from so-called 'local controls' which might later prove necessary in order for West Virginia or other states to achieve and maintain compliance with the $PM_{2.5}$ and/or 8-hr. Ozone NAAQS. The IAQR is proposed in two phases. It is too soon to provide such exemptions before the full impact of the initial reductions can be measured, not just modeled. States must develop, submit, and implement State Implementation Plans to achieve these standards long before the impact of the first phase of the IAQR will be due or known, and all options should be left open for later control choices which may need to be made to achieve and maintain the standards. [[(p.2)]]

Response:

The final rule does not create any exemption from needed local controls. The preamble to the final rule in fact notes, in section III, that local controls will be needed for attainment, along with CAIR controls. See also Response to Comment III.C reaching the same conclusion.

II.A.40.

Comment:

Phase II Controls Should Not be Automatically Applied.

As proposed, Phase II will be implemented regardless of the impact Phase I controls will have had on a state's downwind impact. Associated believes the EPA must make an affirmative determination, on a state-by-state basis that there is a significant contribution to downwind nonattainment. This determination must take into consideration local measures as well as emission reductions under Phase I of the IAQR. We see no technical basis for moving directly to Phase II, and urge the EPA to provide the required determination for each state in which Phase II controls are required. [[p.3]]

Response:

EPA disagrees that 2015 controls must be separately justified, but, as explained earlier, such justification exists.

II.A.41.

Comment:

Section 110(a)(2(D) requires implementation plans to 'contain provisions (i) prohibiting...any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will (I) contribute significantly to nonattainment in...any other State with respect to any such national primary or secondary ambient air quality standard.....' Thus, the obligation to eliminate significant contribution to nonattainment in downwind States is of equal importance to the obligation to attain the NAAQS within the State; in other words, 'the CAA places the responsibility for controls needed to assure attainment on both upwind States and their sources, and on local sources of emissions.' 69 Fed. Reg. 4585. [[(p.3)]]

The proposed rule raises the question whether EPA may call for SIPs that provide for elimination of significant contribution only after an attainment deadline in a downwind area. This is so because the proposed rule would establish a deadline of 2015 for reducing emissions to the final caps, while for many areas the attainment deadline for ozone will likely be 2007. Since by definition emissions above the final caps would constitute significant contribution to nonattainment downwind, the proposed rule calls upon States to submit plans that permit significant contributions to nonattainment for as long as 8 years after downwind areas are required to attain the NAAQS for ozone. [[(p.3)]]

It is true that in the NOx SIP Call EPA similarly called for SIPs that would permit continued contributions after some affected areas had passed their attainment deadlines, but in that case it was already too late to require excessive upwind emissions to be abated by the deadlines. EPA need not impose requirements of the CAA retroactively. See Sierra Club v. EPA, 356 F.3d 296, 310 (D.C. Cir. 2004). The situation is different, however, when compliance with the CAA is still possible. EPA is not at liberty to disregard requirements of the CAA as matter of discretion. Particularly is this so where attainment is concerned. [[(p.3)]]Response: ??????????????

The Court of Appeals has emphasized 'the importance that 'the attainment deadlines remain intact, complete with additional program obligations in the event of nonattainment, irrespective of a state's dereliction of the SIP process.'' Sierra Club v. EPA, 294 F.3d 155, 161 (D.C. Cir. 2002), quoting NRDC v. Browner, 57 F.3d 1122, 1127 (D.C. Cir. 1995). Further, 'the attainment deadlines are 'central to the... regulatory scheme and...leave[ ] no room for claims of technological or economic infeasibility.'' Id., quoting Union Elec. Co. v. EPA, 427 U.S. 246, 258 (1976). Since in many cases the elimination of transport is essential to attainment, and in light of these principles, EPA's proposal to allow upwind States to continue their excessive emissions for up to 8 years after the affected areas are required to attain the NAAQS amounts to

yet another indefensible 'means of circumventing' SIP deadlines. Sierra Club v. EPA, 356 F.3d at 303. [[(pp.3-4)]]

Response:

EPA recognizes the importance of attainment deadlines, but EPA's obligation is to get reductions as fast as practicable, and cannot compel reductions which are more than feasible.

II.A.42.

Comment:

With respect to localized transport phenomena (especially in the Midwest), U.S. Environmental Protection Agency (EPA) should evaluate only transport between states that are not part of contiguous metropolitan areas. St. Louis area counties in Missouri that have an impact on East St. Louis, IL should not be used as an indicator of 'long-range' transport. We propose that EPA use the following test to analyze transport outside areas not designated as transport regions. If a state is part of a multi-state metropolitan statistical area, then eliminate the impacts from the counties within that area to the other states within the area. This could be accomplished through the same evaluation techniques currently in use by EPA, but would require a small amount of additional effort. This approach would eliminate localized transport as a problem and allow for a better evaluation of regional transport between states. [[(pp.1-2)]]

Response:

This rule does not focus on localized transport issues, but rather on statewide contributions. EPA believes that this is a reasonable demarcation, given the statewide focus in SIPs, for example, as well as the difficulties of finding reasonable demarcations other than state boundaries. In any case, the comment does not have practical significance for purposes of the rule because Missiouri has many links (i.e. contributes significantly to nonattainment) with downwind receptors other than East St. Louis Illinois. See Preamble Tables VI-8 (14 additional links for $PM_{2.5}$) and VI-10 (four links to Ohio and Wisconsin receptors for 8-hour ozone).

II.A.43.

Comment:

Page 4581, Column 2, Line 34 - 'We assessed the prospects for future attainment and nonattainment in 2010 and 2015 with the 8-hour ozone NAAQS using the Comprehensive Air Quality Model with Extensions (CAMx) and with the $PM_{2.5}$ NAAQS using the Regional Modeling System for Aerosols and Deposition (REMSAD).'

The approach selected by EPA to determine areas of predicted NAAQS violations eliminates any area that does not model violations of the ozone NAAQS in 2010 and 2015 using a reduction factor technique. While a fairly straightforward and simple approach, it appears that EPA excluded any area that could be close to nonattainment and did not address transport for those areas. A problem situation would be an area with substantive local controls (enhanced inspection and maintenance, Stage II vapor recovery, reformulated gasoline, major source RACT, and local/upwind NOx controls) that continues to monitor a violation of the standard or can not model compliance with the NAAQS for its attainment demonstration. The state(s) for such an area could formulate a section 126 petition to ask for controls on additional upwind

states. However, since there is a large amount of uncertainty with the present emission inventory and the ozone modeling was done on a regional basis (not smaller scale SIP development basis), Missouri suggests that EPA mandate in rulemaking that a similar evaluation will be conducted in the next 5 years to account for future or existing nonattainment areas that were not addressed in this rulemaking. In addition, if an area is projected to be attainment by the IAQR analyses and is the recipient of upwind transport currently, this area should be allowed to fully receive the benefits of upwind control before costly local controls are mandated by EPA. [[(pp.3-4)]]

Response:

Although EPA is not foreclosed from revisiting interstate transport issues in the future, the Agency sees no need to commit to such a review now. Our modeling does consider potential conditions and impacts in 2015 and thereafter, and does consider the potential for upwind emissions to interfere with maintenance of the standards, as well as their attainment. See the detailed response in section III..C of this document.

II.A.44.

Comment:

In its January 2004 proposal, EPA invited comment on what constitutes a 'relatively large' amount of emissions, for deciding whether to include source categories in the federal rule. In that proposal, the Agency suggested that the criterion might be based on a specified percentage contribution to the inventory, or a specified contribution to concentrations in excess of the NAAQS in downwind areas. In its supplemental proposal, EPA seeks further comment on this issue, including the additional idea that a source category should be included only if controls on that category would result in a specified percentage of U.S. counties coming into attainment. Environmental Defense recommends that the source categories counted in setting state emissions budgets should be those that contribute a significant fraction of the regional emissions inventory for $_{NOx\ or\ SO2}$ and for which cost effective control technology is available. The Clean Air Act places responsibility for not contributing significantly to downwind nonattainment on the whole upwind state, so it is appropriate for EPA to conduct significance threshold analyses based on states' total emissions, and then select source categories to be included in federal control programs based on cost effectiveness. The D.C. Circuit Court of Appeals upheld this approach in reviewing the NOx SIP Call. Michigan v. EPA, 213 F.3d 663, 673 (D.C. Cir. 2000). Environmental Defense also recommends that EPA reject the idea raised in the supplemental proposal of including source categories in the federal rule only if controls on a source category would bring a specified number of counties into attainment. Such a threshold criterion would be illegal and irrational. Section 110 of the Clean Air Act requires that State Implementation Plans prohibit emissions in amounts that will 'contribute significantly to nonattainment in, or interfere with maintenance by, any other state...' The Clean Air Act Amendments of 1990 deliberately changed section 110, dropping language that prohibited upwind states from preventing maintenance or attainment of the NAAQS and instead substituting the prohibition on making a significant contribution to nonattainment. Regarding this change, the Senate report on the bill said: Since it may be impossible to say that any single source or group of sources is the one which actually prevents attainment, the bill changes 'prevent attainment or maintenance' to 'contribute significantly to nonattainment or interfere with maintenance by,' thus clarifying when a violation occurs. S. Comm. On Envt. And Public Works 103d Cong. 1st Sess., A Legislative History of the

Clean Air Act Amendments of 1990, at 8361 (Comm. Print 1993).1 Pinning the definition of significant contribution on whether or not a particular source category alone is responsible for nonattainment in a specified number of counties clearly violates the language and intent of the statute as amended in 1990. The 1990 Amendments rejected the idea of applying a but for causation test in section 110(a)(2)(D). The idea raised in the supplemental proposal would illegally reinstate a but for causation requirement and would further violate the Clean Air Act by requiring a showing of that a source category is the cause of nonattainment in not just one area but in multiple downwind counties. In addition to violating the Clean Air Act, a threshold requirement based on bringing a specified number of counties into attainment would also be irrational from a public health perspective, because source categories that contribute more in absolute terms to concentrations in downwind states could be exempted by using this criterion, while other source categories that contribute less but happen to hit counties that are close to the nonattainment line would be included. The proposed approach completely ignores the value of lowering concentrations and exposures unless they happen to cross that line. A source category exempted by such a criterion might account for a large fraction of either total concentrations or of concentrations in excess of the standard, even though achievable reductions from the category alone wouldn't bring many areas into attainment. [[(pp.3-4)]]

Response:

EPA is not adopting this alternative in the final rule.

II.A.45.

Comment:

On page 32,720 of the proposal, EPA seeks comment on a fundamental change to the legal regime of interstate pollution SIP calls, and in particular the significant contribution test. EPA requests input on whether the highly cost effective component of the significant contribution test should include a new limitation, i.e. whether an entire group of sources should be included in the reach of the statute only if controlling these sources would result in at least 0.5 percent of U.S. counties and parishes in the lower 48 States coming into attainment with NAAQS. 69 Fed. Reg. At 32,720/3. North Carolina does not believe that this revision to the significant contribution analysis is warranted. The current test, which consists of the now-familiar air quality and cost effectiveness components, has been used by EPA previously, vetted through public comment and upheld by the United States Court of Appeals. See Michigan v. EPA, 213 F.3d 663 (D.C. Cir. 2000), cert. Denied, 532 U.S. 904 (2001). No compelling reason is advanced why the current standard is failing to implement fully the intent of Congress. In fact, no argument at all is pressed regarding the need for a change from existing law. This new proposal apparently has its genesis in EPA's earlier reference regarding potential methods for identifying source categories that represent a relatively large amount of the relevant emissions. See 69 Fed. Reg. 4566, 4611/3 (Jan. 30, 2004). Data presented in the initial notice of proposed rulemaking indicates that electric generating units (EGUs) represent nearly two-thirds of SO_2 emissions and almost a quarter of all SO_2 emissions in the contiguous 48 states. Id. At 4589-91. Certainly, there can be no serious debate that this source category is a relatively large amount of the relevant emissions. In fact, EPA itself has concluded that EGUs would handily exceed this 0.5 percent threshold in this case. From a factual standpoint, this discussion has no bearing on the outcome of the instant rulemaking. It is purely theoretical in this case. Further, the suggested

standard is legally infirm. Prior to the 1990 amendments to the Clean Air Act, state implementation plans were required to contain[] adequate provisions ... prohibiting any stationary source within the State from emitting any air pollutant in amounts which will ... prevent attainment or maintenance by any other State of any such national primary or secondary ambient air quality standard .... 42 U.S.C. 741 (a)(2)(E) (1989). The 1990 amendments revised that standard to the current statutory mandate: contain adequate provisions ... prohibiting ... any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will ... contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard .... 42 U.S.C. § 7410(a)(2 (D) (2004). Therefore, a source or group of sources cannot escape regulation under section 110 simply because the source or group of sources is not solely responsible for a particular area not attaining the standard. The suggested revision to the section 110 rubric would excuse any group of sources if it is shown that the group is solely responsible only for under 0.5 percent of not attaining areas, and is not solely responsible for areas above 0.5 percent. In this era of continually evolving clean air standards, new and revised rules are common. Any group of sources can always blame another program for bringing the areas into attainment and therefore argue against its own inclusion in a section 11 (a)(2)(D)(i)(I) SIP call. This is exactly the type of escape strategy that the 1990 amendments legislated against. Finally, the state objects to the inclusion of this discussion in the Supplement's Clarifications to January 30, 2004 Proposal section. The question of whether to add essentially a third prong to the now familiar and judicially-approved two-part test under section 110(a)(2)(D)(i)(I) should be at the very heart of any dialogue on interstate pollution control under the Clean Air Act. Nonetheless, this suggested solution is sandwiched between statements regarding the purely erroneous identification of Massachusetts in a particular list and the accidental omission of a footnote – true clarifications. The relegation of this important discussion to the apparently innocuous Clarifications section is inappropriate. For all of these reasons, we oppose the suggested revision. [[(p.1-3)]]

Response:

EPA is not adopting this alternative in the final rule.

II.A.46.

Comment:

EPA has not included any information demonstrating that further Phase II reductions in sulfates or nitrates are necessary based on any remaining air quality contribution from regional transport. Indeed, improving air quality trends and the implementation of local emission controls, Phase I reductions, and other regulatory programs, including the Diesel Rules and NOx SIP Call, suggest that Phase II, as proposed, is not necessary to address any remaining nonattainment concerns. Moreover, defining the scope and extent of further reductions for Phase II within the final rule is premature and inappropriate in the absence of clear delineation of the remaining nonattainment issues. AEP recommends that Phase II be reevaluated in the future with respect to necessity, scope, and timing. [[(0703, p.6)]] [[(See docket number 0703, pp.6-13, for a detailed discussion of this issue)]]

Response:

As noted in earlier responses, EPA disagrees that 2015 CAIR controls require separate justification, but if they do, such justification exists. As explained elsewhere, the controls remain necessary to prevent significant contributions to nonattainment and interference with maintenance by every upwind State in the CAIR region.

II.A.47.
Comment:

EPA should analyze the need for the 2015 reductions based on an evaluation of air quality after the 2010 reductions are in place. As written, the proposed rule moves directly from the year 2010 to implement the 2015 reductions without an evaluation of the air quality improvements that would have already occurred. In effect, the need for the additional reductions in SO_2 and NO, between 2010 and 2015 are based on current conditions and seem to assume that none of the reductions required to meet the 2010 goal happened. EPA should evaluate air quality improvements from the 2010 reductions before determining if the additional reductions for the year 2015 are necessary to meet air quality goals. [[0991, p. 1]]

Response:

See previous response.

II.A.48.
Comment:

The EPA requests comment on changing the determination method regarding when a state is failing to prohibit emissions that contribute significantly to downwind nonattainment pursuant to CAA, Section 110. The EPA offers in their proposal that including a source category would be appropriate only if, '...it would result in at least 0.5 percent of U.S. counties and/or parishes in the lower 48 states coming into attainment.. .' The MDEQ believes that the EPA must not adopt this method. This method ignores the impacts of multiple sources, the possibility that a multistate SIP call may be the only way to control upwind sources, and that the method could be used to exclude any source category simply by subdividing the category to a level of insignificance. [[(p.4)]]

Response:

EPA is not adopting this alternative in the final rule.

II.A.49.
Comment:

Before EPA can justify Phase II of the IAQR, it must demonstrate that Phase I will not eliminate air quality linkages. [[See docket number 1017, pp. 31-32 for discussion of this issue.]]

Response:

EPA disagrees with the premise, but as described in other comment responses, as well as in the Preamble to the final rule and in the detailed comment response in section III.C, air quality linkages between upwind States and downwind receptors remain present in 2015 after taking into account phase 1 CAIR controls, potential local controls, and other regulatory controls.

II.A.50.

Comment:

In the Transport Supplemental Proposal, EPA seeks comment on whether it should change the way it makes CAA section 110(a)(2)(D) findings that a state is failing to prohibit emissions that contribute significantly to downwind nonattainment (p. 32720). EPA has interpreted this section to require that a state reduce emissions by specified amounts, and has based those amounts on the availability of highly cost-effective controls for certain source categories. Some commenters recommended that EPA 'consider a source category's contribution to ambient concentrations above the attainment level in all nonattainment areas in affected downwind states' and that a source category should only be included if the 'proposed level of additional control of that category would meet a specified threshold' (Id.). For example, EPA suggests that it could determine that inclusion of a source category in a broad multi-state SIP call would be appropriate 'only if it would result in at least 0.5 percent of U.S. counties and/or parishes in the lower 48 states coming into attainment with a NAAQS' (Id.). EPA seeks comment on whether this test should be incorporated as a part of the highly cost-effective component of the 'contribute significantly' requirement of CAA § 110(a)(2)(D). [[(p.4)]]

STAPPA and ALAPCO recommend that EPA not adopt this test. Most importantly, a fuller discussion and analysis of the implications of this change are necessary. While STAPPA and ALAPCO have not analyzed the full impact of this test, we raise several preliminary concerns. First, it is not clear how to determine scientifically what the correct threshold should be under this proposed methodology. EPA in its example selects an arbitrary threshold of bringing 0.5 percent of counties/parishes into attainment, but does not explain how it arrived at that threshold. A county/parish impact analysis fails to take into account the number of people, or the number of people sensitive to air pollution, who live in the counties that benefit from a multi-state SIP call. Second, this test overlooks the impact of multiple sources on nonattainment and that a multi-state SIP call may be the only way of controlling sources in upwind states that have an impact on downwind states. It may be that controls in the downwind state plus section 110(a (2)(D) controls in upwind states result in the downwind state attaining the standard. It also may be that the other alternatives available to a state or locality for reaching attainment are measures that are less cost-effective than the multi-state SIP call, and just because the multi-state SIP call controls do not bring those areas into attainment, does not mean they should be eliminated from the list of measures. Furthermore, an analysis that looks only at the impact of controls on one source category does not capture the impact of controls on multiple source categories. Finally, STAPPA and ALAPCO are concerned that this method of analysis could be used to exclude almost any source category by subdividing the category to a level of insignificance. [[(pp.4-5)]]

Response:

EPA is not adopting the test addressed in the comment.

II.A.51.
Comment:

EPA should focus on SO_2 reductions in Phase I, and then both NOx and SO2 in Phase II. The EPA suggests that an alternative approach to implementation of the rule is to focus on SO_2 reductions in Phase I and both NOx and SO2 in Phase II (69 FR 4622-4623, January 30, 2004). Notwithstanding the argument above, we support the initial focus on SO_2 for the following primary reasons;

1)It will allow time for the EPA to assess the reductions that occur in Phase I, to rerun models using current data and then exempt states or adjust requirements in Phase II.

2)It will allow research on effective NOx emission control technology for lignite to be completed and for such systems to be manufactured and installed on lignite-fired plants. [[p.7]]

Response:

EPA has shown in the preamble to the final rule that Phase 1 NOx controls are necessary to eliminate significant contribution to nonattainment of the 8-hour ozone standard. The rule thus requires those reductions.

II.A.52.
Comment:

At 69 FR 32720, EPA proposes to include a threshold number of counties (or percentage of counties) to determine 'significant contribution' is not appropriate. If one county is in nonattainment because of emissions from upwind sources, then those emissions are significant. An example of a situation where a significant contribution could exist without meeting the threshold of 0.5 percent of counties located in the continental United States (0.5 percent of the number of counties in the continental United States amounts to 16 counties) would be as follows. State A has many large sources of NOx, and State B is the only truly downwind State. If State B has only 15 counties, then even if it could be demonstrated that the emissions from State A caused significant levels of nonattainment in every county in State B, this proposal would find no significant contribution. Such a threshold metric is arbitrary; it improperly and severely limits the use of a SIP call as the geographic range of the interstate pollution problem decreases. As the court noted in Michigan, 213 F.3d at 684, 'unlike bologna, which remains bologna no matter how thin you slice it, significant contribution may disappear if emissions activity is sliced too thinly.' [[(p.3)]]

Response:

EPA is not adopting the alternative discussed in the comment.

II.A.53.
Comment:

In the proposed CAIR, EPA seeks comment on whether it should change the way it makes CAA section 110(a)(2)(D) findings that a state is failing to prohibit emissions that contribute significantly to downwind nonattainment (69 FR 32720). EPA has interpreted this

section to require that a state reduce emissions by specified amounts, and has based those amounts on the availability of highly cost-effective controls for certain source categories. Some commenters recommended that EPA 'consider a source category's contribution to ambient concentrations above the attainment level in all nonattainment areas in affected downwind states' and that a source category should only be included if the 'proposed level of additional control of that category would meet a specified threshold.' (Id.) For example, EPA suggests that it could determine that inclusion of a source category in a broad multi-state SIP 'call' would be appropriate 'only if it would result in at least 0.5 percent of U.S. counties and/or parishes in the lower 48 states coming into attainment with a NAAQS.' (Id.) EPA seeks comment on whether

this test should be incorporated as a part of the highly cost-effective component of the 'contribute significantly' requirement of CAA § 110(a)(2)(D). The Commonwealth recommends that EPA not adopt this test. [[(p.4)]]

A fuller discussion and analysis of the implications of this change are necessary. First, this test overlooks the impact of multiple sources on nonattainment. Second, the test also overlooks that a multi-state SIP call may be the only way of controlling sources in upwind states that have an impact on downwind states. It may be that controls in the downwind state plus Section 110(a)(2)(D) controls in upwind states result in the downwind state attaining the standard. An analysis that looks only at the impact of controls on one source category does not capture the impact of a portfolio of measures that includes controls on these source categories. Third, this method of analysis could be used to exclude almost any source category by subdividing the category to a level of insignificance. [[(p.4)]]

The Commonwealth does not support any economic test or analysis that makes it more difficult for EPA to impose corrective requirements on upwind sources shown to significantly contribute to downwind nonattainment. [[(p.4)]]

Response:

EPA is not adopting the standard discussed in the comment.

II.A.54.

Comment:

The Agency's methodology for determining the 'significant contributors' to downwind nonattainment is flawed. The approach used by the Agency does not really address the question of contribution. Rather, it addresses the question of how would the air quality change if these emissions are eliminated. These are two different questions, and results in inequities by failing to take into account the disproportionate impacts some upwind contributors have in the downwind nonattainment areas. These differences should be reflected in the determination of which states are significant contributors and the determination of state budgets. [[(p.3)]]

Response:

The commenter's suggestion has already been rejected by the D.C. Circuit in the NOx SIP Call litigation, which upheld the approach to significance of contribution adopted in this rule. 213 F. 3d at 679.

II.A.55.
Comment:

Determination of 'Significant Contribution'-- EPA used the same two-step approach in the CAIR to determine an upwind state's impact on downwind nonattainment areas as it did for the NOx SIP Call. First, it conducted an air quality assessment to identify upwind states that contribute significantly to downwind nonattainment. EPA used zero-out modeling and source apportionment techniques to quantify the impact of upwind sources on downwind ozone nonattainment. Similar to the NOx SIP Call, the screening criteria used by EPA for ozone in the proposed CAIR was based on: 1) a maximum contribution of less than 2 ppb from either of the two modeling techniques and/or, 2) a percent of total nonattainment of less than one percent. For evaluating the significance of interstate $PM_{2.5}$ transport, a maximum downwind contribution metric was used. EPA used an annual $PM_{2.5}$ significance level threshold equal to one percent of the standard, or 0.15 ug/m3.

In the second part of its analysis, EPA conducted a control cost assessment to determine the amount of emissions in each upwind state that should be reduced in order to eliminate each upwind state's significant contribution to downwind nonattainment. EPA used the cost per ton of pollutant removed as the metric for its cost-effectiveness test.

CEG supports EPA's two-step approach for determining an upwind state's impact on downwind nonattainment areas as well as the methodologies and criteria employed to perform the assessments. [[(p.6)]]

Response:

EPA acknowledges the commenter's support.

II.A.56.
Comment:

CEG supports EPA's two-step approach for determining an upwind state's impact on downwind nonattainment areas as well as the methodologies and criteria employed to perform the assessments. [[(p.4)]]

Response:

EPA acknowledges the commenter's support.

II.A.57.
Comment:

PSEG continues to support EPA's two-step approach in the CAIR to determine an upwind state's impact on downwind nonattainment areas. EPA first assessed air quality and identified upwind states that contribute significantly to downwind nonattainment using zero-out modeling and source apportionment techniques. Second, EPA conducted a control cost assessment to determine the amount of emissions each upwind state should reduce in order to eliminate that state's contribution to downwind nonattainment. EPA used the cost per ton of pollutant removed as the metric for its cost-effectiveness test. This is the same approach as EPA used in the NOx SIP Call, and PSEG supports EPA's consistent application. [[(p.3)]]

The supplemental notice goes one step further by attempting to establish a bright-line threshold that would determine cost-effectiveness. As stated in the preamble to the CAIR, commenters have suggested that sources should be included only if the proposed level of source category would meet a specified threshold. A suggested approach in the preamble is a test that would include a source category in a broad, multi-state SIP call only if it would result in at least .5 percent of United States counties and/or parishes in the lower 48 States coming into attainment with a given NAAQS. The .5 percent translates into a benefit for 16 counties and/or parishes for an individual NAAQS. [[(pp.3-4)]]

PSEG strongly urges that EPA not adopt a threshold, such as .5 percent, to determine if a particular source category should be included in a multi-State SIP call, for two significant reasons. First, neither the commenters nor the preamble suggests any legal basis for establishing a threshold as proposed, particularly if a threshold is not necessary for the implementation of the CAIR rule. Finally, inclusion of a bright-line test may place a significant environmental and economic burden on those States that, even after full implementation of the CAIR, have counties and/or parishes that cannot come into compliance with the NAAQS. [[(p.4)]]

As a procedural matter, there is no legal reason, either under the Clean Air Act or otherwise, to establish a bright-line test to determine cost effectiveness for the CAIR. The CAIR sufficiently utilizes the two-part test identified above to justify invoking CAA Section 110(a)(2)(D). The preamble to the supplemental notice does not present any new facts or circumstances that give rise to an additional threshold that has not been determined to be required by law. In addition, there are no additional facts or circumstances that give rise to an additional consideration of determining the number of counties that come into attainment as a bright line test for meeting the CAA. Without a compelling legal reason to supplement the two-part test, it is not appropriate to include consideration of the proposed threshold as part of the CAIR. [[(p.4)]]

Further, a proposed threshold would remove a valuable tool in the future in bringing counties and/or parishes that still, after full implementation of the CAIR, cannot come in compliance with the NAAQS. If, as anticipated, the modeling for CAIR is accurate, there will still be exceedences of the NAAQS in a number of counties, including counties in States within which we operate, such as New Jersey and Connecticut. Such result is a serious concern to PSEG, particularly since we have already made commitments to install steep controls for both NOx and SO2. At that time of continued exceedences, it may be necessary to revisit the cost-effectiveness determination. It is entirely conceivable that, in 2015, it may be necessary for additional controls on upwind state sources to bring downwind counties into attainment, but given the state of the science and economics, it may be quite cost-effective to require such controls to bring relatively few counties into compliance. A bright-line test such as that proposed in the preamble precludes such a consideration. [[(p.4)]]

For these reasons, PSEG respectively requests that EPA not adopt the proposed threshold. [[

Response:

EPA is not adopting the alternative discussed in the comment.

II.B. Use of highly cost-effective criteria

II.B.1.
Comment:

Section 110 and Cost Effectiveness: Delaware believes there is no basis in Section 110(a)(2) (D)(i) of the Clean Air Act for using cost-effectiveness as a criterion for determining the necessary level of transport reduction. We understand the need for EPA's cost-benefit analyses, but do not support using any cost per ton amount as a metric in determining necessary transport reductions. An additional point related to Section 110 is that Delaware would like EPA to establish a uniform process of evaluation to determine whether SIP submittals meet the Section 110 requirements to address transport in downwind areas before being approved. [[p. 3]]

Response:

EPA's authority to use cost effectiveness in Section 110(a)(2)(d) determinations have previously been upheld in Michigan v. EPA.

II.B.2.
Comment:

Even if U.S. EPA had a legal basis to accelerate the proposed CAIR compliance deadlines, U.S. EPA itself has established that only those emission reductions that are 'highly cost-effective' can be required under Agencys 'significant contribution' test. U.S. EPA has made no showing that achieving the CAIR reductions before 2010 would be 'highly cost-effective'. [[(p.3)]]

Response:

See Section IV of the CAIR NFR preamble well as sections VI and VII A..B. of the RTC for a detailed discussion of the factors affecting timing and control levels including the requirement of phase 1 NOx reductions by 2009.

II.B.3.
Comment:

The identification of emissions in each upwind state that significantly contribute to nonattainment should be based on a higher dollar amount for what constitutes a 'highly cost effective control,' because: a) the current level of cost-effectiveness is set well below the point of diminishing returns, b) EPA used dated technology assessments for program comparables to determine highly cost effective control levels and c) the EPA did not include an assessment of the benefits relative to the cost in determining the cost effective level. [[(1800, p.2)]]

Response:

A detailed discussion of why EPA chose the control level relative to the point of diminishing returns in contained in Section IV or the NFR preamble. With respect to technology assessment, EPA used the most up-to-date information that it had available to it.

While we include in a preamble a discussion of the costs relative to the benifits of CAIR, they type of assessment suggested by the commenter is not necessary. CAIR is intended to

address significant contribution not eliminate all potential health impacts from up-wind sources or even to eliminate emissions to a point where costs exceed benefits.

II.B.4.
Comment:

API Supports Defining 'Significant Contributions' Based On Highly Cost Effective Reductions That Can Be Achieved In EGU Emissions: In its proposed rule, EPA intends to find that emission sources are making 'significant contributions' of air pollutants to downwind areas. EPA defines a 'significant contribution' as the emission reductions that can be achieved by an EGU located in a state that is contributing emissions in amounts greater than 1 percent of the standard to a nonattainment area in another state, by using 'highly cost-effective' technology. API supports this key policy decision because it focuses on the industrial sector that is contributing the most emissions and can reduce those emissions most cost-effectively. [[1829, p. 10]]

API Supports EPA's Use of Emission Budgets Based on Highly Cost-Effective Reductions From EGUs: EPA offers two main reasons for requiring reductions consistent with 'highly cost-effective' technology. The first is that it ensures 'EPAs goal of achieving the NAAQS in the most cost effective, equitable and practical manner possible.' Id. At 4,612. In addition, EPA asserts it 'provides greater certainty that transport controls are not being overemphasized relative to local controls.' Id. API agrees with this reasoning. EGUs can achieve greater reductions at lower cost than most other, if not all other, industrial sectors. EPA notes that the targeted reductions in SO_2 based on EGU emissions have marginal costs of $700 and $1,000 for years 2010 and 2015 respectively. In addition, the marginal costs of NOx controls should be $2,200 and $2,600. This is much more cost-effective compared to the costs of controlling NOx and SO2 at API member facilities. See Section II.C, infra. In evaluating the performance of its NOx model, EPA notes the 'mean normalized gross error is 20.5 percent' and that there are no generally accepted statistical criteria by which one can judge the adequacy of model performance for regional scale ozone model applications.' Id. At 4,592. The performance of $PM_{2.5}$ modeling is even more imprecise. EPA states: 'The overall model performance results may be limited by our current knowledge of PM science and chemistry, by the emissions inventories for direct PM and secondary PM precursor pollutants, by the relatively sparse ambient data available for comparisons to model output, and by uncertainties in monitoring techniques.' Id. At 4,594. This means that EPA's program may not produce all of the benefits the Agency hopes. Consequently, in light of scientific uncertainty, EPA should only target 'highly cost-effective' reductions from the largest source of NOx and SO2 emissions.
[[1829, pp. 12-23]]

Response:

EPA agrees that highly cost effective reductions are the appropriate metric with respect to reductions that should be required under CAIR.

II.B.5.
Comment:

Even if EPA had authority under § 110 to promulgate emission reduction requirements under CAIR now (there are substantial questions that such authority exists), it could impose only those reductions that it had determined are 'highly cost-effective' by the applicable attainment date. Using this standard, no basis exists for imposing the proposed CAIR emission reductions earlier than 2010. Whether a given set of required emission reductions is highly cost effective can be determined only in reference to the date by which such reductions are required to be achieved. If the Act requires a state's significant contribution to an out-of-state area's nonattainment air quality be eliminated by that area's attainment deadline, then under EPA's 'significant contribution' test, only the highly cost-effective emission reductions that can be achieved by the deadline can be required.9 [[(p.4)]]

Response:

See Section IV of the CAIR NFR preamble well as sections and VII A..B. for a detailed discussion of the factors affecting timing and control levels. See section VI.C. regarding timing relative to attainment dates.

II.B.6.

Comment:

While it is not our contention that power plant clean-up alone can solve Ohio's fine particulate problem, it is the most cost-effective way to get there. And USEPA's analysis shows that emission cuts can be made faster and deeper with only minimal additional costs. [[p.3]]

Response:

See Section IV of the CAIR NFR preamble well as sections VI and VII A..B. for a detailed discussion of the factors affecting timing and control levels.

II.B.7.

Comment:

The form of the culpability determination should reflect the NAAQS being considered. As such, EPA should conduct three-year (2000 - 2002) air quality modeling and culpability analyses in a manner that reflects not only the form of the standard (e.g. for 8-hour ozone the highest 4th highest value), but also the time period being used to determine designation status. [[(p.9)]]

Response:

See response to comment 1 in section XII.A.1.2.

II.B.8.

Comment:

EPA's Conclusions on Cost Effectiveness Do Not Correlate with Feasibility:

Historically, the utility industry was regulated and emissions reduction initiatives were funded within a utility's rate base. Since deregulation, the Nation's energy portfolio consists of a mixed group of regulated utilities, merchant generators, and government owned assets. Primarily, merchant generators without cost recovery options are greatly disadvantaged in the

market and in their ability to acquire capital necessary to add controls to address such pollution control initiatives.

Although the IAQR's market-based trading program will help address such inequities, NRG believes the certainty of this benefit will be lost unless states are required to adhere to the tenets of EPA's model rule. For this reason, NRG believes that the IAQR must provide a defined and limited set of circumstances under which affected states are allowed to deviate there from. [[1050, p. 1]]

Response:

See sections 7 and 8 of the NFR preamble as well as Section XIII.N of the RTC.

II.B.9.

Comment:

We endorse EPA's decision to require only 'highly cost-effective' reductions. [[(1241, p.4)]]

Response:

EPA agrees that highly cost effective reductions are the appropriate metric with respect to reductions that should be required under CAIR.

II.B.10.

Comment:

Page 4613 - Appropriate Definition of Cost Effectiveness: EPA should account for cost effectiveness ($/ton removal) based on geographical location relative to the area of nonattainment. Specifically, a ton of $_{NOx\ or\ SO2}$ reduced from an area that is geographically close to the area of nonattainment would have more of an aggregated effect on the nonattainment area than a ton of NOx/ SO_2 reduced from a point source hundred of miles away from the area of nonattainment. [[p.2]]

Response:

See response below.

II.B.11.

Comment:

Because of the complex nature of ozone pollution, the test for significant contribution, unfortunately, cannot be oversimplified in terms of reductions that are 'highly cost-effective.' The relative cost of reductions in the originating upwind area must be weighed against the cost of local reductions attempting to offset reductions in a downwind nonattainment area. For example, an upwind area's contribution should be considered significant if the area could reduce ozone in a downwind area by 1 ppb at a cost of 1,000 per ton - if the cost of achieving the same 1 ppb reduction with local controls in the downwind area is $20,000 per ton. Significant contribution from upwind areas is a function of the level of pollution controls and cost in the downwind area because of far-reaching transport of air pollution, complex meteorology, and the close proximity of nonattainment areas in the ozone transport region (OTR). [[(p.7)]]

Response:

EPA agrees that optimally, the cost-per-ambient-impact of controls could play a major role in determining upwind obligations (although equitable considerations and other factors identified in the NOx SIP Call rulemaking and today's action may also play a role) either in determining significant contribution or control obligations. The EPA recognized the potential importance of this factor during the NOx SIP Call rulemaking and endeavored to develop technical information to support it. However, in that rulemaking, EPA was not able to develop an approach to quantify, with sufficient accuracy, cost-per-ambient impact because the NOx SIP Call region was large – covering approximately half of the continental United States and including approximately half the States – and many upwind States with different emissions inventories had widely varied impacts on many different nonattainment areas downwind.

This problem – the complexity of the task and the dearth of analytic tools – remains today for both $PM_{2.5}$ and 8-hour ozone regional transport. Not surprisingly, no commenter presented to EPA the analytic tools, which we would expect would consist of a complex, computerized program that could integrate, on a State-by-State basis, both control costs and ambient impacts by each State on each of its downwind receptors under the CAIR control scenario.

In the absence of a scientifically defensible, practicable method for implementing a program design approach based on the cost-per-ambient-impact of emissions reductions, EPA is not able to employ such an approach. However, EPA believes it appropriate to continue to examine ways to develop such an approach for future use.

II.C. Disagree with uniform control remedy

II.C.1.
Comment:

We do support EPA's use of a significance level to establish the applicability threshold. However, the significance levels should be founded in sound science and account for issues such as modeling sensitivity and bias. States should be expected to meet a level of control commensurate with their contribution (the greater the contribution, the greater the level of control). [[(p.1)]]

Response:

See Section IV of the NFR preamble as well as final response in Section II.B of this RTC.

II.C.2.
Comment:

The EPA indicated in the proposal 'that if a State chooses to obtain some or all of its required emission reductions from non-EGUs, then EGUs in that State would not be allowed to participate in the EPA administered multi-State trading programs.' The MDEQ believes that CalR must preserve the authority of states and other local and regional groups to adopt more stringent requirements than those contained in the CalR for all categories of sources. This is explicit in Section 116 of the CAA. States are ultimately responsible for attaining the NAAQS for their own state and therefore must have all the tools available to do so. It is possible that more NOx and SO2 reductions than provided in the final CalR will be needed for attainment of the $PM_{2.5}$ standard or the regional haze rule. The most cost-effective control approach the MDEQ can find to achieve attainment may be further control of large combustion units as part of an emissions reduction program. This also supports our comment under 'Levels of Control' elsewhere within this document. To the extent Michigan needs additional controls to do so, tighter utility controls must be an option not prohibited in the CAIR. [[(p.5)]]

Response:

See sections 7 and 8 of the NFR preamble as well as Section XIII.N of the RTC for a discussion of federalism issues. See Sections I.A. and VIII.F. of this RTC regarding the relationship of CAIR to regional haze. EPA notes that nothing in CAIR prohibits states from requiring addition reductions from EGUs if necessary to attain the NAAQS.

II.C.3.
Comment:

The approach of controlling emissions of all states equally regardless of significance of contribution is not fair to cleaner states such as Mississippi. Modeling results show the maximum particulate contribution and the number of counties affected by clean states such as Mississippi are much lower than other states. Yet these clean states would be required to make the same 50-65 percent reductions as other states that have more impact and are closer to the nonattainment counties. [[(p.2)]]

Response:

The EPA has determined that each of the jurisdictions has sources that significantly contribute to downwind nonattainment problems. Moreover, EPA has determined that specified levels of control on certain sources in all of the jurisdictions would be highly cost-effective. This analysis applies with equal force to each of the jurisdictions. It may be that emissions from some States have greater ambient impact on downwind nonattainment areas than emissions from more distant States. Even so, each of the States' emissions have a sufficient ambient impact downwind to conclude that those amounts are significant contributions and that emissions from all the upwind jurisdictions collectively contribute significantly to nonattainment downwind. Because the methodology for assessing significance of contribution was applied uniformly, and concluded that each state significantly contributed, uniformity of control per source is also appropriate. See also, Michigan v. EPA (rejecting claim that EPA inappropriately required uniform control in the NOx SIP Call); and NOx SIP Call preamble 63 Fed. Reg. 57423 (EPA's rejection of similar claims in the NOx SIP Call).

Moreover, Differentiating the contributions of individual upwind States on multiple downwind nonattainment areas is a highly complex task. The contributions of individual States are likely to vary from downwind area to downwind area, from episode to episode, and from NAAQS to NAAQS. Accordingly, it would be extremely complex to develop a budget for each State that would reflect the different impacts of its sources' emissions on different downwind States. EPA is unaware of any such tools that would permit operation of such a program and the commenters have provided EPA with no such tools.

See also CAIR NFR preamble section IV for a discussion regarding whether cost-per-ambient-impact of controls could play a role in determining upwind control obligations.

II.C.4.

Comment:

Affected upwind states should not be regulated with a one-size-fits-all approach. The emission reduction requirements for states should be directly proportional to their contribution. In other words, a state that contributes less should have to reduce emissions less. [[(p.2)]]

Response:

The EPA has determined that each of the jurisdictions has sources that significantly contribute to downwind nonattainment problems. Moreover, EPA has determined that specified levels of control on certain sources in all of the jurisdictions would be highly cost-effective. This analysis applies with equal force to each of the jurisdictions. It may be that emissions from some States have greater ambient impact on downwind nonattainment areas than emissions from more distant States. Even so, each of the States' emissions have a sufficient ambient impact downwind to conclude that those amounts are significant contributions and that emissions from all the upwind jurisdictions collectively contribute significantly to nonattainment downwind. Because the methodology for assessing significance of contribution was applied uniformly, and concluded that each state significantly contributed, uniformity of control per source is also appropriate. See also, Michigan v. EPA (rejecting claim that EPA inappropriately required

uniform control in the NOx SIP Call); and NOx SIP Call preamble 63 Fed. Reg. 57423 (EPA's rejection of similar claims in the NOx SIP Call).

Moreover, Differentiating the contributions of individual upwind States on multiple downwind nonattainment areas is a highly complex task. The contributions of individual States are likely to vary from downwind area to downwind area, from episode to episode, and from NAAQS to NAAQS. Accordingly, it would be extremely complex to develop a budget for each State that would reflect the different impacts of its sources' emissions on different downwind States. EPA is unaware of any such tools that would permit operation of such a program and the commenters have provided EPA with no such tools.

See also CAIR NFR preamble section IV for a discussion regarding whether cost-per-ambient-impact of controls could play a role in determining upwind control obligations.

II.D. General

II.D.1.
Comment:

Several commenters expressed support for a possible test that was proposed that would have limited findings of significant contribution to situations in which a certain percentage of counties in the United States were projected to be brought into attainment by emission reductions from a single source category. Other commenters opposed the test, some on the ground that it was inconsistent with the Clean Air Act. Finally, another commenter supported the proposed alternative test and also urged EPA to adopt criteria from proposed Clear Skies legislation for section 110(a)(2)(D) and section 126 of the Clean Air Act.

Response:

EPA is not adopting the alternative test proposed in the preamble that would have limited findings of significant contribution in regional rulemakings to situations in which a certain percentage of counties in the United States were projected to be brought into attainment by emission reductions from a single source category. As explained in the preamble, EPA does not believe that it is appropriate to adopt the proposed statutory interpretation. Instead, EPA has stated its belief that broad multi-state rules must be justified by a careful evaluation of the air quality improvement that will result from the controls under consideration and intends to undertake any future broad, multi-state rulemakings under section 110(a)(2)(D) regarding transported emissions only when they produce substantial air quality benefits across a broad area and have beneficial air quality impacts on a significant number of downwind nonattainment areas, including bringing many areas into attainment. As stated in the preamble, EPA is not adopting this as a statutory interpretation, but as a policy about when to initiate broad multi-state rulemakings under section 110(a)(2)(D). EPA believes that the approach it is adopting to defining what constitutes a significant contribution to nonattainment is reasonable and complies with section 110(a)(2)(D). State of Michigan v. EPA, 213 F. 3d at 317-23 (upholding substantially the same approach as adopted in the CAIR final rule). In addition, EPA is not adopting the statutory changes contained in the proposed Clear Skies legislation because it lacks the authority to modify the Clean Air Act.

II.D.2
Comment:

EPA proposed two approaches on how to determine what constitutes a relatively large amount of the relevant emissions. We believe the approach that utilizes the source categorys contribution to ambient concentrations above the attainment level should be used because it is more important to assess the impact than the percentage of the inventory represented.

Response:

This issue is addressed in the preamble to the final CAIR.

II.D.3
Comment:

EPA requests comment on two approaches for determining a source category's contribution to downwind nonattainment: the percentage of that source category's emissions as a part of the total emissions inventory, and the contribution of the source category toward the NAAQS exceedance level. Comment is also requested on what specific percentages are appropriate under each approach in determining that a source category makes a 'significant contribution' to downwind nonattainment.

For the EGU sector, sufficient information is available to warrant this rule applying across the entire nation. For determining whether some other source category (such as industrial boilers and turbines) makes a significant contribution to downwind nonattainment, the only meaningful metric is its contribution toward NAAQS exceedance. A reasonable (although arbitrary) criterion would be that it contributes at least 1 percent of the NAAQS value to downwind receptors over a very wide (multi-state) geographical area.

Response:

This issue is addressed in the preamble to the final CAIR.

II.D.4
Comment:

The Group Supports the Percent Contribution Approach to Determining Whether a Source Category Should Be Included in a Multi-State SIP Call: EPA based the proposed emission reduction requirements in the Proposed Rule on the application of highly cost-effective controls on large EGUs. According to the Agency, one of the reasons it focused on EGUs was that EGUs emit 'a relatively large amount' of NOx and SO_2 in the affected region based on either the percent contribution the source category makes compared to the total inventory or under an alternative approach that considers the contribution the source category makes to the total NAAQS exceedance level. In the SNPR, the Agency requests comment on a percent contribution approach towards determining whether a source category should be included in a multi-state SIP call, such as the CAIR. The Agency could determine that a source category be included in a multi-state SIP call if EPA demonstrates that it would cause at least 0.5 percent of U.S. counties and/or parishes (there are 3000 in total) to achieve attainment of the relevant NAAQS.

The Group supports this proposed test. A tonnage approach would lead to national overcontrol of power plants (and other industrial sources) instead of targeting the most cost-effective means of bringing nonattainment areas into compliance. Further, the percent contribution approach more closely tracks the legal standard set out in Section 110(a)(2)(D) of the CAA. That section requires EPA to measure a source category's emissions as it relates to that source category's percent contribution to the total NAAQS exceedances level. Therefore, the appropriate test to use in deciding whether to target source categories for future reductions should be the cost-effectiveness and efficiency of reducing concentrations in nonattainment areas, whether those measures would be imposed on upwind or local sources or whether on a

particular category. That is, the appropriate standard should reflect the relative contribution of a source category to the exceedances of air quality standards.

Response:

This issue is addressed in the preamble to the final CAIR.

II.D.5

Comment:

Maryland appreciates the difficulties facing EPA in its statutory interpretation establishing a significant contribution test under section 110(a (2)(D) of the CAA. However, Maryland believes that EPA's approach is overly simplistic. EPA's relies on the NOx SIP Call rulemaking (69 FR 4584) and its two-step test to define 'significant contribution.' First, set a modeling threshold for significance (before considering cost) to downwind nonattainment, and second, limit control strategies to those that are 'highly cost-effective' within only one sector. This approach ignores the relationship between the cost to solve a downwind area's problem with regional controls and the cost to solve that same area's problem with local controls.

First, since section 110(a)(2)(D) mandates revisions to SIPs in individual upwind states, EPA's methodology to define a significance threshold for an individual state on any downwind nonattainment area in the attempt to support the statutory mandate ignores the 'collective contribution' concept. However, collective contribution implies a truly additive effect of transported pollution from all sources. For example, Maryland is impacted by power plant emissions from Ohio and Pennsylvania, off-road diesel emissions from Virginia, and mobile emissions (via the Low Level Jet, explained below) from North Carolina. When taken collectively, the impact on Maryland is clearly significant.

The second prong of the significant contribution test focuses solely on whether a control strategy is 'highly cost-effective,' and limits any such controls to EGUs, and, therefore, coal-fired power plants. EPA ignores all other sources of ozone precursors and $PM_{2.5}$. For example, industrial (non-EGU) boilers with a heat input greater than 250 million Btus per hour emit (nationwide) about 2 million tons per year of SO_2 and 1 million tons per year of NOx.. (EPA 'Straw' Proposal, /3/01, pg. 12) Again, Maryland is pleased that this necessary step is being proposed, but limiting controls to the utility sector does not eliminate transport nor does it support sound policy to help states reach attainment of the 8-hour ozone and $PM_{2.5}$ standards.

Smaller states invariably show smaller contributions than their larger cousins. This is not because residents in those states have any lower per capita emissions. It is at least in part because their emissions have been carved up into tiny little bits. Some of these emissions may be hidden by the fact that some states do not have fossil fuel-fired power plants inside their borders, but get their power from a plant located in another state. If zero-out modeling were performed for each square kilometer in the Eastern U.S., results would likely show few states making, what EPA would consider, a significant contribution to downwind nonattainment areas.

Smaller and more distant states have a significant impact when considered collectively. Of the counties in Maryland that were considered, if one adds up the out-of-state contributions to

Maryland ozone, one finds that a third of the contribution comes from states which individually are considered insignificant. Collectively, these states are responsible for roughly 10 percent of the ozone entering Maryland, a contribution that would be considered highly significant using EPA's own criteria. Maryland will have to come up with its own reductions to make up for this transport. This is a difficult task considering Maryland has nearly exhausted all options for reductions that are not cost prohibitive. In order to fairly address transport, EPA should consider refinements to its significant contribution test.

69 FR 4606, Table V-4. The area of influence for these cities as determined by source apportionment is considerably larger than the area determined to be a significant contributor for each of these cities in the modeling analysis. As a concrete example, the region of coal-fired processes thought to heavily influence Washington, D.C. is roughly double the size of that used in this rule. Since this rule is really a coal-fired power plant rule, why don't these two areas of significance line up? Why was the analysis done for all sources to determine the footprint of significant contribution when only power plants were going to be regulated? Shouldn't the footprint for power plant contributions be relevant to power plant contributions?

Response:

Issues related to the two-step approach to significant contribution and the choice of significance threshold are addressed in the preamble to the final CAIR.

EPA has not ignored the collective contribution aspect of interstate transport, and has selected thresholds in light of that aspect.

EPA agrees that the whole-state analytical approach for assessment of the significant of contributions to ozone nonattainment poses issues when applied to states that are geographically small. A separate Notice of Proposed Rulemaking explains and addresses these issues. EPA believes that the issues arise only for small states not idenfitied by the 2 ppb metric and other contribution metrics/thresholds, and that any state that is identified as a significant contributor based on the whole-state approach should definitely be considered to contribute signficantly (pending consideration of costs).

The commenter did not provide a specific source for the assertion that the region of coal-fired processes thought to heavily influence Washington, D.C. is roughly double the size of that used in this rule, and EPA is aware of whose thought this is. EPA's air quality modeling indicates that five states (NC, OH, PA, VA, and WV) contribute at least 0.2 μg/m3 to $PM_{2.5}$ at monitor sites in the District of Columbia. Together, these five states account for at least 55 percent of all transport reaching the District from the 36 states whose contributions were determined. Maryland also can be considered a sixth contributing state, since the combination of Maryland's and DC's emissions contributed far more than this amount to the sites in the District, and the majority of their combined emissions are from Maryland. While the modeling does not allow Maryland's separate contribution to be determined, it would bring this percentage to somewhere between 60 and 65 percent.

When all states subject to the CAIR are considered, including those subject to CAIR because of their significant contribution to states other than the District of Columbia, the percentage of the 31-state orginated transport into the District addressed is about 98 percent. The collective contribution to $PM_{2.5}$ in DC of the states excluded from CAIR is about 0.13 μg/m3. More than half of this is from NJ and DE which EPA intends to propose for inclusion in CAIR for purposes of $PM_{2.5}$.

II.D.6
Comment:

In the case of the IAQR rule, EPA focuses on EGUs given that this emissions from this source category will be about one-quarter (23 percent) of the total NOx emissions and over two-thirds (67 percent) of the total SO_2 emissions in 2010 in the proposed 29-State control region. Although these percentage levels are clearly significant, we are concerned that EPA has proposed to define 'relatively large amount of the relevant emissions' only in terms of 'the percent contribution the source category makes to the total inventory' and to set very low percentage levels, ranging from '1 to 10 percent,' as automatic triggers for possible future regulation.

LPPC believes that the appropriate test must not be limited to the amount or quantity of relevant emissions, but also should consider the relative contribution of a source category to the exceedance of an air quality standard. CAA Section 110(a)(2)(D), in fact, mandates this approach by directing States to address their contribution to downwind exceedances of ambient air quality standard. Before EPA considers the need for further reductions of 'upwind-State' EGU emissions (beyond those required under the IAQR), EPA needs to analyze data and model the contribution of other industrial source categories that contribute to downwind exceedances. The appropriate impact test for future regulation should be the contribution of source categories to the sum total of all downwind exceedances and whether or not controls on EGUs as a source category, following the significant reductions that will result from this program, are as cost-effective as controls on other upwind source categories (industrial boilers, mobile sources) or controls in the nonattainment areas or closer to the nonattainment areas. EPA will need to improve its modeling and develop peer-reviewed methodology in order to be able to make such a determination. Under such an approach, a source category would not be targeted for further emissions reductions unless the emissions from that category can be modeled to contribute to the elevated ambient concentrations in the downwind nonattainment area and that those reductions will improve air quality at least as cost-effectively as reductions in emissions from other source categories.

Response:

These issues are addressed in the preamble to the final CAIR.

II.D.7
Comment:

Page 4584, Column 3, Line 35 - 'We are deferring findings for Texas, Oklahoma, Kansas, Nebraska, South Dakota, and North Dakota, which at this time cannot be assessed on the same basis as states to the east because they are only partially included in the modeling domain.

We intend to conduct additional modeling for these six States using a larger modeling domain, and may propose action on them based on that modeling in a supplemental proposal.'

This deferral is nearly identical to the same deferral used in the NOx SIP Call for these 'coarse-grid' states. EPA made promises in the NOx SIP Call rulemakings to conduct additional analyses for these states in 1999. EPA never conducted that analysis and we have no reason to believe they will conduct this analysis. Missouri's position on this issue has remained consistent. Any analyses conducted should be identical for all potential 'upwind' states. If Missouri's potential nonattainment areas (St. Louis and Kansas City) have not achieved the 8-hour ozone standard as predicted by EPA's regional modeling through existing local and regional controls, we believe EPA must, at a minimum, perform this additional analysis for states not included in this rulemaking that are upwind of Missouri. Additional controls in some of these states will be beneficial in reducing incoming background ozone concentrations. [[(p.4)]]

Response:

This issue is addressed in section V.C of the Response to Comments

II.D.8

Comment:

Local and regional planning entitles must have the flexibility to control emissions beyond IAQR where there is a demonstrated need.

Response:

We agree. The CAIR does not prevent this.

II.D.9

Comment:

In addition, EPA should consider the following with respect to a transport rule addressing NOx and SO2 emissions: All regions, states and localities shall retain the authority to adopt and implement their own more stringent emission caps for any pollutant (including, but not limited to, a seasonal NOx cap).

Response:

We agree. The CAIR does not prevent this.

II.D.10

Comment:

From a policy perspective, the IAQR is premature and inconsistent with the SIP process in the Clean Air Act. EPA should not take further actions to address transport until state and local agencies have completed their SIPs for the 8-hour ozone and $PM_{2.5}$ standards.

Under the IAQR, EPA effectively preempts states' options far addressing transport in their SIPs by choosing which sources and pollutants to control and by how much. By preempting the proper SIP process, EPA is also de-emphasizing the importance of local controls and encouraging states to continue asking for more transport reductions rather than investigating local control options. Further exacerbating the problem is EPA's stated intention to use the

IAQR to address transport until 2010. But, there is no legal basis provided in the IAQR to assure this is a sustainable position. There is also no indication in the IAQR of how EPA would evaluate the need for any additional controls after 2010.

Response:

This issue is addressed in the preamble for the final CAIR.

II.D.11

Comment:

The TAB appreciates the EPA's intention to provide greater regulatory certainty without sacrificing environmental quality and improvement.

The current regulatory structure of the CAA encourages litigation, discourages innovation and reduces utilities' flexibility to effectively plan to reduce air emissions in the most cost-effective manner. In addition, numerous ongoing and anticipated rulemakings further jeopardize the viability of coal by injecting uncertainty into the future use of coal for electric power generation. A rulemaking may be subject to prolonged litigation, relatively-easy modification by a future administration and less relief from overlapping CAA regulations. These factors could discourage early emission reductions and delay air emission reductions. The EPA should build as much regulatory certainty into the IAQR as possible.

Response:

The final CAIR provides as much regulatory certainty as can be achieved through an individual rulemaking approach in the absence of legislation. EPA intends to also consider the need for regulatory certainty in other rulemakings.

III. POLLUTANTS TO ADDRESS

III.A. Need to address additional pollutants

III.A.1.
Comment:

All components in fine particulates are not exhibiting similar health impacts: However, EPA is assigning control targets as if all components in a particle equally contribute to health impacts. Analysis that isolates the affect of cofactors on observed health impacts from fine particulates allows the contribution to health impacts from components in fine particulates to be isolated, e.g. sulfates, nitrates, organics and black carbon. ARIES analysis is demonstrating how sulfates and nitrates are not showing statistically significant health impacts while organic and carbon particulates are showing significant health impacts. When EPA proposes to focus on reduced emissions of sulfates and nitrates precursors to achieve fine particulate standard attainment, there is a risk that health impacts from residual organic particulates will continue to be experienced, even if attainment with the $PM_{2.5}$ standard is achieved.

Response:

This is addressed in the preamble of final CAIR.

III.A.2.
Comment:

Because the Proposed IAQR Leaves States With No Alternative to Regulation of NOx and SO2, and Does Not Allow Them To Eliminate Significant Contribution to PM-2.5 Nonattainment by Addressing Other PM-2.5 Precursors and Components, the Proposed Rule Is Inconsistent with the Clean Air Act and Case Law Construing the Act: EPA lacks authority under the CAA to limit states' authority to address significant contribution to PM-2.5 nonattainment under CAA section 110(a)(2)(D)by requiring them to address only certain precursors and components of PM-2.5. No valid basis exists for EPA to limit a state's choices to address any significant air quality contribution its emissions make to downwind PM-2.5 nonattainment, where those choices result in regulation of emissions that combine with other emissions to contribute to other states' PM-2.5 nonattainment. Congress did not limit states' choices in this way.

Response:

This is addressed in preamble of final CAIR.

III.A.3.
Comment:

PURPORTED HEALTH EFFECTS OF SULFATE AND NITRATE FINE PARTICLES: EEI encourages EPA to continue learning more about the size and chemical composition associated with particulate health impacts to ensure the most effective control strategies are developed. In its most recent draft of a revised Air Quality Criteria for Particulate Matter, EPA recognizes that the chemical composition of particulate matter (as well as its size) is likely to affect its role in the production of health effects.

Focusing on the specific $PM_{2.5}$ constituents at issue in this rulemaking - sulfates and nitrates -calls into question whether the health benefits that the agency has projected will actually be produced. Specifically, there is a substantial and increasing body of toxicological evidence that sulfates and nitrates resulting from EGU emissions of NOx and SO2 do not have a causal association with the health effects of concern. A recent review of this information concluded: 'The currently available toxicological database does not support a role for secondary inorganic aerosols in adverse health outcomes noted in epidemiological studies, in that levels of these particles, and specifically the most toxicologically potent acid species, needed to produce any effect in controlled studies are well above those found in ambient air in the United States.'

EPA has requested comment on its decision not to regulate non-sulfate/nitrate components of transported $PM_{2.5}$, such as carbonaceous particles, ammonium, or other significant components of transported $PM_{2.5}$. EEI disagrees with EPA's decision to regulate solely the sulfate and nitrate components of fine PM. EEI believes that failure to apply an alternate approach to the regulation of multiple components of $PM_{2.5}$ disregards epidemiological and toxicological analysis on the issue of PM-related health effects, and misrepresents the anticipated health benefits resulting from this proposal.

Response:

This is addressed in preamble of final CAIR.

III.A.4.

Comment:

A recent epidemiological study based on time series data of particle composition in Atlanta and emergency room visits suggests that there is a stronger correlation between particulate nitrate and carbonaceous components and health outcomes than there is between particulate sulfate and health outcomes. Because the majority of particulate carbonaceous components derive from natural and mobile sources, the utility industry argues that its emissions make little contribution to particulate-related health effects. This argument is questionable for at least two reasons: 1) Particles are heterogeneous; and 2) Sulfuric acid may increase formation of carbonaceous PM.

Response:

We agree. This is addressed in the preamble of final CAIR.

III.A.5.

Comment:

Ammonia plays a key role in the formation of $PM_{2.5}$ and it contributes to adverse impacts associated with excess nitrogen deposition. The upward trends in ammonium nitrate at Class I areas throughout the county underscore the need for more detailed analysis of proposed management strategies before ammonia emissions are totally discounted. Also, as ammonia emissions are increasing, deposition of ammonia is increasing, and ecosystem damages due to excess nitrogen are already being identified. Continued increases in ammonia emissions will continue to exacerbate damages resulting from excess nitrogen deposition. Problems associated with ammonia contribution to excess nitrogen ecosystem damages further underscore the need to

focus attention on ammonia reductions, as EPA works to address pollutants and their impacts in as holistic way as possible.

Environmental Defense recommends that as EPA and states move forward with plans to bring the nation into compliance with the $PM_{2.5}$ standard, ammonia should be considered. Ammonia reductions may play a key role to reduce ambient $PM_{2.5}$ concentrations in states with high ammonia emissions such as North Carolina. And, in the long term, the nation may benefit from regional or national standards to reduce ammonia.

Response:

This is addressed in the preamble of final CAIR.

III.A.6.

Comment:

IAQR may not specify to the states which $PM_{2.5}$ precursors must be controlled.: Since the passage of the first major Clean Air Act Amendments in 1972 that established the modern system of air quality management, the public policy underpinning the Clean Air Act has been the freedom of states to choose the manner in which they will regulate emissions attain ambient air quality standards. Despite the longstanding policy of allowing states this freedom, EPA states in the preamble to the proposed rule that '[s]ulfur-dioxide and NOx are not the only emissions that contribute to interstate transport of $PM_{2.5}$ nonattainment. However, EPA believes that given current knowledge, it is not appropriate at this time to specify emissions reductions requirements for direct $PM_{2.5}$ precursors or organic precursors (e.g., volatile organic compounds (VOCs) or ammonia (NH3)).' 69 Fed. Reg. 4570.

MOG submits that there is sufficient knowledge regarding the nature of contributions of constituents such as VOCs, NH3, and organic carbon that states should have the option of reducing these emissions for credit in their SIPs as part of the tools available in developing their SIPs for $PM_{2.5}$. MOG supports the technical comments filed by UARG in this matter on this issue and urges EPA to allow states credit in developing SIPs under the proposed rule for reductions in emissions of other contributors to their individually analyzed air quality scenarios.

Response:

This is addressed in the preamble of final CAIR.

VIII.A.7.

Comment:

There is more to PM than just NOx and SO2 or sulfate and nitrate. EPA ignores a large fraction of the overall PM pie by ignoring organics, soot, and other components of PM. EPA appears to be suggesting that these species are not transported. Again, for an annual mass-based standard, EPA has effectively divided the pie further by not considering all PM species. Consideration of all species would implicate more states as significant contributors.

Response:

This is addressed in the preamble of final CAIR.

III.A.8.
Comment:

EPA proposes to set budgets for NOx and SO2 emitted from EGUs in order to reduce the regional transport of fine particles, but not for direct $PM_{2.5}$ emissions or organic precursors (e.g., VOCs or ammonia). Again, given the large role of both NOx and SO2, especially in the quantities emitted from EGUs, in $PM_{2.5}$ formation, NCDAQ concurs with the proposed approach of the establishment of budgets for these two pollutants from these sources and not to address in this rule the issues raised by ammonia deposition.

Response:

We agree. This is addressed in the preamble of the final CAIR.

III.A. 9.
Comment:

The rationale for excluding directly emitted fine particles from EGUs from this proposal is not clear. Such particles are emitted in major amounts and are transported between states. In the absence of Control Technology Guidelines, the USEPA should provide technical guidance regarding RACT. The USEPA should also set performance limits for directly emitted fine particulate emission from EGUs.

Response:

EPA's $PM_{2.5}$ implementation rule will provide guidance on determining RACT for major sources of direct $PM_{2.5}$ and precursors of $PM_{2.5}$. In quantifying direct $PM_{2.5}$ emissions and evaluating control technologies, States and sources will need to address condensible emissions of $PM_{2.5}$. In addition, the EPA has also provided STAPPA/ALAPCO with funding to develop a $PM_{2.5}$ "Menu of Options" control technology document. When completed, this document will provide useful information on control technology options for direct $PM_{2.5}$ emissions. In the future, EPA also will be implementing the recommendations of the Air Quality Management Work Group of the Clean Air Act Advisory Committee. In its January 2005 report, a number of source categories are identified for further study and possible national regulation, and other categories are identified as candidates for national guidance for local controls.

III.A.10.
Comment:

Ammonia emission control measures were not considered in the IAQR based on the argument that NOx emissions would be more effective in reducing $PM_{2.5}$, including the ammonium in the aerosol, and that reductions in ammonia would lead to worsening of acid precipitation. However, ammonia emission controls can promote substantial reductions in ammonium nitrate aerosol and lead to net reduction of acidity in soils and eutrophication of water bodies. In addition, the IAQR modeling of ambient conditions and locally applied control measures did not consider ammonia emissions from mobile sources that may be responsible for high concentrations of ammonium nitrate in the winter. Reducing anthropogenic ammonia emissions in concert with reductions in NOx and SO2 will not reverse progress obtained through the Acid Rain Program but rather will likely improve air quality and reduce nitrogen deposition.

Response:

While current models are able to address the major chemical mechanisms involving particulate ammonium compounds, regional-scale ammonia emissions are highly uncertain.[20] There is both uncertainty in the estimation of ammonia emissions from livestock and fertilizer as well as from mobile sources. Expected changes in future formulations of fuels and emissions controls on motor vehicles add to the uncertainty of the estimated ammonia emissions from mobile sources both currently and in the future. Given the relative lack of experience in controlling such sources, the costs and effectiveness of actions to reduce both local and regional ammonia emissions are not adequately quantified at present.

Ammonium would not exist in $PM_{2.5}$ if not for the presence of sulfuric acid or nitric acid; hence, decreases in NOx and SO2 can be expected ultimately to decrease the ammonium in $PM_{2.5}$ as well. The additional regional limits on NOx and SO2 emissions outlined in today's notice added to those reductions provided under current programs would likewise be expected to reduce the $PM_{2.5}$ effectiveness of any ammonia control initiative.[21] Unlike ammonium, sulfuric acid has a very low vapor pressure and would exist as a particle with or without ammonia. Therefore, while SO_2 reductions would reduce particulate ammonium, changes in ammonia would be expected to have very little effect on the sulfate concentration.

In addition to the above considerations, because ammonium nitrates are highest in the winter, when ammonia emissions are lowest, uncontrolled wintertime NOx emissions may represent a more certain path towards reducing this winter peak than ammonia reductions.

III.A.11.
Comment:

Implications of acid-catalyzed formation of secondary organic aerosol:

The IAQR cites recent experimental studies in its assertion that reduction in NOx and SO2 emissions may also lead to reduction in secondary organic aerosols (SOA) due to organic polymer formation. However, these studies suggesting an increase in the SOA yield during the oxidation of VOCs in the presence of acidic seed particles have been conducted in conditions that are unrepresentative of ambient conditions. The data on this phenomenon does not currently support an extrapolation to atmospheric conditions in order to gauge its magnitude and importance on a regional scale. Notwithstanding, studies of nucleation in ambient aerosol suggest

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[20]Battye, W., V.P.Aneja, and P.A. Roelle, *Evaluation and improvement of ammonia emissions inventories,* Atmospheric Environment, 2003, 37: 3873-3883.

[21]As pointed out by one commenter, a hypothetical new program resulting in major regional reductions of ammonia would reduce the effectiveness of NOx controls. However, given the uncertainties in emissions, the dispersed nature of ammonia sources and the lack of present controls, an effort to develop a new regional ammonia program would likely take significantly longer than the additional NOx reductions EPA is adopting today.

that VOCs promote new particle formation and growth in urban regions due to organic polymer formation.

Response:

As noted in the NPR preamble, some research into mechanisms of formation of organic particles suggests that both NOx and SO2 reductions might be of some benefit in lowering the amount of secondary organic particles.[22] We agree that this research is in its infancy and needs further exploration. The basis of the decision to control NOx and SO2 emissions in this rule is not predicated on the potential co-beneficial reduction in secondary organic particles that is suggested by the smog chamber work at UNC. The citation of the research is merely an added benefit that may be realized by the NOx and SO2 controls. Current models are not capable of quantifying such potential benefits. But research over the next few years may lead to more a more certain relationship between NOx, SO_2, and the acid catalyzed formation of secondary organic aerosols.

III.A.12.

Comment:

Assessment of Transported Pollutants: NRG agrees with EPA to limit to NOx and SO2 the regulation of precursors for EGUs; the addition of other contributing precursors such as ammonia and organic compounds should be addressed by including non-EGU contributors.

Response:

We agree. This is addressed in the preamble of the final CAIR.

III.A.13.

Comment:

EPA has ignored other emissions and constituents that go into forming $PM_{2.5}$:

The Regional Planning Organizations (RPOs) are currently in the process of performing various modeling sensitivity analyses evaluating the effect of various emissions reductions. The RPOs including VISTAS, MWRPO and CENRAP have shown that reductions of ammonia by itself or in combination with NOx or SO2 produce significant reductions in total $PM_{2.5}$. EPA should reconsider its NOx / SO_2 only control proposal and could be factored into the IAQR.

Response:

This is addressed in the preamble of final CAIR.

III.A.14.

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[22]Jang,M; Czoschke, N.M.; Lee, S.: Kamens, R.M., *Heterogeneous Atmospheric Aerosol Production by Acid-Catalyzed Particle Phase Reactions,* Science, 2002, 298: 814-817.

Comment:

The rationale for excluding directly emitted fine particles from EGUs from this proposal is not clear. Such particles are emitted in major amounts and are transported between states. In the absence of Control Technology Guidelines, the USEPA should provide technical guidance regarding RACT. The USEPA should also set performance limits for directly emitted fine particulate emission from EGUs.

Response:

EPA's $PM_{2.5}$ implementation rule will provide guidance on determining RACT for major sources of direct $PM_{2.5}$ and precursors of $PM_{2.5}$. In quantifying direct $PM_{2.5}$ emissions and evaluating control technologies, States and sources will need to address condensible emissions of $PM_{2.5}$. In addition, the EPA has also provided STAPPA/ALAPCO with funding to develop a $PM_{2.5}$ "Menu of Options" control technology document. When completed, this document will provide useful information on control technology options for direct $PM_{2.5}$ emissions. In the future, EPA also will be implementing the recommendations of the Air Quality Management Work Group of the Clean Air Act Advisory Committee. In its January 2005 report, a number of source categories are identified for further study and possible national regulation, and other categories are identified as candidates for national guidance for local controls.

III.A. 15.

Comment:

EPA needs to continue to conduct more research with respect to $PM_{2.5}$ speciation and heath effects. Reliance on reductions in EGU NOx and SO2 emissions may not produce the intended health benefits that the IAQR is based on. In one of EPA's documents it is stated: 'Since PM from ambient air and other microenvironments may have different physical and chemical characteristics, PM from such different sources may also have different health effects. Ultimately, to understand and control health effects caused by PM exposures from all sources, it is important to quantify and understand exposure to those chemical constituents from various sources that are responsible for adverse health effects.' EPA also recognizes that organic carbon is a major component of $PM_{2.5}$ and primary health concern in urban areas. EPA's focus on NOx and SO2, excluding other $PM_{2.5}$ components, is inappropriate, lacks fairness, and will not result in the health benefits EPA is hoping to achieve

Response:

This is addressed in the preamble of final CAIR.

III.A.16.

Comment:

The IAQR does not address the role of volatile organic compounds (VOCs). VOC emissions contribute heavily to the formation of $PM_{2.5}$ and ozone. U.S. EPA should factor VOC contribution into any rulemaking.

Response:

This is addressed in the preamble of final CAIR.

III.A. 17.
Comment:

While it is true that SO_2 emissions do make a major contribution to fine particulate mass, organic aerosol sources-both primary and secondary-also make a major contribution to transported fine mass which is the subject of this rule. Thus, focusing only on SO_2 emissions reductions may be ineffective even if it is assumed that all fine mass contributed equally to observed particulate health effects.

Response:

This is addressed in the preamble of final CAIR.

III.A. 18.
Comment:

We feel compelled to point out that one of the best studies indicates that carbon-containing compounds, rather than sulfates, are strongly associated with $PM_{2.5}$ health effects. We encourage the agency to gain a better understanding of the size and chemical composition associated with particulate health impacts to ensure the most effective control strategies are developed.

Response:

This is addressed in the preamble of final CAIR.

III.A. 19.
Comment:

The CAIR Ignores Other $PM_{2.5}$ Precursors: In the preamble to proposed CAIR, EPA acknowledges that ammonia, sulfur and nitrogen compounds combine in the atmosphere to form a significant mass of $PM_{2.5}$ components. Just as ammonium sulfate and ammonium nitrate cannot form without sulfur and nitrogen, ammonium sulfate and ammonium nitrate cannot form without ammonia. Consequently, ammonia emissions also contribute substantially to interstate transport of $PM_{2.5}$. EPA also acknowledges that carbonaceous material appears to be a significant component in regional transport in the East. Neither the proposed CAIR nor the proposed supplemental rule attempt to resolve this issue.

No valid basis exists for EPA to restrict a state's choices to address any significant contribution that its emissions make to other states' nonattainment, where those choices result in the regulation of emissions that combine with other emissions to contribute to the nonattainment problem. Yet this is exactly what the proposed CAIR does.

Response:

This is addressed in the preamble of final CAIR.

III.A. 20.
Comment:

While EPA's proposal does not directly address carbon dioxide emissions, the program should focus on strong efficiency incentives within the design as a means to enable the

environmentally necessary meeting of carbon dioxide emission targets over the next decades. By ensuring that allocations, credits and performance standards point toward the most efficient as well as cleanest system designs, the program can effectively provide the right direction for CO2 responses in addition to the ambient air improvements. This will greatly enhance the security of investments made in cutting edge technology such as IGCC and other more advanced systems designed around an integrated efficiency/emissions construct.

Response:

A cap and trade system inherently provides incentives for efficiency. Burning less fuel would generally imply fewer emissions, and consequently the need for fewer allowances. Since allowances would have monetary value under a cap and trade system, it is in the interest of sources to minimize their emissions - and not just to control to a required level. (It should also be kept in mind that the current environment of high fuel prices itself provides a great deal of incentive for efficiency.)

Regarding allocations, state budgets are set on a one-time permanent basis, and consequently would be neutral in terms of efficiency incentives. EPA is giving states flexibility regarding allocations of state budgets to individual sources. The example allocation approach provided in the model rule is in fact a "modified output" approach, which provides efficiency incentives for new units of different fuel types. In the preamble, EPA notes that states may choose to include non-emitting generation (such as renewables) within the "modified output" approach, but notes that there are challenges inherent in such an approach. In the example approach, EPA also takes into account the efficiency benefits of co-generators, by accounting for heat output in the calculation of the "modified output."

The EPA also offers links to useful information for states interested in pursuing a fully output based system of allocations.

III.A. 21.

Comment:

Reactions in the atmosphere involving NOx and SO2 are one of many sources of $PM_{2.5}$. EPA's assumption that all $PM_{2.5}$ particles have equal health impacts is not valid. Recent studies have identified carbon-based compounds, rather than particles derived from NOx and SO2, as more strongly linked to health impacts associated with $PM_{2.5}$. EPA has not chosen to make use of this information, but has elected instead to move forward on this rulemaking using the simplified assumption that all $PM_{2.5}$ particles have equal impacts. Given the high costs to society resulting from this rulemaking, the issue as to which $PM_{2.5}$ particles are linked to health impacts should be resolved before proceeding with this rulemaking; otherwise, the $PM_{2.5}$ reductions may not produce the expected health benefits.

Response:

This is addressed in the preamble of final CAIR.

III.A. 22.
Comment:

In its proposal, EPA welcomes comment on its decision not to regulate non-sulfate/nitrate components of transported $PM_{2.5}$,such as carbonaceous particles, ammonium, or other significant $PM_{2.5}$ sources components of transported $PM_{2.5}$. PPL disagrees with EPA's decision to regulate solely the sulfate and nitrate components of fine PM. PPL believes that failure to apply an alternate approach to the regulation of multiple components of $PM_{2.5}$ disregards epidemiological and toxicological analysis on the issue of PM-related health effects, and misrepresents the anticipated health benefits resulting from this proposal. Even assuming that fine particles are causally linked to some level of adverse health effects, many health experts concede it has not been established that specific emissions from electric generators are the particles of concern. For example, one of the most comprehensive studies to date indicates that carbon-containing compounds, -not sulfates or nitrates -are associated with health effects. If sulfate and nitrate particles are not causing health problems, yet are the main focus of emission reduction strategies to meet national $PM_{2.5}$ standards, then the health benefits of such a strategy would be questionable. The proposal errs in making a blanket assumption that, although fine PM is composed of hundreds of substances, addressing only two of these substances, i.e., sulfates and nitrates, will result in a marked decrease in the number of Americans who experience serious health effects from fine PM exposure, including 'premature mortality, aggravation of respiratory and cardiovascular disease (as indicated by increased hospital admissions, emergency room visits, absences from school or work, and restricted activity days), lung disease, decreased lung function, asthma attacks, and certain cardiovascular problems...' For example, EPA's indiscriminate assumption is inconsistent with published data from EPRI's Atmospheric Research Inhalation Epidemiology Study (ARIES). ARIES measured more pollution components on a regular basis for an extended period of time than any other health study, and examined the relation between ambient air pollution and over 4 million hospital emergency department visits for the Atlanta area from January 1993 through August 2000.2 The study found no statistically significant association between sulfate levels and health effects. Rather, the researchers concluded that carbon monoxide, followed by carbon-containing particles, were most strongly associated with health impacts. This study demonstrates that EPA's assessment of the health benefits of the proposed rule are unsubstantiated and the purported benefits of the IAQR should be qualified based on a high degree of uncertainty.

Response:

This is addressed in the preamble of final CAIR.

III.A.23.
Comment:

In fact, the proposed rule requires the installation of control technologies that may result in increases in emissions of carbon monoxide, the main pollutant of concern identified in the ARIES study, given that some SO_2 control technologies used on boilers to reduce SO_2 levels lower flame temperatures by modifying air/fuel mixing patterns, which can result in higher carbon monoxide levels. EPA's proposal notes that '[d]efficiencies in the scientific literature often result in the inability to estimate quantitative changes in health and environmental effects, such as potential increases in premature mortality associated with increased exposure to carbon

monoxide.' PPL believes that EPA's aforementioned assertion on deficiencies in the scientific literature more aptly applies to sulfate and nitrate components of $PM_{2.5}$. Instead of focusing solely on NOx and SO2 reductions for addressing interstate pollution transport of $PM_{2.5}$, EPA's proposal should be modified to encourage local, cost-effective controls of carbonaceous particulate matter. Even if EPA is not yet persuaded that it can rule out sulfates and nitrates as responsible for any adverse health effects associated with exposure to ambient $PM_{2.5}$, however, the Agency has no basis for concluding that sulfates and nitrates pose the greatest health risk of any $PM_{2.5}$ components.

Response:

The potential increase in carbon monoxide (CO) emissions referred to by commenter is only possible with the applicaton of combustion controls, including low- NOx burner and overfire air. As discussed in the preamble for CAIR, most plants affected by this rule are projected to install SCR to meet the NOx emission requirements. SCR is a post-combustion technology and, since it is installed downstream of the boiler, it has no effect on the boiler combustion process and the CO emissions associated with it.

The EPA notes that a large number of existing coal-fired boilers have already been retrofitted with combustion controls, as a result of previous legislative and regulatory actions, especially the 1990 Clean Air Act Amendment. The experience from these installations show that any adverse effect of the use of combustion controls on CO emissions can be minimized.[23] The combustion controls are now routinely applied to all fossil-fueled boilers and the CO emissions can be maintained within reasonable limits.[24] Also, many of the boilers installing SCR for Cair will already be equipped with combustion controls. If an affected plant without such controls does decide to install them, it has a choice of designs available that would minimize any increases in CO emissions.

For reasons detailed in Section 3.A of the preamble, EPA disagrees with the commenters' assertions that particular components can be singled out either as not responsible or wholly responsible for the numerous effects associated with fine particles. Commenters also have misread EPA's intention in this rule. Again, as discussed in Section 3.A of the preamble, EPA is not regulating NOx and SO2 as precursors to $PM_{2.5}$ because of unique health effects, but because our understanding of the sources, transport characteristics, and controls of these substances is sufficient to take the final actions of today's notice. EPA continues to pursue national as well as local programs to reduce all of the major components of fine particles.

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[23]"Reducing Emissions of Nitrogen Oxides via Low- NOx Burner Technologies," Topical Report No. 5, Department of Energy, September 1996. A. Kokkinos, et.al., "B&W's Experience Reducing NOx Emissions in Tangentially-Fired Boilers - 2001 Update," Power-Gen International 2001, December 11-13, 2001, Las Vegas, Nevada

[24]T. McGowen, "Charting a Path for Cost-Effective NOx Control," Chemical Engineering, October 2004

III.A.24.
Comment:

The proposed IAQR is inconsistent with the CAA because it limits states' choices as to which PM-2.5 precursors or components states must control to address any significant contribution.

Response:

This is addressed in the preamble of final CAIR.

III.A.25.
Comment:

The 'science' used to support the Interstate Air Quality Rule is questionable. Current studies seem to suggest the health effects from hydrocarbon combustion are greater than from sulfur combustion sources, which indicates mobile/diesel source controls and not stationary electrical generating units (EGU) which are targeted by the proposed standard.

Response:

This is addressed in the preamble of final CAIR.

III.A.26.
Comment:

Finally, in order to assure that the costs of this program are justified, it is vitally important that the anticipated health benefits are realized. To this end, EPA needs to cease treating all types of particles as equal and focus on those components of particulate matter that may be toxic and the cause of the majority of the ill-health effects. EPA needs to take into account recent particulate matter speciation studies that indicate that the health benefits realized from reductions in particulate matter are associated with organic carbon particulates that originate predominantly from mobile sources and combustion related primary PM emissions and not from inorganic components such as sulfates and nitrates produced primarily by oxidation reactions in the atmosphere. The U.S. Government needs to undertake additional speciation studies related to health impacts in order to assure that EPA is targeting the right emission sources.

Response:

This is addressed in the preamble of final CAIR.

III.A.27.
Comment:

EPA's key conclusions and assumptions regarding the nature of $PM_{2.5}$ nonattainment are not supported by underlying air quality data and analysis. In particular, EPA bases the proposed statewide NOx and SO2 emission budgets on certain assumptions and conclusions about the role these pollutants play in the formation and health effect of fine particles. However, in two major aspects, the Agency's conclusions are not supported by the underlying air quality data and analyses. The Agency needs to provide better explanation and further scientific analysis to demonstrate a reasonable basis for the NOx and SO2 reductions ultimately proposed in the IAQR.

First, we believe that EPA should conduct additional $PM_{2.5}$ speciation studies. Based on the available speciated ambient air quality data, EPA proposes to control only man-made NOx and SO2 emissions, and not other direct $PM_{2.5}$ emissions or organic precursors (such as volatile organic compounds (VOCs) or ammonia (NH3)), that also contribute to $PM_{2.5}$. In particular, EPA admits that ammonia and carbon play significant roles in regional transport of fine particles, yet declines to regulate emissions of those pollutants due to uncertainty of the contribution for these emissions to nonattainment. As a result of this decision, the primary man-made sources of ammonia (livestock and other agricultural business operations) and carbon (mobile sources, solvents, petrochemical facilities, diesel and gasoline vehicle emissions) go uncontrolled under the proposed IAQR. Alliant Energy believes that it is unreasonable for the Agency to categorically exclude these pollutants from controls under the IAQR without proper study

Second, we believe EPA should take into account the greater health benefits from reducing organic $PM_{2.5}$. EPA's decision to regulate solely the sulfate and nitrate components of fine PM disregards epidemiological and toxicological analysis on the issue of PM-related health effects, and misrepresents the anticipated health benefits resulting from this proposal. EPA's focus on controlling NOx and SO2 to result in a marked decrease in the number of Americans who experience serious health effects from fine PM exposure (including premature mortality, aggravation of respiratory and cardiovascular disease) is seriously flawed, considering current scientific studies demonstrating the contrary. For example, EPA's assumption is inconsistent with published data from EPRI's Atmospheric Research Inhalation Epidemiology Study (ARIES). ARIES measured more pollution components on a regular basis for an extended period of time than any other health study, and examined the relation between ambient air pollution and over 4 million hospital emergency department visits for the Atlanta area from January 1993 through August 2000. The study found no statistically significant association between sulfate levels and health effects. Rather, the researchers concluded that carbon monoxide, followed by carbon-containing particles, were most strongly associated with health impacts. This study demonstrates that EPA's assessment of the health benefits of the proposed IAQR rule are unsubstantiated and should be qualified based on a high degree of uncertainty.

Therefore, Alliant Energy recommends that EPA gain a better understanding of the size and chemical composition associated with particulate health impacts to ensure the most effective control strategies are developed. Focusing on the specific $PM_{2.5}$ constituents at issue in this rulemaking - sulfates and nitrates - calls into question whether the health benefits that the Agency has projected will actually be produced.

Response:

This is addressed in the preamble of final CAIR.

III.A.28.

Comment:

The IAQR does not address the role of volatile organic compounds. VOC emissions contribute heavily to the formation of $PM_{2.5}$ and ozone. EPA should factor VOC contribution into any rulemaking.

Response:

This is addressed in the preamble of final CAIR.

III.A.29.

Comment:

We understand that the primary focus of the proposed rule is to reduce emissions of sulfur dioxide and nitrogen oxides. We further understand that the proposed rule is not oriented toward regulation of carbonaceous materials or direct emissions of crustal materials. Nevertheless, the proposed rule would allow local regulation of carbonaceous materials and direct emissions of crustal materials. Regulating such materials locally might adversely affect our ability to protect the operational readiness of our forces and to train the way we fight.

DoD must conduct ordnance and weapons testing in a realistic manner to ensure safety and survivability in battle. Our military readiness exercises are relatively small, periodic sources of $PM_{2.5}$ emissions. The largest component of these emissions is crustal dust. Which is a relatively small component of $PM_{2.5}$, particularly in the eastern U.S. As such, the negative impacts of regulating our military readiness activities would greatly outweigh the relatively minor incremental benefit of such regulation. Given these circumstances, we encourage EPA to urge State and local agencies to follow the Federal lead and focus their attention on significant sources of $PM_{2.5}$ pollution, and not on the testing and training activities of the military.

Response:

Comment is not germane to this rulemaking.

III.A.30.

Comment:

In this rule, EPA is proposing to control only a small fraction of the inventory. Emissions from sources other than power plants are transported, too. In the middle of the day, a plume from a large city mixes up to a height of -2000 m, and is then free to move great distances. The next day, a few hundred miles downwind, the cycle of mixing repeats itself, mixing local emissions up from the surface and bringing this slug of PM, ozone, and precursors back down to the surface. I call this the up/over/down mechanism for transport. It's difficult to see how this differs from a power plant stack, which simply injects its emissions at a constant altitude. For both kinds of sources, a large reservoir of PM, ozone, and precursors develops aloft. We see this repeatedly in our aircraft flights. We see this in analyses of the differences between mountain sites, which remain above the nighttime inversion, and lower elevation sites that stay below the nighttime inversion. And it has been routinely observed using Lidar. In light of this mixing mechanism, mobile sources, area sources, and small point sources have a much larger footprint than what the current rule suggests.

The University of Maryland Department of Meteorology has over a decade of aircraft data that clearly show large plumes of ozone, CO, and other pollutants coming over the Appalachian Mountains. In more recent years, we have expanded our instrument package to include measurements of PM, particularly soot and scattering. The expanded instrument package reveals that the same phenomena that move large plumes of ozone and CO are equally active in moving

other pollutants as well. Large plumes of CO, SO_2, ozone, soot and fine particles move over the mountains every time Maryland has an air pollution episode.

The University of Maryland's aircraft flew in the August 14-16, 2003 Northeast power blackout. Our research has found that mobile sources continued unabated on the day of the blackout, so power plants alone changed. In the blackout, airplane observations showed that PM and ozone improved, but they did not disappear entirely. Other sources therefore must have a substantial contribution. Soot was untouched and carbon monoxide was the same as on any other day. Traffic counts did not change. Since the flights were conducted in a relatively uninhabited area of central Pennsylvania, they showed that other pollutants and other components of PM are also transported.

In this rule, EPA states that organics, ammonia, and everything but nitrate and sulfate are in PM and are being transported, but does nothing to alleviate these forms of transport in the rule. EPA then states that this rule will solve the problem of transported PM. All of these species are transported, but only nitrate and sulfate are addressed in this rule, so the problem of transported PM will not be solved.

Response:

Aircraft data such as that collected by the University of Maryland over the past decade has played an important role in the understanding of ozone transport, especially in the Northeast corridor. The relatively recent addition of PM and PM precursor aircraft measurements is now serving to increase our understanding of PM transport. We encourage the University of Maryland researchers to continue their important work.

EPA agrees that there is strong evidence of transport of $PM_{2.5}$ by the precursors NOx and SO2, but there is less certainty in the role of other transported precursors such as VOCs, ammonia, and carbon. The CAIR addresses the role of NOx and SO2 in the transport of $PM_{2.5}$ to downwind nonattainment areas. We agree that other PM precursors are likely to contribute to downwind nonattainment, however, the extent of those downwind contributions to nonattainment has not been quantified adequately and current scientific understanding makes such a determination more uncertain than is the case for NOx and SO2.

EPA disagrees with that the final CAIR should require states to address the interstate transport of carbonaceous material (including VOCs), ammonia, and/or crustal material in the present rulemaking. At present, the sources and emissions contributing to these components on regional scales are not sufficiently quantified. In addition, the representation of atmospheric physics and chemistry for these components in air quality models is in some cases poor in comparison with current understanding of NOx and SO2 (most notably for sources and amounts of secondary organic aerosol production).[25] Consequently, quantification of the interstate transport of these components is significantly more uncertain than for NOx and SO2 emissions. Given these uncertainties in regional emissions and interstate transport of these components, EPA

[25]EPA OAQPS CMAQ Evaluation for 2001" Docket # OAR-2003-0053-1716

has determined that it would be premature to quantify interstate impacts of these emissions through zero-out modeling, as was done for NOx and SO2 emissions.

III.A.31.
Comment:

Maryland's air pollution comes from transport and from local sources, from power plants and mobile sources. Maryland's PM consists of a air bit of sulfate and nitrate, but also organics, soot, crustal material, and ammonia. Big stacks contribute to Maryland's air pollution problems, as do small ones. The proposed rule is held up as the solution to transported pollution, and yet it does little to address most of the constituents of fine particles, nothing for summertime ozone, and ignores the vast majority of sources. By saying that only NOx and SO2 emissions from large stacks are transported, this rule will force States like Maryland to make up the difference in expensive, deep buts of local emissions. [[pp.4 5]]

Response:

As discussed in Section III.A and B preamble, we recognize other pollutants that contirubte both to regional background as well as specific urban areas. The preamble outlines the reasons for the focus of this interstate transport action on sources of sulfur and nitrogen oxides. We are not ignoring other pollutants, and in particular we are not ignoring ozone in this action. EPA has already regulated national sources of VOC, NOx, organic particles, and elemental carbon through a series of rulemaking directed at on-and non-road mobile sources. We will continue to focus the combination of programs and strategies to ensure all important sources of fine particles and ozone are addressed.

III.A.32.
Comment:

In the preamble to proposed IAQR, EPA acknowledges that ammonia, sulfur and nitrogen compounds combine in the atmosphere to form a significant mass of $PM_{2.5}$ components. Just as ammonium sulfate and ammonium nitrate cannot form without sulfur and nitrogen, ammonium sulfate and ammonium nitrate cannot form without ammonia. Consequently, ammonia emissions also contribute substantially to interstate transport of $PM_{2.5}$. EPA also acknowledges that carbonaceous material appears to be a significant component in regional transport in the East.

No valid basis exists for EPA to restrict a state's choices to address any significant contribution that its emissions make to other states nonattainment, where those choices result in the regulation of emissions that combine with other emissions to contribute to the nonattainment problem. Yet this is exactly what the proposed IAQR does.

Response:

This is addressed in the preamble of final CAIR.

III.A.33.
Comment:

We support EPA's focus on NOx and SO2 as the pollutants to target now for reduction in the IAQR. While there are other $PM_{2.5}$ precursor emissions that must be controlled, none are as susceptible presently to regional control through a Section 110 SIP call as NOx and SO2.

Response:

We agree. This is addressed in the preamble of the final CAIR.

III.A.34.
Comment:

EPD agrees with EPA's decision not to regulate these emissions under the transport rule, for the reasons set forth in the preamble. But these pollutants will need to be addressed in the development of $PM_{2.5}$ attainment SIPs, and we strongly encourage EPA to establish 'off-the-shelf' RACT or emission guidelines to accomplish this.

Response:

EPA's $PM_{2.5}$ implementation rule will provide guidance on determining RACT for major sources of direct $PM_{2.5}$ and precursors of $PM_{2.5}$. In quantifying direct $PM_{2.5}$ emissions and evaluating control technologies, States and sources will need to address condensible emissions of $PM_{2.5}$. In addition, the EPA has also provided STAPPA/ALAPCO with funding to develop a $PM_{2.5}$ "Menu of Options" control technology document. When completed, this document will provide useful information on control technology options for direct $PM_{2.5}$ emissions. In the future, EPA also will be implementing the recommendations of the Air Quality Management Work Group of the Clean Air Act Advisory Committee. In its January 2005 report, a number of source categories are identified for further study and possible national regulation, and other categories are identified as candidates for national guidance for local controls.

III.A.35.
Comment:

Considering the impact of local sources and ambient $PM_{2.5}$ compositions, many nonattainment areas will fail to reach attainment regardless of the level of transport reductions. For many areas, the optimum distribution of emission controls to meet attainment entails a greater emphasis on reductions of carbonaceous compounds from non-electric generating utility sources. The proposed IAQR indicates that 25 to 50 percent of the annual fine particulate mass in the eastern United States is comprised of carbonaceous species. (P. 4572) Analysis of $PM_{2.5}$ composition data by EPA indicates that carbon compounds are linked to peaks in fine particulate mass throughout the year. EPA notes that peaks in $PM_{2.5}$ mass in the summer are partially attributable to greater concentrations in organic carbon, while wintertime peaks consist in part from increases in carbonaceous material of local origin. (P. 4577) The significant contribution of organic and elemental carbon compounds to ambient $PM_{2.5}$ is reiterated throughout the proposed IAQR.

Response:

Although carbonaceous material is unquestionably a component of $PM_{2.5}$, there are significant uncertainties in both the quantity and origins of emissions contributing to both primary and secondary carbonaceous material on regional scales. This leads in turn to significant uncertainty in determining the amount of carbonaceous material which is transported and the costs and effectiveness of emission controls. Moreover, available monitoring data in the CAIR region indicate that a significantly larger amount of carbonaceous material in urban areas as compared to rural. This suggests that a substantial fraction of carbonaceous particles in urban areas (which are more likely to be nonattainment areas) come from local sources. Regional sulfate and nitrate concentrations, in contrast, are considerably more homogeneously distributed, indicating an origin in regional sources.

Putting this together, we believe that sulfates and nitrates are the proper focus of this rule controlling interstate transport of $PM_{2.5}$ precursors that contribute significantly to nonattainment of the $PM_{2.5}$ NAAQS. The technical uncertainties noted above preclude conducting the significant contribution analysis that we have undertaken for NOx and SO2. Moreover, states are of course able to control local sources of carbonaceous $PM_{2.5}$ by means of SIPs, and, as noted, monitoring data suggest that most ambient carbonaceous $PM_{2.5}$ is local in origin.

III.A.36.

Comment:

A variety of non-EGU sources contribute to the carbon portion of ambient fine particulates. EPA notes that significant man-made sources of organic precursors include motor vehicle fuels, solvents, petrochemical facilities, diesel and gasoline engines, as well as biogenic emissions from trees. (P. 4576). Additional analyses by EPA in the 8-city source apportionment study concludes that mobile sources account for 15 to 40 percent of the total mass, most of which is associated with local sources. (P. 4606)

Response:

Nothing in the CAIR rule precludes states from controlling local sources of $PM_{2.5}$ as part of their attainment demonstrations. Indeed, the monitoring results summarized in section VI of the preamble to the final rule suggest strongly that both local controls and CAIR controls will be needed in order for receptor areas in the CAIR region to attain the $PM_{2.5}$ NAAQS. EPA further notes that many sources of carbonaceous PM (including those mentioned by the commenter) are being regulated through such programs as the section 112 (d) MACT program and various mobile source rules implementing sections 202 and 213 of the Act (recent examples being the heavy-duty diesel engine and nonroad diesel engine rules). These emission reductions are reflected in the modeling for this rule, as part of the base case estimates for both 2010 and 2015. Since this modeling indicates the possibility of substantial nonattainment in many receptor areas, notwithstanding these controls on other emitting sources, EPA believes it a reasonable inference that the controls on interstate sulfate and nitrate emissions are necessary under section 110 (A) (2) (D) since these emissions demonstrably contribute significantly to nonattainment in downwind receptor areas. See Tables VI-8, VI-10 and VI-11.

III.A.37.
Comment:

Of the 106 sites with 2000-2002 design values indicating nonattainment, 101 are classified by EPA as urban or suburban. With local sources and carbon compounds having such a large impact on ambient concentrations in urban areas, it will be difficult for any level of transport controls of NOx and SO2 emissions to make a significant contribution to attainment in these areas. EPA recognizes this in the proposed rule not only by indicating the need for balance between regional and local controls, but also by soliciting comments on the whether the final IAQR should include other emission source categories or pollutants.

Response:

The modeling results summarized in section VI indicate that CAIR controls will have significant positive effect on ambient air quality in downwind receptor areas. See Tables VI-10 and VI-11. The modeling indicates, however, that in many cases local controls will also be necessary in order for these downwind areas to attain the standard. This result is entirely consistent with section 110 (A) (2) (D), which contemplates both local and interstate controls as being means of attaining the standards. .

III.A.38.
Comment:

In summary, carbon compounds comprise a large portion of fine particulate mass and contribute to peaks in ambient $PM_{2.5}$ concentrations throughout the year. Analysis by EPA identifies local sources as the major contributor of carbon compounds and demonstrates that manageable emission reductions from these sources can be achieved to provide a significant ambient benefit. While AEP supports implementation of Phase I, with the inclusion of some additional flexibility to make the timing and extent of mandated controls truly cost-effective and feasible, AEP also supports expanding the final IAQR to include provisions to reduce emissions of carbonaceous compounds, especially from sources contributing to more localized transport to and within nonattainment areas.

Response:

We reiterate that nothing in the present rulemaking precludes state or local $PM_{2.5}$ implementation plans from reducing emissions of carbonaceous material in order to achieve attainment with the $PM_{2.5}$ NAAQS in cases where there is evidence that such controls will be effective on a local basis. Although uncertainties exist in addressing long-range transport of these pollutants, state and local air quality management agencies will need to evaluate reasonable control measures for sources of these pollutants in developing SIPs. We expect continuous improvements will be made in our understanding of source emissions and $PM_{2.5}$ components not addressed under CAIR. Accordingly, EPA also does not preclude the possibility that interstate transport of these components may be regulated in the future, as better information becomes available about these components and their emissions, and therefore as interstate contributions of these components to $PM_{2.5}$ nonattainment can be quantified with greater certainty. In order to achieve greater understanding of these components, EPA is actively supporting research into better understanding the emissions, atmospheric processes, long range transport, and

opportunities for control of these $PM_{2.5}$ components. Such research may allow control of these components to be included in future EPA actions.

III.A.39.
Comment:

EPA has asked for comment on its choice to not regulate components of the transported aerosol other than NOx and SO2 (FR 69 4583). We agree with EPA's conclusion that it would be premature to target other transported air pollutants such as ammonia and crustal material in this rule.

Response:

We agree. This is addressed in the preamble of the final CAIR.

III.A.40.
Comment:

Based on available ambient air quality data, EPA proposes to control man-made NOx and SO2 emissions, but does not propose to control other pollutants such as direct $PM_{2.5}$ emissions or organic precursors, including VOCs and ammonia (NH3), that contribute to $PM_{2.5}$. In its analysis, EPA acknowledges that NH3 and VOC play significant roles in regional transport of fine particles, yet declines to regulate emissions of those pollutants. However, due to uncertainty about how NH3 and VOC contribute to regional $PM_{2.5}$, EPA declines to consider controlling these emissions. As a result of this decision, EPA proposes to place a significant additional burden on the already heavily regulated electric power industry while the primary man-made sources of NH3 (livestock and other agricultural business operations) and VOC (mobile sources, solvents, petrochemical facilities, diesel and gasoline vehicle emissions) remain less controlled or uncontrolled altogether. Furthermore, absent a control program similar to the IAQR, emissions from these sources can continue to grow while EGU emissions are capped. Reliant supports regulation based on good science, and does not support the exclusion of important sources from control due to a convenient dearth of information.

In fact, considerable information exists concerning these other contributors to $PM_{2.5}$. Ambient air monitoring data shows that organic carbon and ammonia-nitrate compounds comprise a significant portion of total $PM_{2.5}$ in the atmosphere, as that cited in the Tennessee Valley Authority's 2002 Chemical Composition of Fine Particles report. Furthermore, EPA studies also indicate that organic carbon tends to be the predominant component of $PM_{2.5}$ in urban areas. With this information in hand, Reliant urges EPA to define a truly comprehensive $PM_{2.5}$ control strategy that applies controls to all source categories that contribute significantly to $PM_{2.5}$ transport in proportion to their observed contribution to air quality degradation rather than relying solely on the electric power industry for reductions.

Response:

This is addressed in the preamble of final CAIR.

III.A.41.
Comment:

The City is concerned that, as discussed in the proposed rule, volatile organic compounds (VOC), which are significant contributors to urban ozone nonattainment, are not included in the proposed IAQR and urges EPA to consider VOC reduction in developing future proposed rules or as part of SIPs for local attainment.

Response:

EPA expects that States will consider VOC reductions in their attainment SIPs. In addition, there are a number of Federal measures, such as the vehicle standards and regulations, that are reducing VOC emissions.

III.A.42.
Comment:

Based on available ambient air quality data, EPA proposes to control man-made NOx and SO2 emissions, but does not propose to control other pollutants such as direct $PM_{2.5}$ emissions or organic precursors, including VOCs and ammonia (NH3), that contribute to $PM_{2.5}$. In its analysis, EPA acknowledges that NH3 and VOC play significant roles in regional transport of fine particles, yet declines to regulate emissions of those pollutants. However, due to uncertainty about how NH3 and VOC contribute to regional $PM_{2.5}$, EPA declines to consider controlling these emissions. As a result of this decision, EPA proposes to place a significant additional burden on the already heavily regulated electric power industry while the primary man-made sources of NH3 (livestock and other agricultural business operations) and VOC (mobile sources, solvents, petrochemical facilities, diesel and gasoline vehicle emissions) remain less controlled or uncontrolled altogether. Texas Genco supports regulation based on good science, but does not support the exclusion of important sources from control due to a convenient dearth of information.

In fact, considerable information exists concerning these other contributors to $PM_{2.5}$. Ambient air monitoring data shows that organic carbon and ammonia-nitrate compounds comprise a significant portion of total $PM_{2.5}$ in the atmosphere, as that cited in the Tennessee Valley Authority's 2002 Chemical Composition of Fine Particles report. Furthermore, EPA studies also indicate that organic carbon tends to be the predominant component of $PM_{2.5}$ in urban areas. Texas Genco urges EPA to act on this information in defining a truly comprehensive $PM_{2.5}$ control strategy that does not rely solely on the electric power industry.

Response:

This is addressed in the preamble of final CAIR.

III.A.43.
Comment:

In the preamble, EPA acknowledges that other precursors and components of $PM_{2.5}$, such as carbonaceous particles, play an important role in the concentration of fine particles. While EPA has focused exclusively on the role of precursors of sulfates and nitrates (NOx and SO2) emitted from EGU's in this rulemaking, it should not prevent the states from relying on emission

reduction strategies for precursors other than NOx and SO2 that may include non-EGU sources to meet the program goals. As UARG points out in their comments, recent toxicology and epidemiological studies raise some question about the role of sulfates and nitrates in terms of health effects associated with exposure to ambient fine particulate matter and certainly call into question the effectiveness of $PM_{2.5}$ implementation strategies that focus solely on sulfates and nitrates attributed to EGU's. It also points to the need for a better understanding and documentation of the role of $PM_{2.5}$ precursors from other sources in terms of their impacts on downwind nonattainment, so that such impacts can be evaluated and incorporated into future transport and local mitigation strategies. Certainly, such factors should be considered in any re-evaluation of the Phase 2 emission reductions levels proposed in the IAQR.

Response:

This is addressed in the preamble of final CAIR.

III.A.44.

Comment:

The zero-out runs for PM were done incorrectly, NOx and SO2 do make PM, but that's only part of the story. Most of PM is other species, which were not zeroed out, so the contributions from upwind States are not adequately represented. OC and soot, for example are nowhere mentioned. OC has a very regional character, as outlined in EPA's proposal. Instead of addressing this issue, EPA simply says it does not exist, and leaves it to downwind States to come up with the difference out of hide.

Response:

This is addressed in the preamble of the final CAIR.

III.B. EPA should not address either $_{NOx\ or\ SO2}$

III.B.1.
Comment:

The Chamber is concerned that EPA has not provided an adequate justification for the inclusion of NOx emission reductions within the IAQR. This is because NOx impacts on 8-hour ozone have been previously addressed by EPA in the NOx SIP Call. Moreover, as EPA's own data indicates, imposition of further NOx controls will result in extremely small reductions in 8-hour design values.

Response:

This is addressed in the preamble of the final CAIR.

III.B.2.
Comment:

EPA Has Not Demonstrated an Adequate Basis For Including NOx Reductions in the Proposed Rule:

EPA has justified additional NOx reductions based on both 8-hour ozone and PM-2.5 concerns. For 8-hour ozone, EPA has assessed whether NOx emissions from each of the States analyzed contribute significantly to a downwind nonattainment area in another State. For Southern's service territory, EPA has found that NOx emissions from Georgia, Alabama, and Mississippi contribute significantly to a downwind 8-hour ozone nonattainment area. EPA has determined that, to eliminate the significant contribution, additional NOx reductions, beyond those called for in the NOx SIP Call rule, must be obtained by the States.

For PM-2.5, EPA has examined air quality contributions considering both NOx and SO2 emissions together, and has determined that NOx and SO2 emissions from Georgia, Alabama, Mississippi, and Florida, among other States, contribute significantly to a downwind PM-2.5 nonattainment area. EPA has proposed a remedy that would require EGU NOx and SO2 emissions reductions.

In Southern's view, EPA does not have a defensible case for inclusion of NOx in the IAQR.

Response:

This is addressed in the preamble of final CAIR.

III.B.3.
Comment:

EPA has not provided an adequate basis for including NOx in the proposed IAQR.

Response:

This is addressed in the preamble of final CAIR.

III.B.4.
Comment:

EPA has not demonstrated an adequate basis for including NOx reduction in the proposed rule.: MOG joins inUARG's comments as to why NOx should not be included in the IAQR for 8-hour ozone and $PM_{2.5}$. [[See docket number 1017 for UARG's comment letter.]] As UARG notes, NOx should not be included in the IAQR for ozone. States subject to the NOx SIP Call eliminated in 2003 or will eliminate in 2004 any significant contribution to 8-hour ozone nonattainment. Many areas that EPA has proposed to designate as 8-hour ozone nonattainment areas exceed the 8-hour standard by only 1 to 2 ppb. In addition, EPA projects only extremely small reductions in 8-hour design values as a result of the proposed IAQR.

Response:

This is addressed in the preamble of final CAIR.

III.B.5.
Comment:

Because so many areas are so close to the standard and because EPA projects only extremely small reductions, MOG urges EPA to evaluate the need, if any, for additional NOx controls only after full implementation of the NOx SIP Call. Indeed, EPA represented in the preamble to the proposed NOx SIP Call that it would evaluate in 2007 the effect of the final NOx SIP Call. 62 Fed. Reg. 60371/1 (November 7, 1997) EPA should adhere to its representation in the NOx SIP Call.

Response:

This is addressed in the preamble of the final CAIR.

III.C. General

III.C.1.
Comment:

Speaker (Hugh Morton, Grandfather Mountain, Linville, NC) at RTP public hearing presented photographs and submitted narration of air pollution problems in Charlotte and the mountains of North Carolina.

Response:

Air pollution is a problem in many areas of the country.

III.C.2.
Comment:

We fully support the major premise of the Environmental Protection Agency's (EPA) IAQR that the reduction of regional NOx emissions is essential to address ozone transport and to achieve attainment of air quality standards.

Increased wind energy development (particularly in the East and Midwest) can play a major role in reducing NOx emissions.

Response:

States have the flexibility to choose the types of control measures to achieve the required NOx reductions.

III.C.3.
Comment:

NPRA supports EPA's intention to focus the reduction of NOx and SO2 transport on the largest source of these emissions and structure a rule that can achieve the necessary reductions in the most cost-effective manner.

Response:

We agree. This is addressed in the preamble of the final CAIR.

III.C.4.
Comment:

PPL encourages the agency to gain a better understanding of the size and chemical composition associated with particulate health impacts to ensure the most effective control strategies are developed. In its most recent draft of a revised Air Quality Criteria for Particulate Matter, EPA recognizes that the chemical composition of particulate matter (as well as its size) is likely to affect its role in the production of health effects; e.g.:

Since PM from ambient air and other microenvironments may have different physical and chemical characteristics, PM from such different sources may also have different health effects. Ultimately, to understand and control health effects caused by PM exposures from all sources, it

is important to quantify and understand exposure to those chemical constituents from various sources that are responsible for adverse health effects.

Focusing on the specific $PM_{2.5}$ constituents at issue in this rulemaking -sulfates and nitrates -calls into question whether the health benefits that the Agency has projected will actually be produced. Specifically, there is a substantial and increasing body of toxicological evidence that sulfates and nitrates resulting from the EGU emission of NOx and SO2 do not have a causal association with the health effects of concern.

Response:

This is addressed in the preamble of final CAIR.

III.C.5.

Comment:

How will interstate transport of PM fine and PM fine precursors be addressed for areas that demonstrate local measures are insufficient if the PM standard is made more stringent?

Response:

This comment is premature. The EPA will address this issue if and when the standard for fine particulate matter is made more stringent.

III.C.6.

Comment:

'The Midwest and Southeast States have slightly lower peak values (but still above the 8-hour standard in many urban areas) with 2002 regional averages ranging from 0.083 to 0.090 ppm.'

St. Louis' design value for the 2001-03 monitoring period was 0.092 ppm. Based on an evaluation of monitoring data within the area, including background ozone concentrations, the incoming concentrations for the area (from the south, southwest, and southeast) are 0.071 ppm. This level of incoming ozone will make it extraordinarily difficult for the area to achieve attainment of the 8-hour NAAQS. In the same manner as $PM_{2.5}$, EPA should undertake an evaluation to understand the incoming background concentrations and the remaining urban increment that is available for ozone in areas. EPA could use that information to support its case regarding the extent of transported ozone. This type of evaluation would limit the discussion regarding the limitations of modeling and focus on 'real-world' monitoring information.

Response:

In the CAIR rulemaking, as in the NOx SIP Call, EPA has relied on source-apportionment CAM-X modeling and zero-out modeling to identify the extent of contribution from upwind states. We believe that this provides a solid basis for ozone requirements under CAIR. In addition, we would note that reductions in in-state and upwind-state emissions from existing requirements – including national rules for on-road and non-road mobile sources, and the NOx SIP Call – are projected to reduce future ozone levels in St. Louis relative to the 2001-2003 period.

III.C.7.
Comment:

Regarding the purported health effects of sulfate and nitrate fine particles, EPA must continue learning more about the size and chemical composition associated with particulate health impacts to ensure the most effective control strategies are developed. Focusing only on the specific $PM_{2.5}$ constituents at issue in this rulemaking - sulfates and nitrates - calls into question whether the health benefits that the agency has projected will actually be produced. Specifically, there is a substantial and increasing body of evidence that sulfates and nitrates resulting from EGU emissions of NOx and SO2 do not have a causal association with the health effects of concern. A broader discussion of this issue can be found in EEI's March 30,2004 comments on EPA's January 30,2004 notice.

Response:

This is addressed in the preamble of final CAIR.

III.C.8.
Comment:

With regard to acid rain and ozone, despite the good progress made in both countries, there is still much work to be done. Ozone concentrations in central and eastern Canada are still well above the Canada-wide Standard level, and further reductions will be required beyond those committed to in the Ozone Annex. Further, most watersheds in the affected areas of Canada and the northeast U.S. have not recovered from the effects of acid rain, pointing to a need for greater reductions.

Response:

CAIR will help to address these problems.

III.C.9.
Comment:

In the IAQR preamble, EPA proposes to rely on the Ozone Transport Assessment Group finding that regional control of NOx, instead of volatile organic compounds (VOCs), is the appropriate focus for reducing ozone. NCDAQ supports this approach. Our modeling shows that VOC reductions have very limited benefits in our state.

Response:

EPA is encouraged that the modeling done by the State of North Carolina confirms that a NOx control strategy would be most effective for reducing regional scale ozone transport over their portion of the eastern U.S. As noted in the preamble to the final rule, this conclusion has been reached in several recent authoritative assessments of ozone control approaches for the eastern U.S. (e.g., OTAG, NARSTO). A parallel conclusion from these assessments is that VOC reductions are most effective in reducing ozone in more dense urbanized areas bereft of large quantities of biogenic VOC.

III.C.10.
Comment:

With respect to fine particles, transport also significantly contributes to MA fine particle concentrations. While MA does not currently violate the national standards, we just barely meet the annual fine particle standard and cannot be certain of meeting this standard over the long-term. We also are very concerned that health studies increasingly demonstrate that current standards for fine particles may not be stringent enough to protect public health.

Response:

Massachusetts will see reduced levels in $PM_{2.5}$ from CAIR. This is addressed in the preamble of the final CAIR.

III.C.11.
Comment:

Key Assumptions And Conclusions Regarding The Nature Nonattainment Should Be Supported By Additional Air Quality Data And Analysis: EPA bases the proposed certain assumptions and conclusions about the role these pollutants play in the formation and health effects of fine particles. However, in at least three respects, the Agency's conclusions may require additional air quality data and analyses. The Agency should conduct further scientific analysis and provide better evidence to demonstrate a reasonable basis for the NOx and SO2 reductions proposed in the IAQR.

Response:

This is addressed in the preamble of final CAIR.

III.C.12.
Comment:

How will interstate transport of PM fine and PM fine precursors be addressed for areas that demonstrate local measures are insufficient if the PM standard is made more stringent under EPA's ongoing review of the stringency of the standard?

Response:

This comment is premature. The EPA will address this issue if and when the standard for fine particulate matter is made more stringent.

III.C.13.
Comment:

We fully support the major premise of the Environmental Protection Agency's (EPA) rule that reduction of regional NOx emissions is essential to address ozone transport and to achieve attainment of air quality standards.

Response:

We agree. This is addressed in the preamble of the final CAIR.

III.C.14.
Comment:

The United States is entering into a new era of air pollution control with the impending implementation of the $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS). Up until now, under the 1-hour ozone standard and the upcoming 8-hour ozone standard, we have only had to deal with short-term excursions of ozone standards, generally in the summer. However, the new $PM_{2.5}$ standard is an annual average standard, and the implications are enormous. The new $PM_{2.5}$ standard is a legal recognition of the fact that millions of Americans have been breathing a systemic background level of unhealthy air year-round, as opposed to just a few hours or days during the summer. Further, the new $PM_{2.5}$ standard is a mass based standard instead of concentration-based as with the 1-hour and 8-hour ozone standards. $PM_{2.5}$ is really a 'soup' of different fine particle species including sulfates, nitrates, organic carbon, soot particles, diesel particulate, and secondary organic aerosols. The CAIR targets the largest fractions, by weight, of $PM_{2.5}$ first sulfates, then nitrates. We may find down the road that the emphasis in the proposed CAIR on NOx and SO2 excludes $PM_{2.5}$ species that may have the greatest health impacts.

Response:

This is addressed in the preamble of final CAIR.

III.C.15.
Comment:

EPAs proposed rule is aimed at coal-fired generation as a source of $PM_{2.5}$, NOx and SO2 subspecies, when new studies point to other $PM_{2.5}$ constituents causing whatever health problems exist. Thus, EPA should focus its attention on other $PM_{2.5}$ emissions from other source categories besides Electric Generating Units (EGUs).

Response:

This is addressed in the preamble of final CAIR.

III.C.16.
Comment:

Montana-Dakota Utilites Co. agrees with EPA's goal to bring many eastern nonattainment aras into compliance with National Ambient Air Quality Standards (NAAQS) by reducing significant emissions in upwind States. However, we believe EPA needs to target cost-effective emissions reducitons from sources that clearly contribute to the nonattainment status of a particular geographical area. We also believe that EPA must target compounds that are documented to contribute to negative health effects. [[p. 1]]

Response:

We think we do as summarized in preamble of final CAIR.

III.C.17 Comment:

A number of commenters questioned the need for CAIR requirements considering that cap dates of 2010 and 2015 are later than the attainment dates that, in the absence of extensions, would apply to downwind $PM_{2.5}$ areas and ozone nonattainment areas. Other commenters, noting

that states will be required to adopt controls in local attainment plans, questioned whether CAIR controls would still be needed to avoid significant contribution to downwind nonattainment, or whether the controls would still be needed to the extent required by the rule.

Response:

As explained in section II of the preamble to the final rule, we do not accept the premise of these comments. The CAIR rule is a single program, not two sets of controls. It thus need not be justified twice. However, if further response is required, the controls remain justified even if (against our view) they are considered separately.

Of course, CAIR will achieve substantial reductions in time to help many nonattainment areas attain the standards by the applicable attainment dates. The design of the SO_2 program, including the declining caps in 2010 and 2015 and the banking provisions, will steadily reduce SO_2 emissions over time, achieving reductions in advance of the cap dates; and the 2009 NOx reductions will precede attainment dates for many downwind $PM_{2.5}$ and ozone nonattainment areas.

Although many of today's nonattainment areas will attain before all the reductions required by CAIR will be achieved, it is clear that CAIR's reductions will still be needed through 2015 and beyond. EPA's air quality modeling has demonstrated that upwind States have a sufficiently large impact on downwind areas to require reductions in 2010 and 2015 under CAA section 110 (a) (2) (D). Under this provision, SIPs must prohibit emissions from sources in amounts that "will contribute significantly to ... nonattainment" or "will interfere with maintenance".[26] EPA has evaluated various scenarios for the attainment status of the downwind receptors in 2010 and 2015. Under these scenarios, each upwind State's 2010 and 2015 emissions reductions are necessary to the extent required by the rule because a downwind receptor linked to that upwind State will either (i) remain in nonattainment and continue to experience significant contribution to nonattainment from the upwind State's emissions; or (ii) attain the relevant NAAQS but later revert to nonattainment due, for example, to continued growth of the emissions inventory.

The argument that the CAIR reductions are justified, in part, by the need to prevent interference with maintenance, is a limited one. EPA does not believe that the "interfere with maintenance" language was intended to give the Agency broad authority to regulate an upwind state just because that state's emissions have some impact on an area that is (or once was) in nonattainment and that, therefore, will need (or now needs) to maintain its attainment status.

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[26]As in the NOx SIP Call rulemaking, EPA interprets the "interfere with maintenance" statutory requirement "much the same as the term 'contribute significantly'", that is, "through the same weight-of-evidence approach." 63 FR at 57379. Furthermore, we believe the "interfere with maintenance" prong may come into play only in circumstances where EPA or the state can reasonably determine or project, based on available data, that an area in a downwind state will achieve attainment, but due to emissions growth or other relevant factors is likely to fall back into nonattainment.

Instead, we believe that CAIR emission reductions are needed beyond 2010 and 2015, in part, to prevent upwind states from significantly interfering with maintenance in other states because our analysis shows it is likely that, in the absence of the CAIR, a current or projected attainment area will revert to nonattainment due to continued emissions growth or other relevant factors. We are not taking the position that CAIR controls are automatically justified to prevent interference with maintenance in every area initially modeled to be in nonattainment.

We also note that considering the emission controls needed for maintenance, along with the controls needed to reach attainment in the first place, is consistent with the goal of promoting a reasonable balance between upwind state controls and local (including all in-state) controls to attain and maintain the NAAQS. As discussed in section IV of this notice, in the ideal world, the states and EPA would have enough information (and powerful enough analytical tools) to allow us to identify a mix of control strategies that would bring every area of the country into attainment at the lowest overall cost to society. Under such an approach, we would evaluate the impact of every emissions source on air quality in all nonattainment areas, the cost of different options for controlling those sources, and the cost-effectiveness of those controls in terms of cost per increment of air quality improvement. Such an approach would obviously make it easier for a state to develop an appropriate set of control requirements for sources located in that state based on (1) the need to bring its own nonattainment areas into attainment and (2) its responsibility under section 110(a)(2)(D) to prevent significant contribution to nonattainment in downwind states and interference with maintenance in those states.

Such an approach would also make it much easier for the Agency to decide on efficiency grounds whether to take action under section 126 (or under section 110(a)(2)(D) if a state failed to meet its obligations under that section) for purposes of either attainment or maintenance of a NAAQS in another state. In the simplest example, we might need to consider a case in which a downwind state with a nonattainment area is seeking reductions from an upwind state based on the claim that emissions from the upwind state are contributing significantly to the nonattainment problem in the downwind state. In such a case, the first question is whether the upwind state should be required to take any action at all, and in the ideal world, it would be simple to answer this question. If emission reductions from sources in the upwind state are more cost-effective than emission reductions in the downwind state - in terms of cost per increment of improvement in air quality in the downwind nonattainment area - then the upwind state would need to take some action to control emissions from sources in that state.[27] On the other hand, if controls on sources in the upwind state are not more cost-effective in terms of cost per increment of improvement in air quality, then the Agency would not take action under sections 126 or 110(a)(2)(D); rather, the downwind state would need to meets its attainment and maintenance

[27] This does not mean that the upwind state would be responsible for making all the reductions necessary to bring the downwind state's nonattainment area into attainment; how much would be required of each state is a separate question. Again in the ideal world, we would be able to find the right mix of controls in both states so that attainment would be achieved at the lowest total cost.

needs by controlling sources within its own jurisdiction. Of course, factors other than efficiency, such as equity or practicality, also might affect the decision.

Unfortunately, we do not have adequate information or analytical tools (ideally a detailed linear programming model that fully integrates both control costs and ambient impacts of sources in each State on each of the downwind receptors) to allow us to undertake the analysis described above at this time. However, the Agency believes that CAIR is consistent with this basic approach and will result in upwind states and downwind states sharing appropriate responsibility for attainment and maintenance of the relevant NAAQS, considering efficiency, equity and practical considerations. Under CAIR, the required reductions in upwind states (including those projected to occur after 2015) are *highly* cost effective, measured in cost-per-ton of emissions reduction, as documented in section IV. This suggests that, regardless of whether the CAIR reductions assist downwind areas in achieving attainment or in subsequently maintaining the relevant NAAQS, the upwind controls will be reasonable in cost relative to a further increment of local controls that, in most cases, will have a substantially higher cost per ton -- particularly in areas that need greater local reductions and require reductions from a variety of source types.[28] Thus, we believe that CAIR is consistent with the goal of attaining and maintaining air quality standards in an efficient, as well as equitable, manner.

Another reason for considering both attainment and maintenance needs at this time is EPA's expectation that most nonattainment areas will be able to attain the $PM_{2.5}$ and 8-hour ozone standards within the time periods provided under the statute. Considering both types of downwind needs shows that there is a strong basis for CAIR's requirements despite the potential for most receptor areas to attain before all CAIR requirements are implemented.

To demonstrate the need for CAIR based on both attainment and maintenance needs, EPA has chosen to evaluate bounding scenarios rather than try definitively to predict the future attainment status for every receptor. The latter would require speculating about the extent, nature, and timing of emissions reductions that each downwind state will achieve through attainment plans to implement the $PM_{2.5}$ and 8-hour ozone standards, as well as speculation about which areas may receive extensions of attainment dates. Such predictions would be highly uncertain, especially in advance of the state planning process and related EPA implementation rules, and particularly looking a decade into the future. Moreover, EPA does not wish to prejudge the results of the state planning process.

As a result we have considered two hypothetical bounding scenarios. Under one scenario, some projected nonattainment receptors remain in nonattainment in the relevant CAIR cap year (2010 or 2015) despite state actions to implement the NAAQS. Under the other scenario, all projected nonattainment receptors reach the level of the standard in 2009 through

[28] Tables describing cost effectiveness of various control measures and programs are provided in section IV of the final rule Federal Register notice. These show that the cost per ton of non-power-sector control options that states might consider for attainment purposes typically is higher than for CAIR controls.

state attainment plans. Using this approach, we find that even if downwind nonattainment receptor areas attain the $PM_{2.5}$ and 8-hour ozone standards in advance of some CAIR reduction requirements, the remaining requirements are justified by the need to prevent significant interference with maintenance of the standards in many of these same receptor areas.

The rest of this discussion follows the following outline:

1. Background on Attainment dates and timing of CAIR reductions
2. PM – 2010 SO_2 requirements
3. PM - 2015 requirements
4. Ozone – 2015 requirements

1. Background on attainment dates and timing of CAIR reductions

The Clean Air Act requires states to adopt enforceable plans demonstrating attainment of all $PM_{2.5}$ and 8-hour ozone areas to attain as expeditiously as practicable within certain time periods specified in the statute. In addition, the Act provides for extensions under specified circumstances.

CAIR will provide economic incentives for SO_2 reductions beginning as early as 2007, and continuing on a steady path through 2015. CAIR also will require initial NOx reductions in 2009, and additional NOx reductions in 2015. (Our modeling does not predict large early reductions in NOx although CAIR does provide credits for early reductions.)

A summary of Clean Air Act attainment date and extension provisions relevant to $PM_{2.5}$ and 8-hour ozone nonattainment areas is provided in the CAIR Supplemental Notice of Proposed Rulemaking. See 69 FR 32684, 32690-91(June 10, 2004).

Rather than predict precisely when areas will attain, EPA has chosen to show that there is a reasonable likelihood that the CAIR reductions will be needed by the identified receptor areas either to assist with attainment or maintenance of the PM and ozone air quality standards. In general, based on currently available information, we expect that most $PM_{2.5}$ and 8-hour ozone areas will be able to attain the standards within the time frames provided under the Act. However, this does not mean that we can identify the appropriate attainment year for each individual area at this time. States have not yet conducted local air quality modeling analyses, analyzed potential emission reduction measures, nor proposed state plans for attaining the $PM_{2.5}$ or 8-hour ozone standards. The state plans, which must be submitted to approval to EPA, will propose an attainment date for each area. We expect that states may request attainment date extensions for some areas. We cannot reliably predict the attainment year that will be promulgated for each individual area in advance of the state implementation plan process.

It is clear under the statutory time periods, however, that some PM and ozone areas will have early 2010 attainment dates that require reductions for attainment by 2009, before all of the CAIR reductions are required. It is also likely that some areas will be granted longer attainment dates.

For purposes of this rule action under section 110(a)(2)(D), we do not believe it is necessary to determine precisely which areas will remain in nonattainment, and which areas will reach attainment, by the cap dates of 2009, 2010 or 2015. Such predictions would be uncertain in advance of the state planning process, and would be particularly unreliable for 2015. Over longer time spans projections become increasingly uncertain and there is increased potential for technological changes to alter current estimates of feasible reductions and control costs. In addition, such projections ignore political variables and unforeseen events that history has shown can delay timely state adoption and implementation of approvable attainment plans.

2. Basis for SO_2 requirement in 2010 for PM

For the following reasons, we believe that upwind reductions in SO_2 continue to be needed in 2010 to eliminate significant contribution to nonattainment and to prevent interference with maintenance of the standards.

a. Scenario for Nonattainment Basis for 2010 SO_2 Requirements

Under this bounding scenario we assume that many $PM_{2.5}$ nonattainment areas that are downwind receptors remain in nonattainment in 2010. In this case, there would be no timing issue with SO_2 reductions in 2010 because these reductions would precede or occur in tandem with attainment dates, and would reduce the upwind states' significant contribution to nonattainment. The commenters' argument that CAIR controls are not needed at all due to earlier attainment deadlines consequently would not hold.

In fact, our modeling indicates that it is very plausible that a significant number of downwind $PM_{2.5}$ receptors may remain in nonattainment in 2010. The Agency has evaluated a wide range of emission control options and found that the average ambient reduction in $PM_{2.5}$ concentrations achievable through aggressive but feasible local controls in 2010 is 1.26 ug/m3. (See 69 FR at 4598, Jan. 30, 2004.) In the 2010 base case (which does not consider potential local controls or 2010 CAIR controls, but does consider other emission controls required to be in effect as of that date), nearly half the receptor counties are modeled to be in nonattainment by more than this amount. Specifically, 36 counties are projected to have design values greater than 16.26 ug/m3, and of these, 17 counties would have design values greater than 17 ug/m3. Preamble Table VI-10. This indicates that nonattainment is of sufficient severity to make it likely that, in the absence of CAIR, many of these areas would need an attainment date extension of at least one year.[29]

[29]To be clear, EPA is not stating that any particular area will be unable to demonstrate attainment by a particular date; this would prejudge the state implementation plan process. As part of implementing the $PM_{2.5}$ standard, states will submit state implementation plans with new information and local analyses that will enable the state and EPA to better assess the year by which areas can attain as expeditiously as practicable.

These receptors are linked to each of the 23 upwind states considered to be contributing significantly to nonattainment. Indeed, every upwind state is linked to areas projected to have base case levels of greater than 17 ug/m3. Tables VI-10 and VI-8. Thus, there is a reasonable likelihood that CAIR controls will be needed from all of the upwind states to prevent significant contribution to these states' nonattainment. Thus, as noted, the issue of timing raised by commenters (i.e., areas attain before CAIR controls take effect so that CAIR controls are unnecessary) would not occur.

Nor is the amount of reduction in excess of what is needed for attainment. We project that even with 2010 CAIR controls (but without additional local controls), 21 of the 23 upwind states in 2010 remain linked with at least one downwind receptor that would not attain by a substantial margin of 1.26 ug/m3. Tables VI-10 and VI-8. This not only indicates that the 2010 CAIR controls are not excessive, but that local controls will still be necessary for attainment.[30]

b. Scenario for Interference with Maintenance of $_{PM2.5}$ Standards as Basis for 2010 SO_2 Requirements

An alternative scenario is to assume that all $PM_{2.5}$ nonattainment areas – or at least, all of the downwind receptors for some upwind states -- achieve air quality meeting the level of the standard within 5 years of designations (i.e., by 2009). (This scenario addresses any case in which all of the downwind receptors tied to an individual upwind state in the PM CAIR region attain before 2010.) If this scenario occurred (which appears unlikely in view of the analysis above), we believe the 2010 SO_2 reductions would be justified to prevent interference with maintenance based on the following considerations.

Under this scenario, it is reasonable to assume that these areas' air quality would just meet the standard. This is likely because a significant number of downwind areas with relatively high projected $PM_{2.5}$ level would have to achieve steep emissions reductions – that is, reductions greater than the average amount we project to be reasonably feasible -- merely to attain. As mentioned above, our modeling of the impact of potential local controls on projected $PM_{2.5}$ levels in 2010 provides quantitative support for this proposition. These areas would therefore likely barely attain the standard (at best) and so would be vulnerable to falling back into nonattainment due to projected emissions growth, and also due to documented historical year-to-year variability in $PM_{2.5}$ levels.

$PM_{2.5}$ areas that are borderline attainment are at risk for falling back to nonattainment. We project that without CAIR, $PM_{2.5}$ levels would worsen in 19 downwind receptor counties between 2010 and 2015, reflecting changes in local and upwind emissions. (See "2020 and 2015 Base Case Air Quality Projections," November 2004, docket number OAR-2003-0053-1908.)

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[30]The states (New York and Virginia) not linked to a downwind receptor projected to be in substantial nonattainment are linked with at least one county projected to attain by a narrow margin of 0.5 ug/m3 or less even after imposition of 2010 CAIR controls. Preamble Tables VI-8 and VI-10. See $PM_{2.5}$ maintenance scenarios discussion.

This suggests a reasonable likelihood that without CAIR these areas would return to nonattainment. See 63 FR at 57379-80 (finding in NOx SIP Call that upwind emissions interfere with maintenance of 8-hour ozone standard under section 110(a)(2)(D)(i) where increases in emissions of ozone precursors are projected due to growth in emissions generating activity, resulting in receptors no longer attainment the standard). These downwind receptors link to all but two of the upwind states, and the remaining two upwind states are linked to receptors where projected $PM_{2.5}$ levels between 2010 and 2015 improve only slightly, leaving their air quality only marginally in attainment. In light of documented year-to-year variations in $PM_{2.5}$, (see Attachment B on changes in $PM_{2.5}$ annual means, and Attachment C on PM design value increases) these remaining receptors also would be vulnerable to falling back into nonattainment absent CAIR controls.[31] This variation can influence the determination of whether an area's air quality meets the $PM_{2.5}$ standard, which is based on 3 years of data.

A comparison of 2001, 2002 and 2003 $PM_{2.5}$ data illustrates that there is significant year-to-year variation in $PM_{2.5}$ levels.[32] Considering only counties with complete $PM_{2.5}$ monitoring data for 2001-2003, between 2001 and 2002 the annual mean $PM_{2.5}$ level (based on the highest site in each county) increased by more than 0.5 ug/m3 in 53 counties, by more than 1.0 ug/m3 in 38 counties, by more than 1.5 ug/m3 in 22 counties, and by more than 2.0 in 13 counties. Between 2002 and 2003, the maximum $PM_{2.5}$ level increased by more than 0.5 in 113 counties, by more than 1.0 ug/m3 in 57 counties, by more than 1.5 ug/m3 in 22 counties, and by more than 2.0 ug/m3 in 8 counties. (See Attachment B.)

The limited data on three-year $PM_{2.5}$ design values shows many examples of areas that have experienced design value increases within the three design-value periods for which data is available to date. (See Attachment C.)

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[31]See 65 FR at 6707, 6017 (Feb. 10, 2000) (part of justification for Tier 2 standards for gasoline vehicles is to prevent areas that have attained NAAQS narrowly from lapsing back into nonattainment); 66 FR at 5015 (Jan. 18, 2001) (part of justification of controls on heavy duty highway diesel engines is to prevent contribution to areas that have attained 1-hour ozone NAAQS by margin of less than 10 per cent, which areas could exceed NAAQS due to future uncertainties absent these controls). A related point is that analytical uncertainties leave some question as to whether an area projected to attain in a given future year actually will attain in that year.

[6]We focus here on annual changes in $PM_{2.5}$, as well as changes in 3-year design values, because the $PM_{2.5}$ monitoring system was recently established (in most places monitors were put in place between 1999 and 2001). This data documents that year-to-year variation in $PM_{2.5}$ levels occurs, which shows that areas with borderline air quality remain at risk of returning to nonattainment. By contrast, in the ozone maintenance discussion below, we specifically address the magnitude of variation in 3-year ozone design values to show that areas that have air quality specific amounts cleaner than the standard would remain at risk of returning to nonattainment.

Some commenters suggested that the amounts of 2010 CAIR control estimated by EPA (now shown in Preamble Table VI-10) would be excessive given the requirement that areas attain the PM NAAQS before 2010. However, if one assumes attainment (as we are doing under this scenario), substantial portions of the 2010 CAIR reductions would have already occurred as a result of the state-imposed SIP controls employed to attain the PM NAAQS. Given the degree of air quality improvement needed by areas with $PM_{2.5}$ levels 17 ug/m3 or greater, in-state controls sufficient to achieve air quality meeting the $PM_{2.5}$ standard in 2009 would in many cases have to include substantial SO_2 emissions reductions[33], which would be expected to overlap with reductions from CAIR. The remaining incremental reductions from CAIR controls in 2010 would thus be less than the amounts shown in Table VI-10, and would not be more than needed to prevent interference with maintenance of the standard given the likelihood of borderline attainment, as explained above.

Even in the absence of EGU control mandates in local plans, economic incentives in the CAIR rule will provide SO_2 reductions in advance of 2010. In addition, the initial CAIR annual NOx cap date is 2009. Thus, the incremental air quality improvement that the 2010 CAIR SO_2 cap achieves during the year 2010 is only a portion of the air quality improvement demonstrated by our 2010 CAIR controls modeling (Table VI-10).

4. Basis for PM precursor reductions in 2015

In considering the basis for CAIR's PM-related requirements in 2015, we consider two bounding scenarios: (1) sufficient downwind $PM_{2.5}$ areas remain in 2015 to justify CAIR controls in all states in the CAIR PM region, and (2) all areas attain the level of the $PM_{2.5}$ standard in 2009.

a. Scenario for Significant Contribution to Nonattainment Basis for 2015 PM Requirements

One scenario is that EPA will grant attainment date extensions beyond 2014 for some $PM_{2.5}$ nonattainment areas, and that there will be residual nonattainment in 2015. For receptors granted extensions, this would eliminate the issue of timing raised by commenters, since CAIR cap dates would no longer be following attainment dates.

There is potential for residual nonattainment in 2015 in view of the severity of $PM_{2.5}$ levels in some areas, uncertainties about the levels of reductions in $PM_{2.5}$ and precursors that will be achievable over the next decade, the potential for up to two 1-year extensions for areas that meet certain air quality levels in the year preceding their attainment date, and historical examples in which areas did not meet their statutory attainment dates for other NAAQS.

[33]This judgment is based in part on the substantial fraction of $PM_{2.5}$ that is composed of sulfate, our local controls modeling which showed that sulfate reductions constituted a large fraction of projected $PM_{2.5}$ improvements, and the large number of CAIR states that contain nonattainment areas and would have adopted attainment SIPs with steep reductions under this scenario.

PM nonattainment areas that receive attainment dates of 2013 or 2014 may obtain up to two 1-year extensions of that date by showing compliance with existing commitments in its SIP, plus showing no more than a minimal number of exceedances of the $PM_{2.5}$ NAAQS. Section 172 (a) (2) (C). Areas could also fail to attain in 2014 and be assigned a new attainment date (along with other consequences) pursuant to section 179.

The projected increases in ambient levels of $PM_{2.5}$ and some precursors throughout the CAIR region (see above) adds further support to the need for CAIR controls in 2015 to prevent interference with attainment.

With respect to the argument that no controls are needed because all receptors will have attained before 2015, we think it plausible that some $PM_{2.5}$ nonattainment areas may qualify for 2014 attainment dates and eventually, one-year attainment date extensions, and that there may be residual nonattainment in 2015. We continue to project that nearly half the downwind receptors in the 2015 base case (36 receptors)will be in nonattainment by amounts exceeding the average ambient reduction (again, 1.26 ug/m3) attributable to local controls we believe would be aggressive but feasible for 2010. Table VI-11. These receptors are linked to the District of Columbia and each of the 23 upwind states considered to be contributing significantly to nonattainment. Preamble Tables VI-11 and VI-8. The history of progress in development of emission reduction strategies and technologies indicates that greater local reductions could be achieved by 2015 than in 2010; nonetheless, this potential nonattainment is of sufficient severity to make it plausible that at least some of these areas will need an extension. In such cases, this would eliminate the issue of timing raised by commenters, since CAIR controls would no longer be following attainment dates.

Our modeling further shows that all of the upwind states in the CAIR PM region are linked to 13 receptors projected to exceed the standard by at least 2 ug/m3 in the 2015 base case. Tables VI-11 and VI-8. Given the reasonable potential for continued nonattainment, we infer that it is reasonable to require 2015 CAIR controls from each upwind state to prevent significant contribution to nonattainment.

We further project that even with 2015 CAIR controls, 21 of the 23 upwind states remain linked with at least one downwind receptor that would not attain by a substantial margin of greater than 1.26 ug/m3 (the average reduction achieved in our hypothetical modeling of aggressive but feasible local controls in 2010). Tables VI-11 and VI-8. (We note that in most cases the upwind state affects multiple downwind receptors.) This shows that the 2015 CAIR controls are not more than are necessary to attain the NAAQS. It also shows that local controls will still be necessary for attainment.[34]

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[34]The states (New York, and Virginia) not linked to a downwind receptor projected to be in this degree of nonattainment, are linked with at least one county projected to attain by the narrow margin of 0.6 ug/m3 or less even after imposition of 2015 CAIR. See "Scenario for Interference-with-Maintenance Basis for 2015 $PM_{2.5}$ Requirements", and Preamble Tables VI-8 and VI-11. We in fact found that 21 of 23 upwind states are linked to downwind receptors

b. Scenario for Interference-with-Maintenance Basis for 2015 $_{PM2.5}$ Requirements

In this scenario we assume that all $PM_{2.5}$ nonattainment areas are able to achieve air quality levels that meet the level of the annual $PM_{2.5}$ standard in 2009, in advance of reductions from CAIR in 2015 and thereafter. This bounding scenario is useful to show that CAIR reductions remain justified to prevent interference with maintenance of the $PM_{2.5}$ NAAQS if all of the downwind receptors tied to an individual upwind state in the PM CAIR region attain at some point prior to 2015, consistent with attainment periods provided by the Act. We believe that in this case the 2015 emissions reductions are needed to prevent interference with maintenance of the $PM_{2.5}$ NAAQS.

Even assuming attainment of the standard, many downwind receptor areas would be likely in 2015 to continue to have air quality only marginally better than the standard, and to have a reasonable likelihood of returning to nonattainment. Air quality is unlikely to be appreciably cleaner than the standard because many areas will need steep reductions merely to attain, given that we continue to project nonattainment by wide margins for many receptors in the 2015 base case.[35] Also, much of the air quality improvement projected from 2010 CAIR requirements already would have occurred through state-imposed SIP controls employed for attainment purposes under this hypothetical scenario, as explained above. Data cited above shows that areas in borderline attainment remain at risk for returning to nonattainment.

Analysis of projected air quality changes between 2010 and 2015 supports our conclusion that, without CAIR, key downwind receptors would be in jeopardy of returning to nonattainment. Under this scenario, downwind nonattainment receptor areas would have implemented controls and improved air quality just enough to meet the level of the $PM_{2.5}$ standard beginning in 2009. Our base case modeling shows that without CAIR, $PM_{2.5}$ levels would worsen in 19 of the downwind receptor counties between 2010 and 2015, reflecting changes in local and upwind emissions that vary state to state and pollutant to pollutant. (See "2020 and 2015 Base Case Air Quality Projections," November 2004, docket number OAR-2003-0053-1908.) This suggests a reasonable likelihood that, without CAIR, these areas would return to nonattainment. These 19 counties are in Alabama, Georgia, Indiana, Illinois, Maryland, Missouri, Tennessee, and West

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projected to attain the $PM_{2.5}$ NAAQS by this narrow margin in 2015 after considering CAIR controls. Tables VI-10 and VI-11.

[35]Of the 75 counties expected to be in nonattainment, 34 are projected to have design values greater than 16 ug/m3, and of these, 13 would have design values greater than 17 ug/m3. Preamble Table VI-11. All upwind states in the CAIR PM region are linked to receptors with projected $PM_{2.5}$ levels exceeding 17 ug/m3 in the 2015 base case.

We further found that after considering CAIR controls in 2015, 21 of 23 upwind states are linked to downwind receptors projected to attain the $PM_{2.5}$ NAAQS by a narrow margin of .5 ug/m3 (3.3 percent of the standard, considerably less than the 10 percent metric EPA used for this purpose in earlier rulemakings, see n. 6). This shows that the CAIR 2015 reductions are not greater than necessary. Preamble Tables VI-8 and VI-11.

Virginia, and are linked to 21 of the 23 states in the CAIR $PM_{2.5}$ control region. The remaining two upwind states in the CAIR $PM_{2.5}$ control region are linked to receptors where projected $PM_{2.5}$ levels between 2010 and 2015 improve by 0.09 ug/m3, leaving their air quality only marginally in attainment. In light of the year-to-year variations in $PM_{2.5}$ levels described above, all of these receptors would have a reasonable likelihood of returning to nonattainment in the absence of CAIR.

In addition, without CAIR we estimate that five counties projected to be in attainment in $PM_{2.5}$ in 2010 in base case modeling would experience increases in $PM_{2.5}$ concentrations and would exceed the NAAQS by 2015. Preamble Table VI-11. These five counties are in Illinois, Maryland, Mississippi, Tennessee, and Georgia.

Emissions trends after 2015 give rise to further maintenance concerns. Between 2015 and 2020, emissions of $PM_{2.5}$ and certain precursors are projected to rise. Specifically, between 2015 and 2020, we project a 2.5 percent increase in emissions of $PM_{2.5}$ itself, a 0.6 percent increase in SO_2, and a 2.9 percent increase in ammonia emissions. The modest upward trend in SO_2 is stronger in many individual states. We do not have air quality modeling for 2020. However, for $PM_{2.5}$ and each pollutant that contributes to its formation, the 2015-2020 emission trend is less favorable than the 2010-2015 emission trend.[36] Despite the more favorable trend during the earlier period, our base case air quality modeling showed $PM_{2.5}$ increases between 2010 and 2015 in 24 counties. Given the less favorable emission trends after 2015, we believe that the likelihood that areas in borderline attainment would return to nonattainment without CAIR would become even greater after that date.

Accordingly, we believe that given these projected trends, and the likelihood of only borderline attainment, CAIR controls from every upwind state in the CAIR region are needed to prevent interference with maintenance of the $PM_{2.5}$ standard. Moreover, the projected upwards pressure on $PM_{2.5}$ concentrations in most receptor areas indicates that the amount of upwind reductions is not more than necessary to prevent interference with maintenance of the standards, again given the likelihood of initial attainment by narrow margins.

[36] While SO_2 emissions are projected to decline between 2010 and 2015, SO_2 shows a modest rise between 2015 and 2020. For $PM_{2.5}$ and ammonia, the increases are greater -- and for NOx and VOC, the decreases are smaller -- for the 2015-2020 period than for the 2010-2015 period.

5. Basis for Ozone Precursor Reductions in 2015

In considering the basis for CAIR's ozone-related requirements[37] in 2015, we consider two scenarios: (1) some downwind ozone areas remain in nonattainment in 2015, and (2) all 8-hour ozone areas attain the level of the standard in 2009. For reasons explained below we conclude that 2015 ozone-season NOx reductions from each upwind state are warranted to prevent significant contribution to nonattainment or to prevent interference with maintenance of the 8-hour standard.

b. Scenario for Nonattainment Basis for 2015 Ozone Requirements

We believe that most 8-hour ozone areas will be able to attain by their attainment deadlines through existing measures, 2009 CAIR NOx reductions, and additional local measures. Under the nonattainment scenario, we assume that some limited number of downwind receptor areas remain in nonattainment in 2015. This scenario is plausible in view of the severity of projected ozone levels in certain areas, uncertainties about the levels of emissions reductions in that will prove reasonable over the next decade, and historical difficulties with attaining the 1-hour ozone standard.

For ozone, the historic difficulties that many areas, particularly large urban areas, have experienced in attaining the ozone NAAQS raises the possibility that some areas may not attain by their attainment dates, and may request a voluntary bump up to a higher classification pursuant to section 181 (b) (2) to gain an extension, or may fail to attain by the attainment date and be bumped up to a higher classification under section 181 (b) (2). These authorities were used in the course of implementing the 1-hour ozone NAAQS.

Our base case modeling (without CAIR, and without state controls implementing the 8-hour standard) projects geographically widespread nonattainment with the 8-hour ozone NAAQS in 2015. Tables VI-12 and VI-13. Five counties that link to 14 upwind states have projected ozone levels that exceed the 8-hour standard by 6 ppb or more, and 20 upwind states are linked to counties projected to exceed the 8-hour standard by more than 4 ppb. These two sets of linkages show that under a scenario in which several of the receptors with the highest ozone levels did not attain, CAIR reductions would be justified to prevent significant contributions from many of the upwind states in the CAIR ozone region.

Under this scenario, the fact that ozone receptors show significant nonattainment even after implementation of the 2015 CAIR reductions, as shown in Table VI-13, indicates that these

[37] Because the initial CAIR compliance date for NOx is in 2009, the issue relating to timing of the respective requirements raised by commenters does not arise for most receptors. CAIR reductions in 2009 would be in time to help states demonstrate that all reductions needed for attainment will be achieved in 2009, as required for 8-hour ozone moderate nonattainment areas.

reductions would not be more than necessary to prevent significant contribution to nonattainment in residual areas.

b. Scenario for Interference-with-Maintenance Basis for 2015 Ozone Requirements

Under this hypothetical scenario we assume that all ozone nonattainment areas in the CAIR region reach the level of the 8-hour standard in 2009 based on local controls, CAIR 2009 NOx reductions, and existing programs.[38] For reasons explained below, we believe that even assuming sufficient controls to demonstrate attainment in 2009[39], the downwind receptor areas would remain close enough to the standard in 2015 to be at risk of falling back into nonattainment, considering historical variability in ozone levels. These receptor areas are linked to all of the states in the CAIR ozone region.

We first believe that, as in the other maintenance scenarios, it is reasonable to assume that receptors will not attain by a wide margin. This is because attainment plans are not required to achieve reductions that would improve air quality beyond attainment, and because many areas would need steep emissions reductions merely to attain. This is supported by modeling showing that in the 2010 base case, 30 percent of the receptors (12 of 40 receptors) are projected to be in nonattainment by the wide margin of 6 ppb or more, indicating the steep emissions reductions necessary just to come into attainment. Table VI-12. However, unlike the trend in key PM receptors, our modeling projects that the ozone levels in the receptor areas would improve between 2010 and 2015 due chiefly to downward trends in NOx emissions projected under existing requirements. Nonetheless, as shown in detail below, the projected improvements in ozone levels in the receptor areas are less (often considerably less) than historic variability in monitored 8-hour ozone design values from one three-year period to the next. Put another way, historic variability in 8-hour ozone levels exceeds (often by a wide margin) the margin by which downwind areas would be cleaner than the standard, taking into account air quality improvements for early attainment and the additional improvement projected to occur by 2015. These receptors link to each of the upwind states in the ozone CAIR region. Thus, absent 2015 CAIR ozone-season NOx controls, these receptors remain at risk of lapsing back into nonattainment.[40]

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[38]We believe this scenario is unlikely for several downwind nonattainment areas with the highest projected ozone levels.

[39]Attainment deadlines for moderate ozone areas are to be no later than June 2010; an approvable attainment plan must demonstrate the reductions needed for attainment will be achieved no later than the beginning of the ozone season in the preceding year (2009).

[40]In the CAIR notice of proposed rulemaking EPA described the impact of hypothetical 25 percent reductions in NOx and VOC on nonattainment in the CAIR region in 2010. 69 FR at 4582. These reductions left approximately eight areas out of attainment. Some commenters suggested that reductions of that magnitude in 2010 may not be feasible in some areas, particularly those that had made significant efforts to reduce ozone precursors in the past. This supports the judgment that steep reductions would be needed for all areas to attain by 2009.

Our first step was to examine how far much cleaner than the 8-hour standard ozone receptors would be in 2015 after achieving attainment under this scenario. To do this, we compared our 2010 and 2015 base case modeling to see the projected air quality changes between 2010 and 2015. By 2015, 3 receptors would improve by 0-1 ppb, 14 receptors would improve by 1-2 ppb, 16 receptors would attain by 2-3 ppb, 4 receptors would improve by 3-4 ppb, and 3 receptors would improve by more than 4 ppb.[41] Preamble Tables VI-12 and VI-13.

Our second step was to examine year-to-year variability in ozone levels by reviewing historical monitoring data. Because of the form of the 8-hour ozone standard depends on 3 years of monitoring data, we have examined the 8-hour ozone design values for two periods, 1981-84 to 2001-03, and 1991-93 to 2001-03. (See Attachment C for table of historic 8-hour ozone design values.) In all periods, we see significant year-to-year variation in ozone levels at sites throughout the country, reflecting differences in weather and emissions. The magnitude of variation varies from site to site and year to year.

Under this scenario most of the CAIR ozone receptors would be expected to be attaining in 2015 by margins ranging from a fraction of a ppb cleaner than the 8-hour ozone standard to approximately 3 ppb cleaner. These receptors are linked to 22 states in the CAIR ozone region. Preamble Tables VI-9 and VI-13. As the following information shows, historical data indicates that attaining counties with air quality levels within 3 ppb of the standard are at risk of returning to nonattainment. The information also indicates that even if CAIR receptors were to 3-5 ppb below the standard, they would have a reasonable likelihood of returning to nonattainment.

[41] Typically, EPA prefers to conduct modeling of specific controls in the analysis year. However, in this hypothetical scenario, we cannot know the specific set of controls that states would choose to implement in attainment plans. Therefore we believe that in this context, this approach is an acceptable method for approximating 2015 air quality.

Table I.*

	annual three-year periods: 1981-84 to 2001-2003	annual three-year periods: 1991-93 to 2001-03
number of times attaining counties returned to nonattainment in the subsequent period	449 407 in East	299 272 in East
number of times counties attaining by at least 3 ppb returned to nonattainment in the subsequent period	202 175 in East	129 112 in East
number of times county attaining by at least 3 ppb returned to nonattainment in <u>any</u> subsequent period	373 328 in East	Not counted
number of times a county design value increased 3 or more ppb in the subsequent period	1993 1641 in East	1275 1059 in East
number of times counties attaining by at least 5 ppb returned to nonattainment in the subsequent period	98 83 in East	56 48 in East
number of times county attaining by at least 5 ppb returned to nonattainment in <u>any</u> subsequent period	276 240 in East	not counted
number of times a county design value increased by at least 5 ppb in the subsequent period	929 781 in East	502 421 in East

*This table is based on attachment D providing historical ozone data. Additional information on incidences of ozone increases is provided in an additional attachment E listing figures for two historical periods; figures are provided for the nation and for counties east of the 100th meridian.

For the 1991-1993 to 2001-2003 period, of 408 counties east of the 100th meridian that had design values less than 3 ppb below the 8-hour standard, 160 returned to nonattainment in the subsequent three-year period. Of 376 Eastern counties that had design values between 3 ppb and 5 ppb below the standard, 64 returned to nonattainment in the subsequent three-year period.

The remaining three states in the ozone region are linked to a receptor (Fulton County, GA) that, under the scenario where attainment is achieved in 2009, would be 6.8 ppb below the standard in 2015 based on the improvement projected between 2010 and 2015. (Given the projected trend in Fulton, the improvement might be slightly larger if improvement between 2009 to 2010 were estimated, but we lack modeling for 2009.) Although 7 or 8 ppb below the standard might seem a safe margin, during the 1990s Fulton County's ozone level saw the following increases of 8 ppb or more. See Attachment D, from which the following discussion is summarized. The county's design value:

- increased from 88 to 100 between 1991-93 and 1992-94 – an increase of 12 ppb.
- increased from 100 to 109 ppb between 1992-24 and 1994-95 – an increase of 9 ppb.
- increased from 105 to 113 between 1994-96 and 1997-98 – an increase of 8 ppb.
- increased from 110 to 118 between 1995-97 and 1997-99 – an increase of 8 ppb.
- increased from 113 to 121 between 1996-98 and 1998-2000 – an increase of 8 ppb.
-

Fulton County's 8-hour design value has been highly variable since 1988-1990, reaching a low of 85 ppb in 1989-91, then increasing over much of the decade to a peak of 121 ppb (interrupted by a drop between 1993-95 and 1994-96), and dropping again in recent years to 91 ppb in 2001-2003. Our CAIR base case modeling for 2010 and 2015 projects generally improving air quality in the future in Fulton County. Nonetheless, there may be continued variability in the county's ozone levels.

During the period from 1991-93 to 2001-03, there were 188 instances nationally (152 in the East) in which counties had design value increases of 7 ppb or more from one three-year period to the next. There were a greater number of instances when counties had increases of 7 ppb or more over a longer period of time.

Considering the historical volatility of Fulton County's ozone levels, as well as inherent uncertainties in future projections (e.g., regarding growth, emissions inventories, etc.), we conclude that there is a reasonable likelihood that, in the absence of CAIR, upwind state emissions would contribute to exceedances of the 8-hour standard in Fulton County, thus interfering with maintenance. In addition, we would note that Fulton County is within the range previously identified in EPA rulemakings as being relevant to maintenance. See footnote 6.

We thus conclude that there is reasonable likelihood that interstate transport of NOx from each state in the CAIR ozone region will interfere with maintenance of the 8-hour ozone NAAQS absent the emission reductions required by this rule in 2015. Factors supporting this conclusion include the widespread initial nonattainment, the linkages of the upwind states with ozone areas that are projected to attain narrowly, and the widespread uncertainties regarding attainment status, given documented historic variability in ozone levels, and the potential for local emissions inventories to increase faster than national inventories. See 66 FR at 5015 (noting these same uncertainties as part of determination that standards for mobile sources are needed to attain and maintain NAAQS). We further conclude that the 2015 CAIR controls are not greater than necessary to prevent interference with maintenance given the difference in historic variability in ozone levels and the projected improvements in ozone levels without the 2015 CAIR controls.

Conclusion

In light of reasonable scenarios under which the downwind receptors are in either attainment or nonattainment at the 2010 and 2015 implementation dates, we conclude that reductions required by the CAIR rule for both $PM_{2.5}$ and ozone are consistent with the section 110(a)(2)(D) requirements that SIPs prohibit emissions in amounts that contribute significantly to nonattainment or interfere with maintenance.

IV. SOURCES TO ADDRESS

IV.1.

Comment:

EPA should require emissions reductions for non-EGU boilers and turbines because highly cost-effective controls are available for these sources and EPA should have sufficient emissions and control cost information because the same sources were included in the NOx SIP Call and the NOx budget trading program.

Response:

See preamble.

IV.2.

Comment:

A number of commenters expressed general support for EPA's decision not to include sources other than EGUs in determining the state emissions budgets for NOx and/or SO2 Reasons cited included implementation difficulties for such sources, controls that are variable or less cost-effective, and difficulty for manufacturing industries to absorb costs without adverse economic impacts.

Response:

See preamble.

IV.3.

Comment:

Numerous commenters questioned EPA's assertion that currently inadequate data exists on emissions on costs for determining whether non-EGU sources should be included in the CAIR program. Many of these commenters believed that particularly for NOx ample information was available from the work done for the NOx SIP Call.

Response:

See preamble.

IV.4.

Comment:

A number of commenters state that non-EGU sources are a significant fraction of the emissions inventory for NOx and SO2, that these sources contribute significantly to ozone and $PM_{2.5}$ nonattainment in other States, and should be addressed by the rule. Some of these commenters noted that emissions will be of even greater significance in the future after EGUs reduce their emissions.

Response

See preamble.

IV.5.

Comment:

I urge you to attempt to reduce harmful sulfur dioxide and nitrogen oxide emissions by finalizing an Air Quality Rule. Ideally this would include a requirement that high-polluting industrial boilers as well as power plants reduce harmful sulfur dioxide and oxides of nitrogen.

Response:

See preamble.

IV.6.

Comment:

Non-EGU "major sources" are subject to the requirements of title V of the Clean Air Act and therefore EPA should have adequate emissions data provided as part of the sources' permitting obligations.

Response

See preamble.

IV.7.

Comment:

Flue gas desulfurization ("FGD") technology for non-EGU boilers and turbines is highly cost-effective. Actual control costs were submitted.

Response:

See preamble.

IV.8.

Comment:

The agency has had ample time and opportunity to study the emissions of other sectors to the same degree it has scrutinized and analyzed EGU emissions, yet, apparently, it has failed to do so. This failure should not now be used as an excuse for once again singling out the EGU sector for controls.

Response:

See preamble for discussion of emissions inventory data for non-EGUs.

IV.9.

Comment:

A number of commenters requested that EPA include large industrial boilers in the budgets under the rule. Some commenters stated that EPA should include large industrial boilers in the CAIR because they contribute to interstate transport of $_{NOx\ and\ SO2}$. Some commenters noted that large industrial boilers were similar to smaller EGUs covered the by the rule. Others believed that EPA should include large industrial boilers in the CAIR because if the decision is left to the States, the result may be inequitable treatment of EGUs on a State-by-State basis,

particularly with respect to allowances. Therefore, it would make sense to require $_{NOx\ and\ SO2}$ reductions from large industrial boilers.

Response:

EPA believes it is necessary to have more reliable emissions data and better control cost information for these sources before assuming reductions from large industrial boilers in the CAIR. See preamble for further discussion.

IV.10.

Comment:

EPA should include large industrial boilers in the CAIR because they contribute to interstate transport of NOx and SO2.

Response:

EPA believes it is necessary to have more reliable emissions data and better control cost information for these sources before assuming reductions from them in the CAIR. See preamble for further discussion.

IV.11.

Comment:

Some commenters believed it is counterintuitive to exclude certain sources that are already participating in a successful $_{NOx}$ emissions trading program.

Response:

These commenters are presumably referring to the NOx budget trading program which requires NOx reductions from non-EGU boilers and turbines of a certain size. The NOx budget trading program, however, does not require SO_2 reductions from these same sources. As a result, EPA has relatively little information on the costs associated with the integration of NOx and SO2 controls on these sources. Without better information on the integration of NOx and SO2 controls for these sources, EPA does not believe it would be appropriate to include these sources in the CAIR. See preamble for further discussion.

IV.12.

Comment:

EPA should prepare “off-the-shelf” RACT documents for States to use for controlling emissions of boilers and turbines.

Response:

This comment is beyond the scope of this rule. However, EPA is preparing guidances to assist States in developing their ozone and PM attainment SIPs.

IV.13.

Comment:

Commenter urges that any needed additional reductions should come from other sectors. Requiring reductions from the utility sector beyond those required pursuant to Phase II will not be

cost effective; rather, requiring utilities to shoulder an even greater burden to bring nonattainment areas into attainment would be inefficient, inequitable, and require more of society's resources than if more of the burden of reduction were borne by other sectors.

Response:

See preamble. Additional reductions beyond those required in phase II are beyond the scope of this rule.

IV.14.

Comment:

If the purpose of the proposed regulation is to eliminate transport of air pollutants it fails, as it gives states such as Texas, Louisiana, and others with a large portion of natural gas-fired combustion units no reason to reduce the significant emissions from non-EGU's. The result of the proposed IAQR rule is that Pennsylvania consumers and consumers in many other Northeast states will be forced to subsidize the cost of electricity production in Texas and other natural gas rich states.

Response:

EGU emissions of NOx are significantly greater than NOx emissions from non-EGUs in the CAIR region. See preamble for further discussion. Also, EPA has modified its NOx allocation system to favor gas-fired units less and coal-fired units more. See preamble for further discussion.

IV.15.

Comment:

The commenter says that States are disappointed that EPA's proposed program is limited to the EGU sector. Based on States' experience, the non-EGU sector (e.g., other boilers, turbines, cement kilns) is a significant source of NOx and SO2 emissions and should not go unchecked.

Response:

See preamble.

IV.16.

Comment:

Given that the Section 110 NOx SIP Call covers both EGUs and non-EGU industrial sources, we would suggest that the expansion of the IAQR to cover non-EGU sources is also advantageous to the development of a rigorous trading program and may help to eliminate concerns regarding leakages.

Response:

EPA has written the applicability section of the CAIR to cover the vast majority of electric generation sources (see model trading rule applicability) and therefore there is limited opportunity for shifting of generation and thus emissions from EGUs to non-EGU industrial sources. Responding to the development of a rigorous trading program, the commenter implies that non-EGU industrial sources would need to be included in the CAIR to ensure a rigorous

trading program. Considering the relatively small contribution of non-EGU industrial sources to NOx and SO2 emissions compared to NOx and SO2 emissions from EGUs (see preamble for further discussion), EPA does not believe non-EGU industrial sources must be included to ensure a rigorous NOx and SO2 trading market under the CAIR. For example, non-EGUs in the NOx Budget Program emitted approximately 30,000 tons of NOx in 2004 compared to approximately 430,000 tons of NOx emitted by EGUs in the same program.

IV.17.

Comment:

We suggest that EPA identify those non-EGU categories for which cost-effectiveness evaluations have been performed and require a set level of control (BACT) on such sources in those states which have significant impacts on downwind nonattainment.

Response:

As explained in the preamble, EPA did not have sufficient information on non-EGU emissions to conclude that highly cost-effective reductions were available from non-EGUs. Responding to the commenter's suggestion of requiring a set level of control (BACT) on such sources in states which have significant impacts on downwind nonattainment, EPA did not analyze the relative contribution of individual sources to downwind nonattainment. See preamble for further discussion of this issue.

IV.18.

Comment:

EPA states that it did not include other sources in the IAQR because of lack of information about the cost-effectiveness of such controls. In a cap and-trade system, however, sources themselves decide whether it is more cost-effective to control or to purchase an allowance. In addition, if a source is included in a cap-and-trade system, it creates a financial incentive to develop cost-effective controls for emissions from that source.

Response:

EPA used cost-effectiveness in determining from which sources reductions are assumed when establishing emissions budgets under the CAIR cap and trade system. If a source category does not meet EPA's cost-effectiveness criteria, no reductions are assumed from that source category in establishing the emissions budgets. EPA determined that no cost-effective reductions were available from non-EGUs. See preamble for further discussion. The States do have the flexibility to include non-EGUs if they choose. See preamble.

IV.19.

Comment:

For control of sulfur dioxide and particulate matter, once again, EPA already has performed extensive analysis demonstrating appropriate control level and applicability. Studies performed for the title IV program or mercury MACT demonstrate that control of sources at least as large as 25 MW or greater is appropriate. Furthermore, there are many sources of this nature throughout the OTR - many that are already included in trading under the NOx SIP Call.

Response:

EPA does not have analysis suggesting that sulfur dioxide and particulate matter controls for non-EGUs would meet the cost-effectiveness criteria for inclusion in the CAIR. See preamble for further discussion. Regarding studies performed for title IV or mercury MACT, title IV did not apply to non-EGUs and mercury MACT only applies to mercury and other HAPS. The studies cited by the commenter do not demonstrate that control of non-EGUs for $_{NOx\ or\ SO2}$ would be appropriate.

IV.20.

Comment:

Industrial stacks should be addressed. A pound of SO_2 coming out of a stack that is labeled as a power plant will have the same impact as a pound of SO_2 coming out of a similar stack that is labeled as a coke oven, a smelter, or a paper mill. This rule would lead to the creation of two different trading programs: this one for power plants only, and a second one for industrial stacks still covered by the NOx SIP Call. Since a stack is a stack, it is hard to see how having two trading programs benefits anyone.

Response:

EPA used cost-effectiveness in determining from which sources reductions are assumed when establishing emissions budgets under the CAIR cap and trade system. If a source category does not meet EPA's cost-effectiveness criteria, no reductions are assumed from that source category in establishing the emissions budgets. EPA determined that no cost-effective reductions were available from non-EGU industrial sources. See preamble for further discussion.

IV.21.

Comment:

EPA's proposed Rule to Reduce Interstate Transport of Fine Particulate Matter and Ozone (Interstate Air Quality Rule) (the IAQR) as proposed at 69 Fed. Reg. 4566 (January 30, 2004) properly carves out those electricity generating units (EGUs) serving generators of 25MW or less, but it poses a serious threat to other small fossil fuel-fired electric generating stations with less than 250MW capacity that are poorly represented in the analysis that USEPA uses to support this rulemaking. Small Generating Stations (<250MW potential facility-wide generating capacity) will face severe pressure to shutdown if the IAQR is implemented as USEPA proposes in this rule. Losing these Small Generators will disrupt the regional distribution of electricity and reduce the security and reliability of our Nation's electricity supply. Dover Light & Power applauds USEPA for carving out the smallest EGUs (<25MW generating capacity) and we encourage the agency to extend that relief to all small generating stations for whom the cost of control is not highly cost effective.

Dover Light & Power supports USEPA's decision to exclude fossil fuel-fired electric generating units (EGUs) with a nameplate capacity of 25MW or less from the IAQR. By excluding de minimis generators, Congress and USEPA also recognize that air regulations that are appropriate for large EGUs are not always appropriate for smaller EGUs. Large generators have multiple advantages that allow them to more easily and cost effectively attain the reductions mandated by the IAQR. For example, large EGUs can:

(1) achieve economies of scale not available to Small Generators,

(2) lessen the risk associated with inherently uncertain pollution credit markets by sharing credits among multiple owned plants,

(3) spread control installation costs over large customer bases and

(4) more easily raise the substantial capital investments needed to purchase emissions controls.

In contrast, de minimis generators cannot afford the multi million dollar investments required by the IAQR, would be unable to pass these costs along to their customers, and would not be able to protect themselves by sharing credits among multiple regulated units. Excluding de minimis generators from the IAQR ensures that AMP-Ohio's small municipal generators, including units at Dover Light & Power, will not be forced to shutdown prematurely by this rulemaking.

The rationales supporting the exclusion of de minimis generators from the IAQR also support a regulatory scheme carefully tailored to ensure that it has a fair and proportionate impact on generators of all sizes. Small Generators face severely disproportionate burdens under the IAQR that threaten their viability as electric utilities. Dover Light & Power supports relief for Small Generators, which we define as those with a facility-wide capacity of 250MW or less (including those willing to restrict actual electric output to 250MW or less). NOx and SO2 controls are not highly cost effective for these Small Generators. Many also lack the customer base to distribute these costs broadly to minimize their impact on individual customers. As a result, their viability is threatened by the IAQR. Relief is warranted because Small Generators provide real benefits to the security and reliability of the electricity generation and distribution system.

Response:

The commenter suggests that EGUs less than 250 MW capacity are poorly represented in the analysis EPA used to support the CAIR, that including units between 25 and 250 MW will cause these units to face severe pressure to shutdown and that the shutdown of these units will disrupt the regional distribution of electricity and reduce the security and reliability of the Nation's electric supply. EPA analyzed a cap on all units greater than 25 MW and did not see significant shutdowns or disruptions in the regional distribution of electricity. The commenter has not provided any analysis to refute EPA's analysis. As a result, EPA considers this comment speculative. EPA has emissions and control cost information for EGUs between 25 and 250 MW and used this information in its determination that cost-effective controls are available for these units. See preamble for further discussion. The commenter's claim that NOx and SO2 controls for these units are not cost-effective is not supported by any information to prove its claim and is therefore speculative. EPA emissions data shows that EGUs between 25 and 250 MW comprise a significant portion of NOx and SO2 emissions. EPA estimates that approximately 1/3 of the SO_2 reductions, and 30 percent of the NOx reductions, required under today's rule come from plants between 25 MW and 250 MWe. Our modeling shows that units below 250 MW will put on

controls as part of our highly cost-effective set of control actions. These units also have the option to coal-switch, alter dispatch, or purchase power or allowances. See preamble for further discussion. Also see Regulatory Impact Analysis for discussion of retirements.

IV.22.

Comment:

The expected marginal cost of control for both ozone and PM-2.5 nonattainment areas needing to build attainment SIPs without the benefit of these non-EGU stationary sector controls will be far higher than if these regional reductions are available to help meet progress and attainment objectives. To verify this, EPA needs only look at the projected level of residual NOx and SO2 emissions in the various regions by source sector. As an example, in the Lake Michigan States base emissions for NOx for the non-EGU point sources are projected to be ½ the level of the EGUs in 2010. For Sox, the level is 1/3. Therefore both are quite significant to the region's attainment plans.

Due to the number and geographic scope of residual nonattainment areas predicted in 2010, even with the program's EGU NOx and SO2, reductions, EPA is likely to face multiple Section 110 and 126 petitions focused on the various sectors. Incorporating these sectors up-front in this program could prevent the significant emission reduction delays and uncertainty associated with more extended regulatory process. Such a high level of sensitivity is associated with threatened regional job losses from the various industrial sectors that it only makes sense in this economic environment to try to address a consistent and fair level of emission control responsibility by sector earlier rather than later in the SIP development process.

Response:

See preamble section IV for discussion of why EPA is not assuming reductions from non-EGUs in the CAIR.

IV.23.

Comment:

Given the even larger geographic nature of the Sox regional transport phenomena compared to the NOx transport phenomena, and the elevated background levels of PM-2.5 across the entire midwest, non-EGU sectors for which application of SO_2 controls is demonstrated effective should become subject to the same proportionate retrofit effort as the power sector.

Response:

EPA determined it was unclear whether cost-effective SO_2 controls are available for non-EGUs. See preamble for further discussion.

IV.24.

Comment:

If the Agency truly does lack information on sources other that EGU, the Agency should study the emissions of other sectors to the same degree it has scrutinized and analyzed EGU emissions.

Response:

EPA is working to improve its inventory of emissions and control cost information for non-EGUs. See preamble for further discussion.

IV.25.

Comment:

In States such as Iowa, the exclusion of (or the disincentive for the State to include) the non-EGU sector could make a significant difference in the ability to reduce transport of NOx and SO2. The non-EGU sector in Iowa represents 32 percent of the projected NOx and 10 percent of the projected SO_2 in 2010. In Iowa, the EGU and non-EGU sectors cumulatively represent 95 percent of the SO_2 in 2010, and 43 percent of the NOx. This is particularly important in the case of NOx emission reductions where the largest portions (45 percent) of the emissions in 2010 are attributable to the on-road and non-road sectors. MidAmerican believes that the non-EGU sector is a significant contributor to transport of NOx and SO2 emissions, and needs to be included in the IAQR. Without the inclusion of the non-EGU sector, States such as Iowa will have difficulty demonstrating progress when the vast majority of the NOx emissions are not associated with EGU emissions.

Response:

EPA is not assuming reductions in non-EGU emissions under the CAIR because it was not able to demonstrate that cost-effective NOx and SO2 controls are available. See preamble for further discussion.

IV.26.

Comment:

The commenter believes that all sources that contribute to an air quality problem should be required to help solve the problem. This is especially true in light of EPA's decision to use cost effectiveness as the test for identifying which sources to regulate. While the level of reduction will vary from source category to source category if based on cost effectiveness, it would be very surprising if some level of reduction could not be identified for every contributing source category that meets this test.

Response:

The commenter suggests some level of reduction could be identified for every contributing source category without providing any information or analysis to support its claim. EPA therefore considers this comment speculative.

IV.27.

Comment:

The commenter strongly recommends that EPA research the emissions contributions of non-power plant sources in and around nonattainment areas, and how emissions from these other sources can be reduced to limit the interstate transport that IAQR is intended to achieve. These other emissions sources should be included within IAQR, but not from within the electric utility

allocation, so that it is possible to attain the overall goal of IAQR in a fair and economically viable manner for all contributing emissions sources.

The commenter recommends that, prior to the adoption and implementation of the IAQR, the EPA undertake further research into the contribution of non-power plant sources of NOx and SO2 emissions, and cost effective controls for these other emission sources. This analysis should be conducted on a state-by-state basis. Using this research, EPA should then compare the effectiveness of controls on a variety of sources, including power plants and sources other than power plants, and recommend controls that will equitably and cost-effectively share the burden of emission reductions across all appropriate sources.

Response:

EPA based this rule on the best available information at the time of promulgation. It is important not to delay implementation of this rule until EPA has improved information on non-EGU sources. EPA is working to improve its information on non-EGU emissions and controls available for these sources.

IV.28.

Comment:

The commenter believes that more source categories than only electric generation units (EGUs) be considered by EPA for regulation under the IAQR, such as the large non-EGUs that are part of the NOx SIP Call program. The IAQR proposes controls only on EGUs, and EPA states that it is difficult to determine cost-effectiveness for non-EGUs for both NOx and SO2 control. An alternative approach would be to control NOx from the non-EGU sources that are subject to the NOx SIP Call, on a year-round basis, and not control SO_2.

Response:

See preamble for discussion of why EPA did not assume reductions from non-EGUs. States can choose to obtain reductions from non-EGUs if they choose.

IV.29.

Comment:

Maximize the emission reductions achieved by the rule by including cost-effective emission reductions from all major sources of emissions in upwind States that contribute to the elevated background ozone levels in Texas, not just electric generating units.

Response:

EPA is not assuming reductions from non-EGUs in calculating NOx and SO2 budgets for the States. See preamble for further discussion.

IV.30.

Comment:

To restore a better balance in the program for States, I urge EPA to expand the scope of the package to include major non-EGU SO_2, NOx, and $PM_{2.5}$ sources.

Response:

EPA is not assuming reductions from non-EGUs in calculating NOx and SO2 budgets for the States. States can choose to obtain reductions from non-EGUs if they choose. See preamble for further discussion.

IV.31.

Comment:

The commenter does not object to the potential addition of non-EGUs to these programs, provided the cap and trade program is modified to accommodate them. However, non-EGUs must also meet the same quality of the emission data on which the trading program would be based. Most EGUs are operating Continuous Emissions Monitoring Systems (CEMS). However, few non-EGUs are presently equipped with CEMS. Thus, to include additional units in the IAQR, EPA must address how such units will be allocated allowances and the quality of monitoring necessary to verify emissions.

Response:

EPA has modified the model trading rule to allow non-EGUs to opt-in to the CAIR provided they meet part 75 monitoring requirements. Furthermore, EPA has finalized an allocation methodology for opt-ins. See opt-in section in the preamble for further discussion.

IV.32.

Comment:

Power plants should not be tasked with bearing sole responsibility under IAQR when non-power plant sources of NOx and SO2 emissions are not required to reduce such emissions. EPA's proposed IAQR omits important sources of NOx and SO2 emissions that contribute to interstate transport, including industrial boilers, which, according to EPA, produce 11 percent of the nation's SO_2 emissions and 13 percent of the annual NOx emissions in the U.S. Another source that should be included is stationary internal combustion engines, which contribute approximately 12 percent to annual emissions of NOx in the U.S. Vehicle emissions also contribute to NAAQS exceedences in nonattainment areas. However, EPA does not take into account the emissions reductions that can and should be sought from these and other sources in its IAQR proposal. Progress with regard to achieving NAAQS attainment will not be made without significant emission reductions from sources other than electric utilities.

Response:

See preamble discussion on rationale for not reflecting reductions from IC engines and other non-EGU sources in the budgets. EPA agrees that it is important to reduce emissions from mobile sources. Although mobile sources are not reflected in the budgets here, EPA has aggressive programs to reduce mobile source emissions from all contributors to the mobile source inventory. A detailed discussion of EPA's mobile source emission reduction programs can be found at www.epa.gov/otaq.

IV.33.

Comment:

Industrial boilers and stationary internal combustion engines will account for 25 percent of NOx emissions in 2010. A national cap and trade program focused only on utilities will leave these sources uncontrolled. EPA should make provisions for eventual inclusion of large industrial boilers in the cap and trade program. EPA should also commit to adoption of performance standards for stationary engines.

Response:

See preamble for discussion of why EPA is not including industrial boilers in the CAIR. EPA is allowing non-EGUs covered by the NOx SIP Call to participate in the CAIR ozone season $_{NOx}$ trading program. See preamble for further discussion. EPA is working under a court-ordered schedule to adopt new source performance standards (NSPS) for stationary engines. For compression ignition engines, EPA will propose the NSPS by June 2005 and approve the final NSPS by June 2006. For spark ignition engines, EPA will propose NSPS by May 2006 complete the final NSPS by December 2007.

IV.34.

Comment:

We do not expect that reducing emissions from EGUs alone can ensure attainment in Massachusetts or other Northeast States, but failure to generate greater improvement from EGUs and to require reductions from non-EGUs under this rule, will require nonattainment areas to impose far less cost-effective measures in order to meet attainment deadlines. DEP urges EPA to include large non-electric generating units such as boilers, turbines, and cement kilns (non-EGUs)in the IAQR. Excluding them would likely erode the environmental benefits of the NOx SIP Call, which included these sources.

Response:

See preamble for discussion of why EPA is not requiring reductions from non-EGUs in the CAIR. EPA is allowing non-EGUs covered by the NOx SIP Call to participate in the CAIR ozone season trading program. See preamble for further discussion. States can choose to obtain reductions from non-EGUs if they choose.

IV.35.

Comment:

The only sources currently proposed to be regulated under the IAQR are power plants. However, sources in addition to power plants should be regulated under the IAQR so as to lessen the burden on the electric utility sector. EPA has not demonstrated that it is appropriate or necessary to single out electric generating units as the sole source of emissions reductions for purposes of reducing emissions transport. In fact, EPA acknowledges that it is moving forward with the IAQR proposal despite the fact that it has limited and insufficient information regarding NOx and SO2 contributions from non-power plant sources.

Response:

See preamble for discussion of why EPA is not requiring reductions from non-EGUs in the CAIR.

IV.36.

Comment:

We also urge EPA to analyze the IAQR program specifically within the context of distributed generation sources. The impacts of not considering those sources in the rule might compromise the efficacy of the emission reductions, particularly during peak ozone days.

Response:

Commenter is unclear as to its meaning of distributed generation sources. Assuming commenter means units 25 MW or less, see preamble for a discussion of why EPA is not assuming reduction from units 25 MW or less. Assuming commenter means units that are not connected to the grid and therefore do not generate electricity for sale, EPA does not have sufficient emissions information on these sources to determine that highly cost-effective reductions are available.

IV.37.

Comment:

If Implemented, As Proposed, The IAQR Will Achieve Significant Emissions Reductions Solely From The Power Generation Sector; Therefore, Regulators Should Look To Non-EGUs For Reductions Beyond Phase II. If implemented as expected, the IAQR will secure substantial NOx and SO2 reductions from only one source sector power generation units. Additional reductions beyond those mandated in the Phase II caps could only be obtained from the power generation sector at extraordinarily high marginal costs and would result in meager air quality benefits. Thus, after imposition of the Phase II IAQR caps, Midwest Generation urges that it would be most equitable, efficient, and effective for regulators to target non-EGUs for additional reductions needed to bring nonattainment areas into attainment.

Response:

Comment is beyond the scope of this rule.

IV.38.

Comment:

In our March comments, DEP urged EPA to include large non-electric generating units such as boilers, turbines, and cement kilns (non-EGUs) in the proposed program. We strongly urge EPA to include these sources in the final rule based on our continuing concern that excluding these sources would erode the environmental benefits of the NOx SIP Call, and would require that states impose reductions on other sources that would be far less cost-effective. If EPA does not require inclusion of non-EGUs in the final rule, it should at least allow states, at their option, to include non-EGUs in the trading program that will be established without the penalty of being barred from that national trading program.

Response:

In response to comments expressing concern over the potential erosion of environmental benefits from the NOx SIP Call, EPA is retaining an ozone season SO_2 cap. Additionally, EPA is allowing non-EGUs covered by the NOx SIP Call to participate in the CAIR ozone season $_{NOx}$ trading program.

IV.39.

Comment:

EPA has yet to comprehensively address the need to control emissions from major non-EGU sources as well as EGU's as part of a regional pollution control program. Components of the existing CAIR proposal, in the interaction between the sectors under the BART exemption and in the very limited opt-in provisions of the trading program could make a separate or companion effort by EPA to address these other sectors more difficult. If EPA continues to avoid the non-EGUs in this package, it needs to commit to the states like Wisconsin that are strongly impacted by transported regional pollutants, that it will rapidly develop a companion component for the other large point sources.

Response:

EPA is allowing non-EGUs to participate in the CAIR through a voluntary opt-in provision which will require reductions. See preamble for further discussion. Furthermore, States can choose to obtain reductions from non-EGUs if they wish.

IV.40.

Comment:

A new trading scheme should not come at the expense of successful state and regional programs already in place. It is imperative that non-EGU sources, including large industrial boilers and cement kilns that have demonstrated considerable emission reductions and compliance with a cap and trade program for four ozone seasons, not be segregated from this program. Many of the non EGUs participating in the $_{OTC\ NOx}$ Budget Program and NOx SIP Call have been providing annual NOx emissions data since 2000. EPA should include non EGU industrial units in this rule.

Response:

In response to comments, EPA is allowing non-EGUs covered by the NOx SIP Call to participate in the CAIR ozone season $_{NOx}$ trading program.

IV.41.

Comment:

EPA's preferred approach is that states control only EGUs to meet the caps in the rule. The Commonwealth recommends that EPA expand the CAIR to include non-EGU sources such as large industrial boilers and stationary internal combustion engines.

Response:

See preamble for discussion of why reductions from non-EGU industrial boilers and stationary internal combustion engines are not assumed in the CAIR.

IV.42.

Comment:

Non-EGU sectors which are relatively large emitters of SO_2 and/or NOx in the Lake Michigan region include industrial boilers, facilities with the largest process heaters and stationary engines, and those that involve a high sulfur content feedstock or by-product. Several of these were demonstrated by EPA in the NOx SIP Call to impact ambient air levels in downwind areas for ozone and are shown able to install highly cost effective emission reductions. Now that the scope of the regional transport area has been expanded based on updated projections and air quality assessments, it seems reasonable at a minimum to apply those NOx control findings here.

Given the even larger geographic nature of the SO2 regional transport phenomena compared to the N)x transport phenomena, and the elevated background levels of PM-2.5 across the entire midwest, non-EGU sectors for which application of SO_2 controls is demonstrated effective should become subject to the same proportionate retrofit effort as the power sector.

Response:

See preamble for a discussion of why EPA did not assume $_{NOx\ or\ SO2}$ reductions from non-EGUs in the CAIR.

IV.43.

Comment:

Accordingly, if the proposed cap-and-trade programs for reducing emissions of NOx and SO2 from EGUs is promulgated and the option of reducing emissions from non-EGUs is not included in the programs on an equal basis, the effect of controlling emissions from regional power plants on ambient air quality in all extant nonattainment areas will be explicitly taken into account in the programs, whereas the effect of controlling emissions from non-EGUs or from purportedly local EGUs in individual nonattainment areas on ambient air quality in other nonattainment areas will be systematically ignored. Thus, the total impacts on air quality from controlling emissions from regional power plants will be expressly considered, whereas only a typically minor portion of the impacts on air quality from controlling emissions from other purportedly local sources in individual AQCRs will be taken into account.

Response:

See preamble for discussion of why EPA did not assume reductions from non-EGUs in the CAIR.

IV.44.

Comment:

NUSCo does not object to the potential addition of non-EGUs to these programs, provided the cap and trade program is modified to accommodate them. However, non-EGUs must also meet the same quality of the emission data on which the trading program would be based. Most EGUs are operating Continuous Emissions Monitoring Systems (CEMS). However, few non-

EGUs are presently equipped with CEMS. Thus, to include additional units in the IAQR, EPA must address how such units will be allocated allowances and the quality of monitoring necessary to verify emissions.

Response:

See preamble and other responses in the response to comments document. Also see preamble for discussion of the opt-in provision which requires compliance with part 75 monitoring provisions.

IV.45.

Comment:

SEMCOG is troubled by the suggestion that states can choose their own means to achieve reductions. The magnitude of the reductions needed leaves states with little option but to control electric generating units. Thus, any suggestion that these reductions can be achieved by other means lacks credibility and erodes the confidence of state and local government partners.

Response:

The reductions called for in the CAIR were shown to be cost effective and States have the choice, by law, to obtain the required reductions from any sources. See preamble.

IV.46.

Comment:

Revisions should protect against fuel switching for marginal emissions reductions, where such fuel switching could further concentrate US coal production in Wyoming and negatively impact coal production in niche coal production states. An initial approach would be to require plants with the greatest emissions to install emission control equipment.

Commenter reiterates its request that EPA take into consideration the importance of cogenerators and independent power producers as well as fuel diversity and the continued viability of lignite to both local and national economies when developing rules and programs that impact the industry, including the IAQR and UMRR. Although dramatic decreases in emissions from the electric generating industry have been achieved over the past several decades, additional emissions decreases should be achieved in a manner that protects the viability of lignite as a fuel and coal as a source of livelihood for the Tribes. To achieve this goal, Commenter asks that EPA consider the comments provided in this letter, and incorporate our recommended revisions into the IAQR.

Response:

See preamble for a response to the comment regarding cogenerators and independent power producers. EPA analysis did not show that significant fuel switching would occur as a result of the CAIR. Coal is projected to remain an important fuel in providing inexpensive and reliable electricity to consumers, and CAIR has been designed in part to avoid any major disruptions to the supply of fuel for producing electricity. See preamble.

IV.47.

Comment:

One suggestion is to implement this rule in phases starting with the largest generating stations where emission controls are most cost effective and return the largest reductions in emissions with downwind impacts. Using this approach, the utilities least likely to shutdown due to the costs of control would bear the burden during the initial phases. Small generating stations for which these control costs seriously threaten viability would be regulated in later phases if the downwind impact on nonattainment remains a concern. Commenter supports AMP-Ohio's suggestion to utilize this approach to minimize the number of Small Generators that will be forced to shutdown and to reduce the negative effects of large scale consolidation in the utility sector.

Commenter would also support the creation of a phased approach for implementing emission reductions starting with the Phase I Cap for large generators in 2010. If downwind impacts remain after implementing the IAQR for larger generating stations over 5 years, smaller generating stations could be added at the time the Phase II Cap is implemented for the larger generators. This schedule would divide Electric Generating Stations into size-based categories and then establish successive implementation dates for each of these categories from largest to smallest.

A phased schedule would allow large and mid-sized EGUs to ensure the existence of the functioning and viable allowance market that will be crucial to so many Small Generators. Indeed, a vibrant market that can effectively transfer emissions credits at a fair market price will be an absolute prerequisite to the continued existence of those Small Generators.

Response:

EPA analysis for the CAIR shows cost effective reductions are available from EGUs and that the timing of reductions required is feasible. States have the choice, by law, to obtain the required reductions from any sources. See preamble and other responses in the response to comments document.

IV.48.

Comment:

Maximize the emission reductions achieved by the rule by including cost-effective emission reductions from all major sources of emissions in upwind states that contribute to the elevated background ozone levels in Texas, not just electric generating units.

Response:

See preamble discussion of why EPA did not assume reductions from non-EGUs.

IV.49.

Comment:

The proposal does not include major point source categories for NOx and SO2,which have yet to be subject to reasonable emission control requirements on a regional or national basis.

Response:

See preamble for discussion of why EPA did not assume reductions from non-EGUs.

IV.50.

Comment:

Also, commenter recommends that the final rule provide that additional reductions from affected units can be required only if the Administrator determines that the following two conditions are met: 1. Emissions of $_{NOx\ or\ SO2}$ from affected units can be reduced at least as cost-effectively as emissions from other sources, and 2. Emission reductions from affected units will improve air quality in nonattainment areas at least as cost-effectively as emission reductions from other sources. Commenter urges EPA to adopt this two-part test in the final rule to help ensure that affected units are not required to make further reductions unless those reductions make sense both economically and environmentally. Commenter believes such a test is fair in light of the burden on affected units to reduce NOx and SO2 emissions by almost 70 percent.

Response:

The commenter's meaning of "additional reductions" is unclear. Assuming the commenter means reductions beyond those required in phase II of the CAIR, such reductions are beyond the scope of this rule. However, commenter's suggestion is noted.

IV.51.

Comment:

Commenters also have concerns that U.S. EPA has yet to adequately account for the significant emissions reductions already made by the electric utilities under other programs. The Acid Rain Program has resulted in significant reduction of SO_2 emissions from power plants. The more recent NOx SIP Call is ready to begin the significant reduction of NOx from the same sector. All of these reductions have cost hundreds of millions of dollars to achieve, a cost borne almost solely by the electric utility industry.

Response:

Using IPM, EPA modeled future EGU NOx and SO2 emissions under the base case (i.e., without CAIR) and under CAIR. The EPA's IPM modeling includes the impacts of the title IV SO_2 cap and trade program and the NOx SIP Call regional ozone season cap and trade program (as well as several State emission reduction programs and NSR settlement actions). A description of EPA's IPM modeling as well as the IPM data files for the base case and for the CAIR policy are available in the CAIR rulemaking docket and on EPA's website (see "Documentation Summary for EPA Base Case 2004 (v.2.1.9) Using the Integrated Planning Model, October 2004)." EPA considered the reductions that result from these existing programs in developing the CAIR emission reduction requirements. Although EPA modeled the emission impacts of CAIR assuming States choose to control EGUs using the model cap and trade program, the States have full flexibility in choosing the sources from which to obtain reductions.

IV.52.

Comment:

EPA should also commit to adoption of performance standards for stationary engines.

Response:

EPA is under a court-ordered schedule to publish new source performance standards for stationary IC engines. The schedule is as follows: Compression ignition engines: proposal by June 2005, promulgation by June 2006. Spark ignition engines: proposal by May 2006 and promulgation by June 2007.

IV.53.

Comment:

Fine Particles from Forest Fires Need to be Addressed: EPA acknowledges that emissions from forest fires are a substantial contributor to fine particle levels and that these emissions have the ability to be transported long distances. 69 Fed. Reg. 4577, 4603, 4604. EPA needs to explain either in the context of this rulemaking or a $PM_{2.5}$ implementation rule how it expects to address forest fires and their significant impact on fine particle levels and measurements. Other more controllable measures exist with regard to open burning. EPA data also show that open burning of land clearing, landscaping, and construction/demolition materials contribute to fine particle levels. The stringent SO_2 levels called for in this rulemaking from upwind sources should be evaluated in context of local controls for open burning.

Response:

Emissions from forest fires contribute to levels of the carbonaceous material fraction of particulate matter. See preamble discussion for EPA's reasoning for not including carbonaceous material in this rulemaking. EPA is working with States and other Federal Agencies on forest management approaches that are designed to minimize the potential for catastrophic wildfires.

IV.54.

Comment:

EPA is ignoring the fact that NOx emission from mobile sources are significant, and EPA should seek emissions reductions from mobile sources in the budgets.

Response:

EPA agrees that it is important to reduce emissions from mobile sources. Although mobile sources are not reflected in the budgets here, EPA has aggressive programs to reduce mobile source emissions from all contributors to the mobile source inventory. A detailed discussion of EPA's mobile source emission reduction programs can be found at www.epa.gov/otaq.

IV.55.

Comment:

EPA is overemphasizing the importance of EGU SO_2 emissions, and underestimating the importance of forest fires and open burning.

Response:

See preamble section discussion of pollutant coverage, including specific discussion of carbonacious PM and fires.

IV.56.

Comment:

We also urge U.S. EPA to propose,as part of this rulemaking, controls on NOx emissions from stationary internal combustion engines and to require these controls on an annual basis. U.S. EPA's actions with regards to this source category as part of Phase II of the NOx SIP Call are long overdue. In addition, this rulemaking should also require that existing NOx controls on cement kilns, imposed as part of the NOx SIP Call, be applied on an annual basis.

Response:

See preamble.

IV.57.

Comment:

Commenter understands that the focus of the proposed rule is to reduce emissions of sulfur dioxide and nitrogen oxides from electric utility steam generating units (EUSGUs). Nevertheless, the proposed rule would allow States to regulate other local sources, including uniquely military readiness activities. Commenter believes that such activities (including testing, training and operations) should not be subject to State controls under the proposed rule. Such regulation would impose unacceptable impacts on readiness with marginal environmental benefit.

When the $PM_{2.5}$ National Ambient Air Quality Standard was first proposed, commenter expressed concerns about the potential impacts on training, testing, and operations. Military readiness activities, such as live-fire training, training with smoke and obscurants, maneuver training, and munitions related testing, emit $PM_{2.5}$. These emissions however, do not share the suspension and transport characteristics associated with emissions from industrial or commercial operations because they are localized and of short duration.

The proposed rule may also create conflicts between commenter's obligations under the Clean Air Act and its obligations under other statutes, such as the Endangered Species Act and commenter's necessary operations under range management. Commenter is required to engage in prescribed burns of designated areas to maintain habitat for endangered species, to prevent wildfire as part of forestry management, or to clear an area for the safe entry of an Explosive Ordnance Disposal team. We believe that regulation of such activities under the proposed rule should defer to other guidance and efforts such as EPA's Interim Air Quality Policy on Wildland and Prescribed Fires (April 23, 1998) and State smoke management plans.

The EPA Administrator responded to commenter's earlier comments in a June 17, 1997 letter to the Secretary of Defense, which expressed EPA's willingness to work with commenter on these issues and made the following points:

- EPA did not see the need for Defense activities to be the target of control strategies designed to attain these new standards.

- EPA had been analyzing data on $PM_{2.5}$ and found that 'it is clear that military training activities are actually among the smallest sources of $PM_{2.5}$ in areas likely to have a fine

particulate problem.'

- EPA would not recommend that States focus regulatory attention on military training and field exercises.

- Regarding possible State in-use controls involving DoD's tactical vehicles and equipment, EPA would work with the States to ensure that no unreasonable burdens were imposed on these sources in State Implementation Plans.

- With regard to prescribed burning, EPA was working with Federal and State agencies,including DoD to develop guidance for balancing air quality strategies and the need for prescribed burning.

Response:

States have, by law, the right to get the required reductions from any sources they choose. EPA analysis shows that many other sources are more cost effective than military "readiness activities."

IV.58.

Comment:

EPA conducted a technical assessment of what constitutes 'highly cost-effective emissions controls' based on various factors, including the following:

- The source categories that are 'emitting relatively large amounts of the relevant emissions,' in this case NOx and SO2 emissions;

- The 'applicability, performance, and reliability of different types of pollution control technologies' that may be available for those major source categories;

- The cost-effectiveness of the control measures for reducing emissions from those source categories; and

- Other 'practical considerations,' such as future air regulatory control requirements mandated under other CAA provisions. IWSA agrees with EPA's determination that each of these factors clearly indicates that MWCs are not a source category for which further controls would be justified under the IAQR. Applying EPA's own criteria for 'highly cost-effective controls' (as outlined above) demonstrates that the MWC source category should be excluded from regulation under the IAQR or any future air regulatory program to help achieve the $PM_{2.5}$ and 8-hour ozone standards. To further support EPA in its determination, IWSA submits the following technical documentation on each of the above factors used for making its determination on control costs. IWSA also submits the enclosed supporting documentation that highlights the emissions reductions and many environmental benefits achieved by MWC facilities nationwide.

In the preamble to the IAQR, EPA notes that other 'practical considerations' may weigh in favor of excluding a particular source category from future emissions controls. One relevant

factor identified by EPA involves situations where 'emissions from a particular source category will be controlled under an upcoming regulation, such as MACT standard.' MWCs are subject to stringent MACT emissions standards under CAA section 129, and those standards are expected to increase in stringency as required under the Act. These considerations further illustrate that there is no need to impose further regulation on the MWC source category.

In developing the IAQR, EPA identified electric generating units (EGUs) as the leading candidate for requiring additional NOx and SO2 control requirements. One reason that EPA focused on EGUs was the large amounts of NOx and SO2 emitted from this source category. EPA estimates that EGU emissions will be about one-quarter (23 percent) of the total NOx emissions and over two-thirds (67 percent) of the total SO_2 emissions in 2010 in the proposed 29-State control region.

In contrast, emissions from MWCs are only a very minor sliver of the entire emissions inventory in the same control region for both air pollutants. Based on current EPA estimates for 2010, NOx emissions from the 'emissions category' for waste disposal and recycling facilities - of which MWCs are just one of several source categories - are projected to be about 0.7 percent of the total emissions for the region. Similarly, the SO_2 emissions from this same emissions category are projected to be about 0.1 percent of the total regional levels. These extremely low percentages (of which MWC emissions are just a fraction) are clear indicators that MWC emissions represent a de minimis percentage of the total emissions inventory for both air pollutants. The percentages are also well below the percentage contribution levels that EPA has identified as justifying controls under the IAQR or any future multi-state control program for transported air pollution. Specifically, the percentage contribution levels proposed by EPA for public comment in the IAQR ranged from 1 to 10 percent, the low range of which is still much greater than the inventory levels estimated for the MWC source category in 2010.

The preceding points of reference are thus good indicators that demonstrate why MWCs are not a reasonable or appropriate candidate for future emissions controls. Specifically, the relatively minute amounts of NOx and SO2 emissions noted above strongly indicate that further controls on MWCs for either air pollutant are not a cost effective emissions regulatory control strategy for achieving $PM_{2.5}$ and 8-hour ozone standards.

Although both produce electricity for sale, important differences exist between MWCs and EGUs. The discussion below highlights fundamental differences in their function and design, as well as the pollution control technologies used by each source category.

The boilers for MWC facilities are not designed, constructed or operated in the same manner as fossil fuel boilers used by EGUs. The MWC facilities serve a different fundamental purpose. MWC boilers' primary function is the conversion of relatively heterogeneous, wet municipal solid waste into energy. They do not use a uniform and consistent fuel. There are technical and economic considerations that are unique to these types of units. Due to the nature of municipal solid waste and its properties as a fuel, the units are less thermally efficient than fossil fuel fired boilers of comparable heat input, thereby requiring larger amounts of excess air and less densely-packed heat recovery systems. For these reasons, MWC boilers also do not have access

to NOx reduction options available to other types of units such as low- NOx burners, fuel switching during the ozone season, or load curtailment.

Equally important, EPA should recognize that further NOx regulation would require control technology that is prohibitively expensive, and has not even been demonstrated to be technically feasible on MWC boilers. The only 'add-on' control technology for reducing NOx emissions from MWCs is selective non-catalytic reduction (SNCR) system. As noted below, MWCs are already achieving 'maximum achievable control technology' (MACT) limits for NOx based on SNCR performance levels. In contrast, the IAQR proposes to set NOx control levels for EGUs that are based on a NOx rate of 0.15 lbs/mmBtu in Phase I and 0.125 lbs/mmBtu rate in Phase II of the IAQR program. The achievement of these extremely low NOx rates by a MWC would require the use of selective catalytic reduction (SCR). No MWC facility in the U.S., however, is equipped with SCR, in part because of daunting technical challenges that are unique to installing and operating the SCR system on MWC boilers.

The technical difficulties tend to result from the nature of the fuel (municipal solid waste) being combusted. The waste fuel requires MWC units to be larger than fossil fuel boilers of comparable heat input and, consequently, they have much higher flue gas flows per unit of heat input. The increased flue gas volumes necessitate larger SCR reactor sizes (with corresponding increases in catalyst size and reagent use) than would otherwise be necessary for fossil fuel fired boilers with the same rated gross heat inputs. In addition, the unique nature of the flue gas typically requires the SCR system to be installed or 'retrofitted' downstream of all existing air pollution controls. This is necessary to provide a 'clean gas' to the SCR reactor to eliminate catalyst blinding and poisoning. At such a downstream location, the flue gas is below minimum temperatures for the SCR catalyst reaction, so reheating of the flue gas using natural gas is required to raise flue gas levels to minimum design temperatures. Finally, SCR is typically considered only for large dedicated fossil-fuel power production facilities where economies of scale apply. The size of a typical MWC facility is much smaller than such fossil-fuel generating facilities.

In the IAQR, EPA proposed to develop an interstate transport strategy for achieving the new fine particles ($PM_{2.5}$) and 8-hour ozone air quality standards. IWSA and its members support EPA's proposed approach to develop such a transport strategy that is:

- Focused on those source categories with significant NOx and SO2 emissions;

- Dependent on pollution control technologies that have been demonstrated in practice and commercially available;

- Based on those control technologies that can achieve 'highly cost-effective' emission reductions from those source categories; and

- Coordinated with other stringent control requirements imposed under the Clean Air Act (CAA or Act).

Response:

The final rule, as was the case for the proposal, does not reflect any emissions reductions for $_{NOx\ or\ SO2}$ from MWC facilities.

IV.59.

Comment:

Commenter suggests that all regions, states and localities shall retain the authority to adopt and implement their own more stringent emission caps for any pollutant (including, but not limited to, a seasonal NOx cap) and local and regional entities should have the flexibility to control emissions beyond the CAIR where there is a demonstrated need.

Response:

States have the flexibility under the final CAIR to adopt more stringent emission caps if they do not participate in the EPA administered model trading rule.

IV.60.

Comment:

I note there are meetings in Philadelphia, Chicago, NC which are too far from me to attend but did want my comments to get into the public record that will come out of these hearings, that are inaccessible to many americans. We need to get fine particulates out of the air. We need to make industry adhere to the standards required to scrub fine particulates from the air. We need to make sure our agencies regulating wildlife and forests stop all the burning that they do which puts fine particulates into the air. UFWS, NJ Div Fish & Game, National Park Service, Forest Service all burn forests, which pollutes our air and kills American citizens, it also causes the high percentage of children who are getting asthma. We need to get after these Federal and State Agencies and make them start having fun fires that pollute the iar. I know the great swamp national refuge has a burnign policy which pollutes the air here in NJ. All of this burning has to stop, I want clean air, not fine particulates in the air along with all the chemical there already.

We need sulphur dioxide emissions to be cleaned up. We need nitrogen dioxide to be cleaned up. We need nickel emission to be cleaned from our air.

I wonder why we have all been paying taxes for about forty years now for EPA staff and we still have dirty air. Could it be that rich manufacturers with their pockets of cash are more important than the protection of the american people. I would hate to believe that but I see very little progress for 40 years of american taxpayer dollars being funneled to this effort.

Response:

See preamble discussion on why this rule affects NOx and SO2, and why emission reductions are based upon utility boilers only. With respect to comments related to fire emissions, EPA agrees with other federal agencies that some under the right conditions, intentionally set fires can be very beneficial. Over the preceding several decades, we have learned that efforts to protect the environment from all fires has led to an un-natural buildup of fuel in forests. This, in turn, has lead to historically unprecedented, raging fires that no human effort nor any amount of money could control. Strict fire control is now being replaced by more

balanced fire management approaches which include prescribed fires. Carefully and safely introducing fire to the landscape reduces hazardous buildup of vegetation, promotes growth of forage, and preserves wildlife habitat.

V. State Coverage Criteria - Air Quality Modeling

V.A. Agree with 0.15 ug/m3 $PM_{2.5}$ threshold

V.A.1.
Comment:

DEP does not believe that Massachusetts will be able to attain the 8-hour ozone standard at these two milestones [[2010 and 2015]] without significant reductions in transported emissions.

Response:

We disagree with this comment. See the discussion in section VI of the CAIR preamble for further details.

V.A.2.
Comment:

EPA should not add Nebraska to the Interstate Air Quality Rule without undertaking a notice-and-comment rulemaking.

EPA proposes an annual $PM_{2.5}$ significance level of 0.15 mg/m3 for determining a reasonable threshold of significance level for interstate transport. 'We (EPA) therefore propose to adopt an annual $PM_{2.5}$ significance level equal to 1 percent of the standard. We (EPA) believe that contributions equal to or greater than 0.15 mg/m3 would reflect a reasonable threshold for determining significant levels of interstate transport.' Applying this value as a proposed cutoff to the results of the impact transport assessment identifies 28 States and the District of Columbia as contributing to nonattainment in downwind states. EPA also discusses their analysis of using a significance level of 0.10 mg/m3. Adoption of this level would result in the inclusion of 2 additional states.

The state of Nebraska is not identified as contributing to nonattainment in downwind states at significance levels of 0.15 mg/m3 or 0.10 mg/m3. The proposed significance levels of 0.15 mg/m3 and 0.10 mg/m3 are extremely low thresholds for the level of emissions transport that will make States subject to the rule. The significance level would need to be lowered for Nebraska to be identified as contributing to nonattainment in downwind states. When discussing the significance level of 0.10 mg/m3 the EPA states an increment of this size in the annual average $PM_{2.5}$ concentration is the smallest one that can make the difference between compliance and violation of the NAAQS, due to the treatment of significant digits and rounding in the definition of the NAAQS. Based on the EPA's own argument, the significance level should not be lowered below 0.10 mg/m3.

Prior to Nebraska being included in a rule as a source significantly contributing to $PM_{2.5}$ nonattainment areas downwind, there should be a notice-and-comment rulemaking. This would allow sources in Nebraska to review the basis for the proposed rule (for example, the rationale or scientific basis) and submit appropriate comments.

Response:

EPA agrees with this comment.

V.A.3.

Comment:

PSEG believes that EPA's proposed use of 1.0 percent of the NAAQS is an appropriate level at which to determine which states are significant contributors to downwind nonattainment areas.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.A.4.

Comment:

Specifically, we urge the Agency to issue a rule by October 31, 2004 that includes the following adjustments to EPAs January 30, 2004 proposal . . . a minimum threshold for state significant downwind contribution at 0.10 ug/m3, rather than the 0.15 ug./m3 threshold proposed, thereby slightly expanding the coverage of the emissions caps and the scope of the reductions.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 0.15 ug./m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B. EPA should use an alternative to 0.15 ug/m3 $PM_{2.5}$ threshold

V.B.1
Comment:

EPA's 'significant' impact criterion for $PM_{2.5}$ is too low. Proposed 0.15 Micrograms Per Cubic Meter (ug/m3) Significance Level.

First, the 0.15 ug/m3 criterion appears to have been arbitrarily selected. For $PM_{2.5}$, the 0.15 ug/m3 criterion is 1 percent of the NAAQS; but for 03, the 2 ppb criterion is 2.5 percent of the NAAQS. Second, even though North Dakota emissions do not contribute an impact to a nonattainment area above the 0.15 ug/m3 criterion, the LEC believes this criterion is much too stringent considering the limitations of air quality modeling. At this impact level (1 percent of the NAAQS), the science regarding long-range air quality modeling is unreliable. When modeling source impacts on Class 1 areas under the Prevention of Significant Deterioration program using the CALPUFF computer model, EPA's own guidance cautions use in applications over 200 km (and the results are considered acceptable when they are within a factor-of-two). Even then, EPA recognizes that estimates of concentrations that occur at a specific time and location are poorly correlated with actually observed concentrations. In addition, the Regional Modeling System for Aerosols and Deposition (REMSAD) is also not capable of assigning transport culpability at impact levels of 0.15 ug/m3, over distances greater than 1000 km with the degree of reliability that would warrant EGUs in North Dakota to reduce emissions. Again, the science is just not that reliable.

Furthermore, these impact levels arc well below the ambient air monitor minimum detectable values (the minimum detectable value for SO_2 and NO2 is 2 parts per billion (5.2 ug/m3 for SO_2, and 3.8 ug/m3 for NO2; ozone is 2.0 ug/m3; and $PM_{2.5}$ is 2.0 ug/m3) for the equipment used by the North Dakota Department of Health, which is typical of monitoring equipment used by State agencies throughout the United States to determine compliance with the NAAQS.

The LEC supports EPA's objective to reduce emissions so that NAAQS compliance can be achieved in nonattainment areas. However, we believe EPA needs to target cost effective emissions reductions from sources that clearly contribute to the nonattainment status or a particular geographical area. The Clean Air Act Section 110(a)(2)(D) requires SIPs to contain adequate provisions to prohibit air pollutant emissions from sources or activities in those States from 'contributing significantly to nonattainment in' any other state, with respect to the NAAQS. We contend that North Dakota sources do not 'contribute significantly' to nonattainment areas in other states.

Response:

EPA considered the issues in this comment and addressed them in the preamble. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble. Section VI of the preamble presents our air quality modeling approach and results.

Comment:

$PM_{2.5}$ Level of Significant Impact:

It is Otter Tail Power Company's opinion that EPA's significant contribution threshold for $PM_{2.5}$ of 0.15 µg/m3 is unreasonably low. EPA has failed to provide a rational basis for the proposed 0.15 µg/m3. Simply targeting the significant contribution level at 1 percent of the National Ambient Air Quality Standard is not adequate justification. EPA needs to consider the monitoring equipment measurability and the modeling sensitivity when selecting the significant contribution threshold. The impact levels are well below the ambient air monitor minimum detectable values of 5.2 µg/m3 for SO_2, 3.8 µg/m3 for NO2; 2.0 µg/m3 for ozone and 2.0 µg/m3 for $PM_{2.5}$. The values are minimum detection levels for the ambient monitoring equipment used by the North Dakota Department of Health, which is typical of monitoring equipment used by State agencies throughout the United States to determine compliance with the NAAQS.

Furthermore, we do not believe the Regional Modeling System for Aerosols and Deposition (REMSAD) model is capable of assigning transport culpability at impact levels of 0.15 µg/m3. For example, North Dakotas EGUs do not contribute to ambient air nonattainment at the significant impact level of 0.15 µg/m3. However, at a significant impact level of 0.10 µg/m3 the North Dakota EGUs are alleged to contribute to nonattainment in Cook County, Illinois, which is at a distance of over 1300 km from the North Dakota utilities. Otter Tail Power Company is not convinced that the modeling science has evolved to the degree of accuracy necessary to warrant significant emissions reductions in North Dakota, or any other state, on the basis of a modeled significant impact level of either 0.10 µg/m3 or 0.15 µg/m3. Even if the proposed threshold were technically measurable and were able to be modeled, it would be an unreasonably low threshold for purposes of the IAQR. For example, the ozone threshold is proposed at 2 ppb for purposes of this proposed rulemaking which is 2.5 percent of the 80 ppb 8-hour ozone NAAQS.

Response:

EPA considered the issues in this comment and addressed them in the preamble. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble. Section VI of the preamble presents our air quality modeling approach and results.

V.B.2.

Comment:

The significance level used by the Agency is not consistent with historic levels used. If historic levels are used, Mississippi would not be affected by this proposed rule.

Response:

The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble. The commenter did not explain the reference to historic levels in a way that allowed EPA to understand the intention. Section III.C of the preamble does address the subject of how the CAIR significance threshold compares to air quality impact thresholds used in other clean air programs.

V.B.3.

Comment:

EPA proposes to use a 1 percent threshold (0.15 ug/m3) for the air quality portion of the significant contribution test for multiple sources for $PM_{2.5}$ (a collective contribution analysis). The choice of 1 percent is arbitrary and unreasonable. In fact, EPA used a 2.5 percent (2 ppb) threshold for the 8-hour ozone standard in previous rulemakings (NOx SIP Call), and is continuing to use a 2.5 percent threshold for ozone in this rulemaking. In addition, EPA has codified in its nonattainment rules' a 2 percent threshold for the contribution per source under Section 110(a)(2)(D) to nonattainment of the PM-10 annual NAAQS and a 3 1/3 percent threshold for the contribution per source under Section 110(a)(2)**@**) to nonattainment of the PM-10 24-hour NAAQS. Furthermore, EPA has not demonstrated that the 0.15 ug/m3 threshold represents a measurable contribution from an air quality modeling perspective. EPA should use a threshold for $PM_{2.5}$ that is more consistent with levels chosen in previous rulemakings and can be predicted with reasonable accuracy by the model, and should reassess its air quality linkages and significant contribution determinations accordingly.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.4.

Comment:

SEMCOG also disagrees with EPA's proposal to arbitrarily define significant $PM_{2.5}$ contribution as 1 percent of the NAAQS or .15 ug/m3. EPA justifies the use of this low contribution threshold by arguing that there are 'significant public health impacts associated with ambient $PM_{2.5}$, even at relatively 10 percent levels.' This statement implies that $PM_{2.5}$ concentrations of .15 ug/m3 can cause public harm, yet the level of the $PM_{2.5}$ (annual) standard is 100 times higher at 15 ug/m3. The Clean Air Act requires that standards be set to 'protect the public health... with an adequate margin of safety' so the standard of 15 ug/m3 was supposed to be set with that in mind.

Furthermore, a low level of .15 ug/m3 can result from modeling noise alone. The modeling in the IAQR has not shown that it is suitable to predict such low $PM_{2.5}$ concentrations. For these reasons, the .15 ug/m3 significant contribution level has no technical basis. EPA also did not provide any policy basis to explain why 1 percent of the NAAQS is considered a 'significant' contribution. In fact, EPA's presumption that significant transport from 29 states and the District of Columbia can be defined as a single number is totally inconsistent with the language of the Clean Air Act. The Act requires transport reductions when an area contributes significantly to another area's nonattainment. That level of significance will vary fiom place to place and depend on ambient levels after local control; are implemented. For example, transport of .15 ug/m3 to an area that can reach attainment with reasonable local controls would not be contributing significantly to nonattainment.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS. The subject of the significance level for $PM_{2.5}$ is addressed in section

III.C of the preamble.

V.B.5.
Comment:

The proposed 0.15 μg/m3 threshold or 'significant contribution' test for fine particulate matter $PM_{2.5}$ is arbitrary, and TXU does not believe that EPA has presented a reasonable basis for selecting a threshold at 1 percent of the annual National Ambient Air Quality Standard. Existing ambient monitoring equipment cannot accurately and reliably measure this low concentration level. Also, the model used by EPA to determine the significant contribution has not been demonstrated to be accurate enough to predict this level of concentration. For consistencys sake, use a percentage threshold similar to that used for the 8-hour ozone significant contribution level, i.e., 2.4 percent to 3.5 percent.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.6.
Comment:

Tennessee supports the concept of regional planning and assuring that adequate controls are required on upwind emissions which significantly contribute to downwind nonattainment. Tennessee also agrees that a determination of significance levels are required to initiate a section 110(a (2) action under EPA's section 110(k)(5) authority and Tennessee does not question EPA's authority to determine the significance levels. However, Tennessee believes the significance levels proposed by EPA need further evaluation.
Even though a states contribution to downwind nonattainment is demonstrated through modeling results, the proposed significance levels are not evaluated in relation to model sensitivity.

The methods and rationale for determining significance levels are not consistent between ozone and PM.

Response:

The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.7.
Comment:

Appropriateness of a 0.15 μg/m3 threshold for determining significant levels of interstate transport of $PM_{2.5}$:

The IAQR does not provide a sound scientific basis for selecting 0.15 μg/m3 as the threshold for determining significant levels of $PM_{2.5}$ transport from upwind states to nonattainment areas in downwind states. In deriving a scientifically defensible threshold, EPA should consider the uncertainty in the model results as it has illustrated in its own analysis, as

well as the uncertainties in $PM_{2.5}$ measurements, particularly those used as part of the Speciated Modeled Attainment Test (SMAT). Our analysis of those uncertainties shows that the threshold of significance should not be less than 0.5 μg/m3.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 0.15 μg/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.8.

Comment:

The Proposed 'Air Quality' Threshold for EPA's Proposed PM-2.5 Significant Contribution Test Is Unreasonably Low and Must Be Revised Upward: To establish air quality linkages between a State and a downwind PM-2.5 nonattainment area, EPA has examined whether a State's NOx and SO2 emissions result in an impact greater than 0.15 ug/m3 in the downwind nonattainment area. As explained in UARG's comments, this threshold is not supported legally or technically. As the D.C. Circuit made clear in the Michigan NOx SIP Call case, the threshold must reflect a 'measurable' amount of contribution to a nonattainment area. Southern believes that the 0.15 ug/m3 level is simply too low to be considered 'measurable.'

As explained in a technical analysis by Atmospheric Research & Analysis (ARK), which is attached to these comments (Attachment I), current methods for measuring ambient concentrations of PM-2.5 are not accurate and reliable enough to support a 0.15 ug/m3 threshold. ARA's analysis demonstrates that, from the standpoint of measurement technology and procedure, the threshold should be in the range of 0.5 to 0.6 ug/m3.

Furthermore, EPA's SMAT procedure for projecting future design values has uncertainties that can produce differences greater than 0.15 ug/m3. Glass, et al., in a report entitled Comparison of FRM Equivalent and Best Estimate Methods for Estimating Future-Year PM-2.5 Design Values (March 2004) (Attachment 2 to these comments), describe a comparison between the FRM Equivalent method and the Best Estimate method, plus accounting for particle bound water, in calculating estimated design values from monitor data. The differences between the two methods can be as high as 0.5 ug/m3. Obviously, a 0.15 ug/m3 threshold cannot be justified when two techniques for calculating PM-2.5 can lead to differences well in excess of the threshold.

Using a higher threshold that is 'measurable,' Southern believes that EPA could no longer reasonably find an air quality linkage for several of the States now proposed to be covered by the IAQR. Among the States for which an air quality linkage would no longer exist are two States in Southern's service territory –Mississippi and Florida. Southern believes that EPA must adopt a more reasonable significant contribution threshold, and as a result, find that Mississippi and Florida are no longer in violation of section 110(a)(2)(D) of the Act with regard to PM-2.5.

Not only is EPA's proposed threshold not measurable, it cannot be modeled reliably. As discussed later in these comments, the performance of the REMSAD modeling platform used by

EPA is not adequate to provide any confidence that differences as low as 0.15 ug/m3 are meaningful differences in modeled results. This is further evidenced by a comparison of projected estimated PM-2.5 design values between EPA's 2010 Base-1 and 2010 Base-2. As discussed in comments being submitted by the Electric Power Research Institute (EPRI), EPA's 2010 Base-1 was based on EGU emission estimates derived from IPM version 2.1.5 and the use of REMSAD version 7.03. EPA's 2010 Base-2 was based on EGU emission estimates derived from IPM version 2.1.6 and the use of REMSAD version 7.06. Simply due to the differences in the versions of IPM and REMSAD, the estimated design values for projected, 2010 nonattainment areas differed by -0.44 to +0.66 ug/m3. Thus, for many areas, the difference in estimated PM-2.5 design values was much more than 0.15 ug/m3, due only to slight differences in the versions of the models used. Differences among different models (e.g., REMSAD versus CMAQ) would be expected to be even greater.

In conclusion, the 0.15 ug/m3 threshold is too low. Use of a more reasonable, higher threshold is required, and such a threshold would show that inclusion in the IAQR lof certain States –e.g., Florida and Mississippi –is not justified.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.9.

Comment:

The threshold for considering the impact of an upwind state on a downwind county's $PM_{2.5}$ value to be significant is 0.15 μg m-3. According to the IAQR preamble, this value was chosen because it represents 1 percent of the current $PM_{2.5}$ NAAQS of 15 μg m-3. However, EPA notes that modeling studies were also carried out using a threshold value of 0.10 μg m-3. We suggest that this is a more appropriate significance threshold for two reasons. First, 0.10 μg m-3 is the smallest increment that can make a difference between attainment and nonattainment using the approved method for calculating the $PM_{2.5}$ design value. Second, the $PM_{2.5}$ NAAQS is currently under review; preliminary recommendations in the EPA Staff Paper suggest that the primary NAAQS for $PM_{2.5}$ may be lowered from its current value. Should this be the case, 0.10 μg m-3 would likely represent closer to 1 percent of the new standard than 0.15 μg m-3 would.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.10.

Comment:

The IAQR annual $PM_{2.5}$ 0.15 ug/m3 threshold of significance is arbitrary and is inconsistent with past approaches EPA has used to identify threshold of significance for a source that is part of a collective contribution. EPA's reasoning for selecting the 0.15 ug/m3 significance

threshold is essentially this:

- A 0.10 ug/m3 significance threshold was considered initially because that is the smallest 'difference between compliance and a violation' as monitoring data are rounded to the nearest tenth of a ug/m3; and

- Rather than using a monitoring standard to set the significance threshold EPA felt it 'more appropriate to adopt a small percentage value of the standard level, rather than an absolute number derived fiom monitoring considerations' (Federal Register, 2004, pg.4584).

Thus, EPA selected a significance level of 1 percent of the 15.0 ug/m3 annual $PM_{2.5}$ standard (i.e., 0.15 ug/m3). This value is arbitrary. One could propose that 10 percent or 0.1 percent is a small percentage of the annual $PM_{2.5}$ standard to obtain significance threshold that range from 0.015 ug/m3 to 1.5 ug/m3 that are arguably just as justifiable given EPA's logic.

EPA has already set a precedent regarding what percentage of an air quality standard a source that is part of a collective contribution should contribute and not be considered significant. As part of EPA's New Source Review (NSR) Prevention of Significant Deterioration (PSD) policy, the Clean Air Act has established PSD concentration increments for Class I areas where the combined impacts from all new PSD increment consuming sources are not allowed to exceed specific thresholds. That is, the cumulative air quality impacts of all new sources are required to be below the PSD Class I increments. A new source that causes the cumulative impact of all new sources to exceed a PSD Class I increment may not be allowed to be built. However, the simulation of all new PSD increment sources as part of the NSR/PSD permitting process can be an arduous task, especially if the new source is very minor. Thus, in 1996, EPA published a Federal Register notice of proposed Class I area significant impact level (SIL) thresholds for a single project. These proposed single project significance thresholds are defined as being approximately 4 percent of the collective contribution PSD Class I area increment (EPA, 1996). If a project's impact is below the Class I area single project proposed significance threshold, then they are assumed not to have a significant impact andl no cumulative analysis is needed.

The Federal Land Managers Air Quality Related Values Workgroup (FLAG, 2000) also has developed a 'de minimis' level that a single source would contribute that is a fraction of the collective contribution visibility significance threshold. Here FLAG (2000) adopted the de minimis level of 4 percent of the collective contribution significance level. Thus, if a source contributes less than 4 percent of the collective contribution visibility significance threshold the source is considered insignificant.

In these two recent cases, EPA and FLAG defined a significance threshold for the contribution of a single source to a collective contribution significance threshold or standard as being 4 percent of the standard/threshold. The IAQR 1 percent of the standard significance threshold is therefore inconsistent with previous EPA and FLAG methodologies. EPA offers no justification for this departure from previous practice. Note also that 4 percent is a 'small percentage value of the standard level' as discussed in EPA's preamble to the IAQR (Federal Register, 2004). If the IAQR had adopted the 4 percent of the standard level significance

threshold, then the annual $PM_{2.5}$ significance threshold would be 0.60 ug/m3, not 0.15 ug/m3. If the 0.60 ug/m3 significance threshold as used, then almost half of the 28 states identified as contributing significantly to downwind $PM_{2.5}$ nonattainment would no longer be considered significant. We are not arguing that 4 percent of the standard is the appropriate significance level, but simply demonstrating how arbitrary the 1 percent of the standard significance level is and how it is inconsistent with procedures EPA has used in the past to define the significance contribution for a single component of a collective contribution. This is an area where either convincing justification is needed or an alternative approach is warranted in order to strengthen the IAQR. While the IAQR methodology in many instances builds upon precedents set in former mlemaking activities, it is not clear why EPA chose to depart from earlier EPA and FLAG positions on the subject of significance threshold. Support for this needs to be presented by EPA.

Response:

EPA has finalized a significant contribution threshold of 0.2 µg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.11.

Comment:

EPA has quantified the contribution from emissions in each State to future $PM_{2.5}$ nonattainment in other States. The maximum downwind contribution from each upwind state to a downwind nonattainment county is found in Table 3.3 of the proposal (69 F.R. 4608); Massachusetts's maximum contribution is 0.21 ug/m3 of $PM_{2.5}$ to New Haven. EPA is proposing to use a threshold of 0.15 ug/m3 for determining whether emissions in a state make a significant contribution to $PM_{2.5}$ nonattainment in another state.

We understand that the Governor of Connecticut has recommended that New Haven be designated as attainment. This recommendation is based on Connecticut's view that the monitor in New Haven is significantly influenced by micro scale phenomena (diesel trucks accelerating up a ramp and bridge approach) and is not representative of community exposure.

EPA is accepting comments on an alternative lower significant contribution threshold of 0.10 ug/m3. At that threshold contribution level, Massachusetts is shown to be a contributor to $PM_{2.5}$ nonattainment in New Haven and New York City.

If EPA designates New Haven as attainment when it makes its final $PM_{2.5}$ designations in December 2004 and the final IAQR establishes a contribution threshold 0.15 ug/m3 (rather than the alternative lower threshold of 0.l0ug/m3), Massachusetts will not be a significant contributor to a $PM_{2.5}$ nonattainment area. In this case, it should not be subject to the provisions of the final transport rule with respect to $PM_{2.5}$.

Response:

Massachusetts was not included in the final rule for purposes of $PM_{2.5}$ due to the New Haven situation and the modeling results for Massachusetts' impact on other $PM_{2.5}$ nonattainment receptors.

V.B.12.
Comment:

The EPA's Definition of Significant Contribution is Too Low.

The EPA has defined a significant contribution to downwind nonattainment as 1 percent of the $PM_{2.5}$ NAAQS. This is unreasonably low and well beyond the accuracy and precision of air quality dispersion models used to calculate downwind impacts. Using 5 percent of the NAAQS as a significant contribution would be more representative of the models' capabilities. At a minimum, significant impact should be based on at least 2.5 percent of the NAAQS, as in the NOx SIP Call.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.13.
Comment:

Threshold for Fine Particulate Significant Contribution:

As discussed in detail by UARG in their comments, SRP believes EPA's proposed 0.15 ug/m3 threshold for establishing a significant contribution to downwind $PM_{2.5}$ concentrations is unsupported. This inordinately low level has effectively no meaning with respect to the ambient monitoring methods used to assess compliance with NAAQS, cannot be distinguished within the context of limitations associated with current transport modeling techniques, and on a percentage basis, is far less than the thresholds used for assessing contribution significance under other existing programs (e.g., other NAAQS, PSD).

Further, the Agency's rationale for selecting 1 percent of the NAAQS as the threshold for significance (e.g., the claim of health affects at relatively low levels, the difficulty of some areas to achieve compliance with the NAAQS without some upwind reductions, the proximity to the proposed threshold to the rounding level used to assess attainment status), seems wholly arbitrary and inconsistent with levels of ambient impact previously used by EPA to assess significance. Given the fact that even a slight increase in this threshold could result in several states being excluded from a determination of having a significant contribution to downwind $PM_{2.5}$ nonattainment areas, EPA should give careful consideration to using a threshold more consistent with its other programs.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.14.

Comment:

We understand that EPA has assessed significance with respect to a contribution from an individual state. However, EPA must account for situations where a number of states may each contribute to downwind area at levels below what EPA has defined as 'significant,' but the net effect is that those states downwind are experiencing contribution that interferes with attainment and or maintenance of a NAAQS. EPA must consider the combined contributions from multiple states and their impacts on a downwind area when assessing significance.

We are also uncomfortable with the significance level criteria EPA has chosen for PM-fine (0.15 ug/m3) and believe that EPA should adopt a lower significance threshold.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.15.

Comment:

The proposal asked for comments on two different significance levels for $PM_{2.5}$. Under a significance level of 0.10 micrograms per cubic meter (ug/m3), sources in North Dakota would be included in the IAQR. However, under a significance level of 0.15 ug/m3, North Dakota sources would be excluded. We believe a significance level of 0.35 ug/m3 is more appropriate than a significance level of 0.10 ug/m3; however, we also believe that 0.15 ug/m3 is much too low. The major sources in North Dakota are approximately 1300 kilometers from the nonattainment area which they would have the maximum impact. We believe the science of modeling over such a great distance is not sufficiently developed in order to make accurate estimates at these minuscule levels. A significance level of 0.15 ug/m3 is approximately 7 percent of the detection level of the Federal Reference Method for ambient monitoring of $PM_{2.5}$. It is difficult to justify such a low significance level based on current monitoring and modeling capabilities.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.16.

Comment:

EPA has requested comment on the merits of using the proposed 0.15 ug/m3 threshold for purposes of determining which states make a significant contribution to $PM_{2.5}$ NAAQS nonattainment in downwind states. EPA states that it believes that contributions equal to or greater than 0.15 ug/m3, which represents 1 percent of the $PM_{2.5}$ NAAQS, would reflect a reasonable threshold for determining significant levels of interstate transport. EPA also analyzed the effects of using 0.10 ug/m3, and seeks comment on the use of a 0.10 ug/m3 threshold.

The TLC does not believe that either of these thresholds is appropriate. Use of the 1

percent $PM_{2.5}$ NAAQS threshold is problematic from a practical standpoint given that existing monitoring and modeling methods are not precise enough to accurately distinguish a concentration of 0.15 ug/m3 or less. The science regarding long-range air quality modeling is too unreliable at these low levels to be used as the basis for a 'significant contributor' designation. This is especially true given the substantial capital expense for emission controls that would follow from such designation.

As a workable alternative that is consistent with existing EPA practice, the TLC recommends that EPA use the same threshold of 2.5 percent that EPA has used for the 8-hour ozone significant contribution level.

Response:

EPA has finalized a significant contribution threshold of 0.2 µg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble..

V.B.17.

Comment:

The proposed air quality threshold for PM-2.5 interstate contribution is unreasonable.

Response:

EPA has finalized a significant contribution threshold of 0.2 µg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble..

V.B.18.

Comment:

In the same vein, the significance level chosen for PM fine, 0.15 ug/m3, should also be lowered. Maine believes that a 0.10 ug/m3 threshold for PM fine will better address particulate impacts and regional haze.

Response:

EPA has finalized a significant contribution threshold of 0.2 µg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.19.

Comment:

The CenSARA states support the concept of regional planning and assuring that adequate controls are required on upwind emissions which significantly contribute to downwind nonattainment. The CenSARA states also agree that determination of significance levels are required to initiate a section 1l0(a)(2) action under EPA's section 110(k)(5) authority and the CenSARA states do not question EPA's authority to determine the significance levels. However, the CenSARA states believe the significance levels proposed by EPA are arbitrary as proposed.

Even though a state's contribution to downwind nonattainment is demonstrated through modeling results, the proposed significance levels are not evaluated in relation to model sensitivity.

The methods and rational for determining significance levels are not consistent between ozone and PM.

Response:

This is addressed in section III.C of the preamble.

V.B.20.

Comment:

For particular matter EPA is proposing that one state be considered as contributing to another if that state's impact is as much as 0.15 micrograms per cubic meter. This equates to 1 percent of the standard contribution. Since EPA used a 2.5 percent contribution for the NOx SIP Call for ozone we do not understand the change to 1 percent for particulate matter. While it probably would not de a great deal of difference in the number of states identified as contributing to each other's problems, we believe EPA should stick to the 2.5 percent used in the NOx SIP Call.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.21.

Comment:

We support the alternative analysis and want to see significance level on the zero out modeling brought From a 1.5 significance level to 1.0. This change will include additional states that are currently on the edge of the model at 1.5 and will be brought rightfully into the program at 1.0. With the number of power plants in both Oklahoma and North Dakota and the known pollution effect Minnesota receives from them we cannot conceive how the model zeroed them out at 1.5. We feel that only at the 1.0 significance level or lower will EPA be protecting public health and the environment.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.22.

Comment:

EPA has proposed that any state whose emissions contribute one percent or more to downwind nonattainment of national particulate matter standards would be subject to the IAQR. Not only does the establishment of this threshold appear to be arbitrary (with no clear basis being

enunciated for its establishment), but the low threshold is inconsistent with prior determinations regarding significance levels by EPA and state agencies. The NOx SIP Call utilized a 2.4 percent contribution level to establish applicability of emission reductions; the PSD program exempts from modeling analysis proposed emission sources that would contribute less than 6.7 percent of the daily PM-10 standard. This one percent threshold was established with the express caveat that EPA has not fully characterized the potential role that other emissions, such as ammonia, play in the formation of fine particulate matter. Likewise, it is believed that a one percent threshold, the equivalent of 0.15 ug/m3 is too small to be measured accurately and reliably with existing ambient monitoring equipment.

If the threshold was established merely to maximize the number of entities that would be forced to make emission reductions, MidAmerican submits that EPA should more closely examine the basis for requiring emissions reductions and utilize a criteria that is less arbitrary such as an emissions reduction program that applies on a national basis to all sources of the relevant emissions.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.23.

Comment:

FirstEnergy has a significant concern that the $PM_{2.5}$ threshold value is both arbitrary and unreasonably low. We are aware of no basis for the selection of 0.15 pg/m3 as the threshold value for determining if a state makes a significant contribution to the air quality in another state. Not only is this contribution small when compared to the 15 ug/m3 standard, but it also pushes the REMSAD model beyond its ability to make accurate predictions. The Utility Air Regulatory Group is investigating the ability of the REMSAD model to make reasonably accurate predictions at these very low levels. The Utility Air Regulatory Group will be submitting comments on this issue. FirstEnergy agrees with and supports these comments.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.24.

Comment:

A Single Numerical Threshold of One Percent of the Annual Standard for Defining a Significant Contribution from One State to Another. While we support the USEPA's effort to add definition on this issue, it is too early in the contributory air quality modeling assessment effort to conclude that this percentage should be the appropriate or sole criteria to be applied. Therefore, added flexibility should be provided for, depending upon a particular state's situation, to use a lower individual state threshold, as well as for lesser contributing states or sources that

individually may not meet the criteria, but do so collectively. Similar flexibility should be applied regarding the proposed two parts per billion threshold for ozone.

Response:

The ozone threshold is addressed in section III.D of the preamble.

EPA is issuing a separate Notice of Proposed Rulemaking on Delaware and New Jersey that relates to the comment regarding states that are less contributing.

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.25.

Comment:

EPA's potential nonattainment designation for Connecticut is the sole reason that Massachusetts will be subject to the $PM_{2.5}$ provisions of the Interstate Transport Rule based on EPA's finding that emissions from Massachusetts contribute significantly to the elevated levels in New Haven. CT DEP notes that the preliminary threshold used by EPA to determine Connecticut's significant contribution to New York in the $PM_{2.5}$ designation process is inconsistent with the approach employed in the Interstate Transport Rule.

Response:

The approaches used to assess contributions under CAIR and the $PM_{2.5}$ designations process were different because they were addressing different scales of contribution. EPA believes these approaches to assessing contribution, while not identical, are consistent with the Clean Air Act. Under CAIR, contribution analyses were conducted with regional modeling to assess the air quality impact of EGU emissions from an entire state to receptors in another state. Emissions from non-EGUs were not included in the analyses. Under the $PM_{2.5}$ designations process, EPA evaluated counties within and adjacent to metropolitan areas to assess their contributions to air quality problems in the nearby area. For each county, EPA reviewed data for nine technical factors (emissions and air quality in adjacent areas; population density and commercial development in adjacent areas; location and size of emission sources; traffic and commuting patterns; extent, pattern and rate of growth; weather and transport patterns; mountains or other air basin boundaries; jurisdictional boundaries; and level of control of emission sources) to assess contributions. Emissions attributed to all types of sources (stationary, mobile, area) were assessed, not just those for a specific sector. EPA based its final designation decisions on the collective review of this information.

V.B.26.

Comment:

EPA's use of a 0.15 ug/m3 for $PM_{2.5}$ significance level is unsupportable. EPA offers no reasonable explanation of why the $PM_{2.5}$ threshold should be 0.15 ug/m3. EPA does say there are significant public health impacts associated with ambient $PM_{2.5}$, even at relatively low levels. EPA however offers no justification that level is 0.15 ug/m3. In fact as described in UARGs

comments, based on the instrumentation currently in the field ambient measurable levels of $PM_{2.5}$ are in the 0.5-0.6 ug/m3 range. Therefore a threshold in this range would make more sense.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.27.

Comment:

EPA identified which states were significantly contributing to downwind nonattainment based on the predicted change in the $PM_{2.5}$ concentration in the downwind nonattainment area which receives the largest impact. The Agency decided that the level of air quality impact that should be regarded as 'significant' is 1 percent of the NAAQS of 15 micrograms per cubic meter. This threshold appears arbitrary when compared to EPA's threshold for screening out potential significant contributors for ozone. In that portion of the proposal, EPA stated that any state whose maximum contribution to the nonattainment area did not reach 2 ppb, or 2.5 percent of the 8-hour ozone NAAQS, could not be a significant contributor. Therefore, we believe that EPA should also use the same 2.5 percent threshold for $PM_{2.5}$ for both equity and consistency purposes.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.28.

Comment:

EPA is considering the use of either a 0.15 μg/m3 (1 percent of the ambient standard) or 0.10 μg/m3 threshold for the air quality portion of the significant contribution test for multiple sources for $PM_{2.5}$. The OEUEA believes the choice of either 0.15 or 0.10 is arbitrary in view of the fact that EPA has used and proposes to continue to use thresholds greater than 1 percent for other substances. EPA has proposed to continue using a 2.5 percent (2 ppb) threshold for the 8-hour ozone standard. EPA has codified (40 CFR Section 51.165(b)) a 2 percent threshold for the contribution per source under Section 110(a)(2)(D) with respect to nonattainment of the PM10 annual NAAQS and a 3 1/3 percent threshold for the contribution per source under Section 110(a)(2)(D) with respect to nonattainment of the PM10 24-hour NAAQS. It would be much more consistent and appropriate to use the 2.5 percent multi-source contribution threshold for the $PM_{2.5}$ annual NAAQS. The air quality portion of the significant contribution test for the IAQR then becomes 0.375 μg/m3.

EPA has requested comment on whether to include Oklahoma in the IAQR. Given the argument above and the fact that EPA modeling shows Oklahomas impact to be below the proposed 0.15 ug/m3 significance level, the OEUEA believes that Oklahoma should not be included. In addition, the OEUEA believes Oklahoma should remain out of the IAQR for the following reasons:

1) Oklahoma is currently in attainment with all NAAQS;

2) None of Oklahomas coal fired units are considered grandfathered under the Clean Air Act;

3) In 2001 Oklahoma coal-fired utilities' NOx rate was 17 percent less than the national average;

4) In 2001 Oklahoma coal-fired utilities' SO_2 rate was 44 percent less than the national average;

5) Oklahoma coal-fired utilities' 2001 NOx rate was 13 percent less than the average of the 19 states presently not included in the IAQR;

6) During the OTAG process it was determined that impacts of Oklahoma on surrounding states did not justify the inclusion of Oklahoma in any proposed reductions;

7) If reductions were required from Oklahomas low emitting units, the resulting cost would be disproportional to the reductions gained.

Response:

Based on the air quality modeling results for $PM_{2.5}$ contributions, Oklahoma is not subject to the CAIR. We did not assess Oklahoma for ozone contribution because not all of Oklahoma is within the available ozone modeling domain.

V.B.29.

Comment:

We are also concerned that CAIR apparently still relies on a PM-2.5 significance level (0.15 ug/m3) that is set too low.

On March 30, 2004, Xcel Energy filed comments on CAIR (then called the Interstate Air Quality Rule). In those comments, we recommended several changes to the proposed CAIR, including:

-The proposed PM-2.5 significance level of 0.15 micrograms per cubic meter is not appropriate. Such small changes to downwind air quality cannot be accurately predicted by air quality models or measured by existing air quality monitoring systems.

-EPA has not yet addressed technical problems with its preferred significance level.

In our March 30 comments, we outlined serious, technical concerns regarding EPA's proposed significance level of 0.15 ug/m3. For example, the REMSAD model was not accurate enough to justify the use of a significance level as low as 0.15 ug/m3. In addition, the air quality monitors used to measure ambient air quality have accuracies of 0.2 to 0.3 ug/m3, well above the proposed significance level.

In the NODA, EPA has described its use of CMAQ to develop a more refined analysis of the impact of emissions transported from one state to another. Nevertheless, EPA has not yet addressed any of the concerns raised by Xcel Energy in its March 30 comments. While, as discussed above, CMAQ is a significant improvement over REMSAD, it still lacks the capability to predict small air quality differences at a level of 0.15 ug/m3.

Moreover, nothing in the information cited in the NODA addresses the fact that CAIR remains based on a significance level that is below the accuracy of the downwind monitors. By failing to address this issue, EPA leaves CAIR with an inherent flaw: it is proposing to require emission reductions from states like Minnesota despite the fact that its own worst case, 'zero out' analysis demonstrates that those reductions will not result in any measurable air quality benefit. In other words, EPA will not be able to measure the benefit resulting from the significant costs it is proposing to impose on Minnesota's electricity consumers.

The information contained in the NODA has not addressed this deficiency in the proposed rule. For the reasons set forth here and in our March 30 comments, we again request that EPA raise the significance level to a level that will result in measurable air quality improvement i.e., 0.2 to 0.3 ug/m3.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.30.

Comment:

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We strongly disagree that the significance level can be lower that 0.15 ug/m3 when many EPA studies utilize 0.25 ug/m3 as the threshold and when modeling has error margins around the 0.15 ug/m3 range. It can be argued that the 0.15 ug/m3 is even too low to accurately measure and model.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.31.

Comment:

The first step in determining whether or not a state makes a significant contribution is a determination of contributing 'measurably' to nonattainment in a downwind state. EPA has proposed to find a 'measurable' contribution for $PM_{2.5}$ if the modeled maximum impact from a state's combined man-made NOx and SO2 emissions in a downwind nonattainment area exceeds 1 percent of the 15 ug/m3 annual average $PM_{2.5}$ NAAQS, or 0.15 ug/m3.

Consumers Energy believes this test is unreasonable. First, it is not 'measurable' by the use of existing monitoring equipment currently used by the states' ambient monitoring networks. Second, it is not 'measurable' with any degree of confidence, by the modeling platform used by EPA for $PM_{2.5}$. Third, it is inconsistent with the threshold used for ozone within the IAQR and it is inconsistent with the thresholds used for other Clean Air Act regulatory programs.

This issue is addressed at length, in the comments being submitted by UARG.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.32

Comment:

In a significant departure from previous rulemakings under Section 110, EPA has selected 0.15 ug/m3 as the air quality component of its 'significant contribution' determination for fine particles. This represents just 1 percent of the applicable air quality standard, for the aggregate contribution of all sources of sulfate and nitrate particles in an 'upwind' state. EPA's only justification for this significant contribution threshold for $PM_{2.5}$ is that small levels of fine particulates can impact public health and for some areas it will be difficult to achieve attainment without upwind emission reductions. However, the EPA process of defining small levels of significance is arbitrary and provides minimal scientific justification based on rigorous analysis.

As detailed in the UARG comments, EPA's proposed threshold is too small to be accurately detected by existing monitoring equipment, and at a minimum, states must be shown to be making a 'measurable' contribution to an interstate air quality problem in order to be implicated under Section 110(a)(2)(D). Michigan v. EPA, 213 F.3d 663, 683 (D.C. Cir. 2000). Similarly, this threshold is too small to be distinguished in any meaningful way by existing modeling techniques.

AEP recognizes that using only a few years of monitoring data with evolving models and analytical tools makes reaching many conclusions on the science of $PM_{2.5}$ questionable, including significance contribution thresholds. But without adequate scientific information or reliable analytical tools, EPA should, at a minimum, utilize precedents from previous significance determinations of other ambient standards to develop the significance threshold for fine particulates.

In its most recent determinations under Section 110, EPA has used and continues to use a 2.5 percent (2 ppb) threshold for the 1-hour and 8-hour ozone standard, and has used a 3.5 percent threshold to determine if an air quality linkage exists between an upwind state and a downwind 8-hour ozone nonattainment area. In addition, EPA has codified (40 CFR Section 51.165(b)) under Section 110(a)(2)(D) per source significant contribution thresholds of 2 percent for the PM10 annual standard (1/ug/m3 for a 50 ug/m3 standard), and 3.33 percent for the PM10 24-hour

standard (5 ug/m3 for a 150 ug/m3 standard). Given that the absolute value of the fine particle standard is a fraction of these other particulate standards, and the limitations of available modeling and measurement techniques, lowering the relative value of the significance threshold in the manner proposed by EPA appears to 'slice down the unit of measurement to a point of insignificance.' Michigan v. EPA, 213 F.3d 663, 684.

AEP therefore respectfully recommends that a 3.5 percent significance contribution threshold (0.525 ug/m3) be established for $PM_{2.5}$ in the final rule. On this basis, several states, including Texas, Arkansas, and Louisiana will no longer be included in the IAQR program based on their contribution to fine particle levels. This level of 'significance' would not only be consistent with EPA's past determinations for other forms of particulate matter, but also would provide consistency with the 3.5 percent threshold applied within the proposed IAQR for the 8-hour ozone standard.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.33.

Comment:

We do not agree with the proposed geographic scope of this proposal and the merits of the proposed 0.15 μg/m3 threshold level as indicating a potentially significant effect of air quality in nonattainment areas in neighboring States (compared to a 0.10 μg/m3 threshold) (FR Vol. 69 No. 20 pg. 4584). Applicability, thresholds - and geographic scope, should be based on the precedent and legal terms provided in the Clean Air Act. It is more appropriate to use thresholds established under AOI (Area of Influence) and AOV (Area of Violation) in gauging significant contribution.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.34.

Comment:

With the filing of the Section 126 petition by North Carolina, the significance level proposed by US EPA for upwind contributions has become more critical. Indiana cannot at this time agree that 0.15 ug/m3 is an appropriate level to determine significant contribution. Unlike ozone, there are far more uncertainties about how $PM_{2.5}$ is transported regionally, the modeling tools are much less reliable and accurate, the inventories are not as well developed, and not enough is known about the relative contributions of $PM_{2.5}$ from different sectors. We also note that US EPA has chosen 1 percent as the significance level for $PM_{2.5}$ (0.15 ug/m3 compared to 15 ug/m3), whereas for ozone, the significance level is more than 2 percent of the standard (2 parts per billion compared to 85 ppb).

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.35.

Comment:

EPA identified which States were significantly contributing to downwind nonattainment based on the predicted change in the $PM_{2.5}$ concentration in the downwind nonattainment area which receives the largest impact. The Agency decided that the level of air quality impact that should be regarded as 'significant' is 1 percent of the NAAQS of 15 micrograms per cubic meter. This threshold appears arbitrary when compared to other EPA thresholds for screening out potential significant contributors. For example, EPA stated that any state whose maximum contribution to an ozone nonattainment area did not reach 2 ppb, or 2.5 percent of the 8-Hour ozone NAAQS could not be a significant contributor. EPA has also codified in (40 CFR Section 51.165(b)) a 2 percent threshold for the contribution per source under Section 110(a)(2)(D)to nonattainment of the PM-10 annual NAAQS and a 3 1/3 percent threshold for the contribution per source under Section 110(a)(2)@) to nonattainment of the PM-10 24-hour NAAQS. EPA should use the same 2.5 percent threshold for $PM_{2.5}$ as it is using for ozone.

EPA does not examine the relative amount that each upwind state contributes to a downwind receptors' $PM_{2.5}$ nonattainment. Instead, it measures significance solely based on the arbitrarily set threshold contribution level. As a result EPA applies the same emission reductions across the affected region and disproportionately impacts states that have fewer electric generating units, low emission rates of both NOx and SO2, and low absolute tons of the two pollutants. EPA's decision fails to address significant differences in impact levels that range from minimum impact to maximum as demonstrated by the modeling results.

Such disproportionate impacts should be taken into account in determining which states warrant inclusion in the region affected by the IAQR and in setting budgets for the states.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble. The subject of uniform control levels is addressed in section VI of the Response to Comments.

V.B.36.

Comment:

Even though EPA finds that SO_2 is the major precursor to $PM_{2.5}$ formation, EPA conducted zero out modeling that eliminated both NOx and SO2 to determine whether a state significantly contributes to $PM_{2.5}$ nonattainment. If state's SO_2 emissions alone could be the cause of a state qualifying as a significant $PM_{2.5}$ contributor, the state would be labeled a significant contributor for NOx, also, and thereby be subject to the NOx caps imposed under the

Proposal. The unfair consequence of the failure to separate NOx impacts on $PM_{2.5}$ nonattainment from SO_2 impacts is plain in the case of a state, such as Florida. EPA determined Florida is not a significant contributor for ozone, however it is subject to the IAQR's NOx requirements on the basis of modeling that fails to demonstrate the downwind impact of its NOx emissions on $PM_{2.5}$ ambient air quality. Likewise the same inequity may victimize a state that is deemed a significant contributor for ozone on questionable air quality data (e.g., states in the western portion of the affected region where 36 km grid spacing was used instead of the 12 km spacing, using days with problematic meteorological inputs). There is a need for separate $PM_{2.5}$ modeling for NOx and SO2.

Response:

This is addressed in section III.A of the final CAIR preamble.

V.B.37.

Comment:

EPA proposes that any state whose emissions contribute one percent or more to downwind nonattainment of the national particulate matter standards would be subject to this rule. We believe that this threshold was chosen as a means of allowing EPA to pull in all eastern states in furtherance of a policy objective to achieve attainment through emission reductions consistent with those required under Clear Skies legislation.

Unfortunately, in this case, the end goal, though necessary, does not justify the means, and could establish a precedent that promotes costly court battles at the expense of tangible emission reductions. For example, consider that the one percent threshold is much lower than the 2.5 percent contribution level used to establish participation in the NOx SIP Call. The one percent threshold is also inconsistent with the Prevention of Significant Deterioration (PSD) program's exemption from modeling analysis for proposed emission sources that would contribute less than 6.7 percent of the daily PM10 standard. Significant concerns exist that EPA's own models or monitors cannot reliably and accurately determine $PM_{2.5}$ concentrations down to a level of 0.15 ug/m3.

EPA's selection of one percent as the threshold for interstate contribution is inadequate and should be adjusted to a 2.5 percent contribution threshold.

In addition, as the rule is currently proposed, once the significance threshold is established, every affected state must make the same level of reductions. In using such a method, there is no association made between the maximum downwind contribution of one state on another and the level of reductions being required of the upwind state. We believe that the required reductions of an upwind state should be proportionate to the degree of impact of that state, such that those states having a greater contribution should have a greater burden of reduction. (See Attachment 2)

There are many ways in which the equity issue can be addressed to ensure that clean states are not penalized for the reductions that have already been made.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble. The subject of uniform control levels is addressed in section VI of the Response to Comments.

V.B.38.

Comment:

As a preliminary matter, EPA's choice of a minimum $PM_{2.5}$ state contribution threshold of 0.15 ug/m3 is not supported by the record. EPA should adopt its alternative threshold, that is, 0.10 ug/m3, as we discuss in greater detail infra in Section VI hereof.

As indicated above, we do not support a minimum $PM_{2.5}$ state contribution threshold of 0.15 ug/m3. There is no rational basis for choosing such a threshold. Rather, EPA should adopt its alternative threshold, that is, 0.10 ug/m3. Due to NAAQS rounding definitions, this represents the smallest increment that can make the difference between compliance and violation of the NAAQS. As EPA noted in the IAQR, the US Court of Appeals for the DC Circuit upheld EPA's use of a low minimum state contribution threshold level in the NOx SIP Call, and in so doing, the Court observed that in the context of a pollutant that has some adverse health effects at every level (both ozone and PM are in this category), it is hard to see why any ozone-creating emissions should not be regarded as fatally significant under section 110(a)(2)(D)(i)(I). A threshold of 0.10 ug/m3 is consistent with the DC Circuits reasoning; a threshold of 0.15 ug/m3 is not. Furthermore, application of this threshold will expand the coverage of the emission caps slightly to include the additional upwind states of North Dakota and Oklahoma. More importantly, it will also slightly increase the reductions of NOx and SO2 emissions required by the IAQR in 2010, by about 92,000 tons of NOx and 148,000 tons of SO_2 Given the severe human health and environmental impacts of $PM_{2.5}$ and its precursor emissions, we urge EPA to adopt the alternative contribution threshold, thereby strengthening the rule.

We also note that EPA did not evaluate many states in the western US for their potential contribution to ozone and $PM_{2.5}$ nonattainment problems. We believe that EPA should analyze the contribution of all 48 states in the continental US, and include any state in the IAQR whose emissions are found to contribute to downwind nonattainment in excess of the minimum threshold.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

Regarding modeling of all states, in the $PM_{2.5}$ modeling for the NPRM, we modeled 41 states, and found that the westernmost of these states made very small contributions to nonattainment in any other state. For the revised modeling for the final rule, we reduced the set of states modeled for reasons of efficiency. The results again showed that the westernmost states

modeled did not make contributions above the significance threshold, indicating that had other even more western states been modeled they also would not have done so.

V.B.39.
Comment:

EPA's use of a 0.15 ugm-3 for $PM_{2.5}$ significance level is unsupportable:

1. EPA offers no reasonable explanation of why the $PM_{2.5}$ threshold should be 0.15 ugm-3. EPA does say there are 'significant public health impacts associated with ambient $PM_{2.5}$, even at relatively low levels'. EPA however offers no justification that level is 0.15 ugm-3. In fact as described in UARGs comments, based on the instrumentation currently in the field ambient measurable levels of $PM_{2.5}$ are in the 0.5-0.6 ugm-3 range. Therefore a threshold in this range would make more sense.

2. Based on analyses currently being performed by the Regional Planning Organizations the $PM_{2.5}$ models are performing reasonably for total $PM_{2.5}$. However, the $PM_{2.5}$ models are getting the right answer for the wrong reason. If you look at the results of the REMSAD performance evaluation in this proposal as well as work done by WRAP, VISTAS and the MWRPO you generally see over prediction of some components and under prediction of others making the overall $PM_{2.5}$ look somewhat reasonable (compensating errors). In the case of recent modeling performed by the MWRPO (see http://64.27.125.175/tech/photo/present/basecase1 pdf) they found that Nitrate (to the extreme) and Sulfate were over predicted while Organic Carbon and Elemental Carbon were under predicted. Considering the current state of $PM_{2.5}$ models it is unlikely that any model would be able to resolve with some degree of certainty a $PM_{2.5}$ level 0.15 ugm-3. A more supportable level as discussed in item E.1. above would be more appropriate.

EPA's has included in its contribution analysis a states' impact in counties belonging to an MSA included in that state:

EPA states in the preamble 'The requirements in this proposal are intended to address regional interstate transport of air pollution.' (69 Fed. Reg. No. 20 page 4570). Yet in Table V-5 (69 Fed. Reg. No. 20 page 4608) which shows the maximum annual PM25 impact of a state on upwind areas lists Madison County Illinois (0.89 ugm-3) for Missouri and St. Louis County Missouri (1.50 ugm-3) for Illinois. Both of these counties are in the same MSA and are proposed to be in the same PM25 nonattainment area. These contributions are clearly not regional in nature. What is shown is the impact of nonattainment counties in one state on nonattainment counties in the other state where all counties are in the same nonattainment area. EPA's stated intension is to address regional transport not the contribution of a nonattainment area on itself. These contributions are better left to the individual states to resolve. As EPA further states in the preamble,

> 'There are likely more localized transport problems that will remain, particularly between contiguous urban areas located in two or more States. States that share an interstate nonattainment area are expected to work together in developing the nonattainment SIP for that area, reducing emissions that contribute to local-scale interstate transport problems.

(69 Fed. Reg. No. 20 page 4570)

EPA should take heed of its intended purpose for this analysis and display contributions that illustrate true regional transport.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.40.

Comment:

As proposed, EPA has applied this rule through the use of a significance level, representing the amount of impact particular states emissions have on nonattainment of the standards. The MPCA is troubled that the selection of a significance level appears to be quite arbitrary and is based on judging effects only on current nonattainment areas. The MPCA has no direct way to understand what the rule will do for Minnesota, only what it will do to Minnesota.

The MPCA requests that EPA analyze the effect of the rule on ozone, $PM_{2.5}$ and haze levels throughout the area potentially impacted by the rule. The MPCA anticipates that such an analysis will show that a broader program, including states west and south of Minnesota, will show real improvements in Minnesota air quality. EPA should also consider broadening the analysis to include all of the states, the effects in cities that marginally meet air standards and the effects on Class I areas. Minnesota may then understand and/or experience the benefit from reductions in upwind states, in addition to helping resolve downwind nonattainment problems. Under the current proposal, use of a lower significance level would have the benefit of including additional states whose emissions likely adversely impact air quality in Minnesota in the control program. A national program, however, would avoid the arbitrary nature of the argument about significance levels, and offer greater benefits in air quality for Minnesota by including all contributing states in a control program.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.41.

Comment:

The ‘science’ used to support the Interstate Air Quality Rule is questionable. Reducing the criteria for determining health impacts to 0.15 micrograms per cubic meter (1 percent of the standard) is too low to accurately measure and no reliable modeling platform has been proposed.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is

addressed in section III.C of the preamble. The subject of uniform control levels is addressed in section VI of the Response to Comments.

V.B.42.
Comment:

In its current proposal, EPA's analysis of 'significant' state-specific contributions is based on fractional contributions of 0.1 or 0.15 ug/m3 (0.67 to 1 percent) to exceedences of the annual primary $PM_{2.5}$ standard. Vermont agrees that a primary focus on exceedences of health standards is an appropriate starting point for evaluating interstate transport impacts. However, we also request that EPA consider several other metrics in its consideration of adverse interstate impacts, including: (a) contributions to adverse health and welfare effects from short-term $PM_{2.5}$ concentrations; (b) contributions to worst 20 percent haze levels in class 1 areas; and (c) contributions to adverse effects of S and N deposition to acid sensitive surface waters and forest soils.

Regarding short-term (24-hour or less) $PM_{2.5}$ contributions, the current standard of 65 ug/m3 was intentionally set at a leniently high level to insure that the annual standard was 'controlling' (i.e. so that there would not be short-term exceedences in areas which did not also exceed annual standards). Much of the new information provided in the EPA PM Criteria Document, 4th external review draft (6/03) emphasizes the occurrences of short-term acute health effects - even in areas where the annual standard is being attained. The 1st Draft (8/03) EPA Staff Paper recommends lowering the short term standard to the range of 50 to 30 ug/m3, and also indicates that a secondary short-term standard at the lower end of this range (30 ug/m3) would also reduce adverse effects on visibility in a number of non-class 1 urban and rural areas. CASAC review comments (2/04) on the draft CD and staff paper further emphasize the gross inadequacy of the current secondary short- term standard for protection against adverse welfare (visibility) effects and suggest consideration of a secondary standard at or below the (30 ug/m3) lower range of EPA's suggested revised short-term primary standard.

Therefore, Vermont recommends applying a state specific significance test of 0.67 percent to 1 percent to a short-term 30 ug/m3 level (i.e., 0.2 to 0.3 ug/m3) to identify adverse 24-hour $PM_{2.5}$ contributions on the dates and at locations for which measured or modeled $PM_{2.5}$ concentrations exceed 30 ug/m3.

Vermont requests that EPA include estimates of total sulfate + nitrate deposition in its modeled evaluation of transport effects being undertaken in this IAQR proposal, and that EPA apply a (0.6 percent to 1 percent of total acidifying deposition) significance test to determine state-specific contributions to adverse interstate ecological impacts in Vermont and other states with acid sensitive surface waters and forest soils.

Since EPA has already concluded that at the value of 0.10 ug/m3 (annual impact for $PM_{2.5}$) would bring in both Oklahoma and N. Dakota, whose emissions do contribute to several of the nonattainment areas at that level, Vermont urges EPA to adopt the more inclusive significance level to expand the IAQR region. EPA has discussed at great length in this proposal, the very large body of scientific and technical reports which have identified consistent source-receptor relationships derived from analysis of monitored data in the IMPROVE and CASTNET networks.

Techniques using source apportionment and receptor modeling of both chemical composition and airmass histories prior to arrival at receptors, all lead to the conclusion (which this IAQR is based on) that large upwind sources of NOx and SO2 at distances as great as thousands of kilometers from receptors need to be controlled to eliminate the significant interstate transport impacts which are currently occurring.

Provided that there is a sufficiently small total cap or sufficient source specific control mechanisms to ensure that source regions upwind of all sensitive receptors significantly reduce emissions, Vermont supports the expansion of the IAQR region (for control of EGUs in particular) to the entire lower 48 states. We believe the simplest and most direct approach would be to set caps on NOx and SO2 from this sector and to have EPA administer a trading program similar to the current Title IV Acid Rain cap & trade system. The details of such a program remain to be explored and this IAQR proposal does not adequately describe the issues which must be decided in implementing it, so Vermont would like to reserve the right to comment in more detail on any subsequent proposal involving cap & trade mechanisms.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

EPA is making decisions on standards that are now in place, not standards that may be in place in the future. EPA cannot include estimates of total sulfate and nitrate deposition because it is not within the scope of section 110(a) (2) (D). EPA has chosen .20 ug/m3 significance level and this is discussed in the preamble. EPA is not expanding the CAIR region to all States at this time.

V.B.43.

Comment:

MDU suggests impact level is too stringent. Even though, based upon EPA modeling, Montana-Dakota Utilities Co. facilities are not located in states that contribute to a nonattainment area at an impact level of 0.15 μg/m3, we believe that the impact level of 0.15 μg/m3 (1 percent of the NAAQS) is too low and that current computer modeling is not sufficiently accurate to reliably support inclusion of states at long distances at such low levels. Furthermore, these impact levels are well below the detection levels for SO_2, NO2, ozone and $PM_{2.5}$ for the ambient monitoring equipment typically used for monitoring determine compliance with the NAAQS.

Obviously, since Montana-Dakota Utilities Co. disagrees with the 0.15 μg/m3 impact level, we are extremely concerned with EPA's alternative analysis, which is based upon an impact level of 0.10 μg/m3. In this analysis, North Dakota is shown to contribute an impact of 0.12 μg/m3 to one nonattainment area (Cook County, Illinois). This area is approximately 800 miles from the EGU's in North Dakota. Montana- Dakota Utilities Co. doubts that current modeling technology, including the REMSAD model, is capable of accurate assessment of levels of 0.15 μg/m3, over distances this great, and especially not with the degree of certainty which would justify inclusion of states at that distance in the IAQR.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble. North Dakota is not subject to the final CAIR.

V.B.44.

Comment:

EPA identified which states would be included the IAQR region by determining whether a state's combined emissions of NOx and SO2 made a 'significant contribution' to projected 2010 $PM_{2.5}$ nonattainment areas. 'Significant contribution' was defined by EPA as 0.15 μg/m3 or 1 percent of the 15 μg/m3 $PM_{2.5}$ annual national ambient air quality standard (NAAQS). Unfortunately, EPA failed to provide adequate technical justification for the $PM_{2.5}$ 'significant contribution' level. Also EPA failed to identify whether NOx emissions alone would be insignificant, even under the 0.15 μg/m3 criteria. EPA did not perform necessary, separate analyses of NOx and SO2 emissions.

In the case of ozone, EPA used a level of 2 parts per billion (ppb) for determining significant contribution for the 8-hour ozone standard, which is 85 ppb. This significance level was established in the NOx SIP Call proceedings. The 2 ppb ozone significance level is 2.35 percent of the annual NAAQS. Using a similar basis for $PM_{2.5}$ would have resulted in a significance level of 0.35 μg/m3.

The IAQR includes 28 states and the District of Columbia. With the more realistic $PM_{2.5}$ significance level of 0.35 μg/m3, several states would drop out of the program - AR, DE, KS, LA, MA, MS and NC. The emission of NOx and SO2 from the above states represents only about 8 percent of the 28-state total in IAQR.

The establishment of the significance level is a critical step in not only this rulemaking to determine which states are affected, but also for the future consideration of section 126 petitions. In fact, the 126 petitions have already started with North Carolina's recent action. Michigan was named in the North Carolina petition because EPA's REMSAD modeling predicted that it would contribute 0.16 μg/m3 in 2010 to one of the North Carolina projected $PM_{2.5}$ non- attainment areas. Obviously, with a $PM_{2.5}$ significance level of 0.35 μg/m3, Michigan would not have been named. In fact, Michigan would not be projected to make a significant contribution to a 2010 $PM_{2.5}$ nonattainment area east of western PA and WV. Even in these nearby states, only SO_2 emissions, and not NOx emissions, are likely to result in a significant contribution.

Response:

EPA has finalized a significant contribution threshold of 0.2 μg/m3 for $PM_{2.5}$, rather than 1.0 percent of the NAAQS or 0.15 ug/m3. The subject of the significance level for $PM_{2.5}$ is addressed in section III.C of the preamble.

V.B.45.

Comment:

The zero-out runs for PM were done incorrectly. NOx and SO2 do make PM, but that's

only part of the story. Most of PM is other species, which were not zeroed out, so the contributions from upwind states are not adequately represented. OC and soot, for example are nowhere mentioned. OC has a very regional character, as outlined in EPA's proposal. Instead of addressing this issue, EPA simply says it does not exist, and leaves it to downwind states to come up with the difference out of hide.

Response:
This is addressed in section III.A of the preamble to the final CAIR.

V.C. Significance threshold for ozone

Significance level for 8-hour ozone versus level for 1-hour ozone
V.C.1.
Comment:

Several commenters argued that because the 8-hour ozone standard is significantly different from the 1-hour ozone standard, using the same significance levels for the CAIR coverage criteria does not adequately address significance in relation to the form of the NAAQS.

A key factor in determining the amount of reductions needed to adequately address transport and meet attainment needs is the level of significant contribution upon which the IAQR's geographic coverage is based. Commenters argued that EPA has underestimated 'significant contribution' by using 2 ppb ozone as a criterion - a threshold based on the less stringent one-hour standard. A lower, more stringent standard should logically apply for the more protective eight-hour standard.

Response:

The 2 ppb threshold was selected for the maximum contribution metric portion of the screening test, in part, based on the lowest impact level used by the Ozone Transport Assessment Group (OTAG). The OTAG process involved open deliberation across various stakeholder groups including: States, EPA, industry representatives, environmental advocates, and academics. Further, this threshold was used by EPA as part of the NOx SIP Call in the significant contribution analysis for both the 1-hour and 8-hour NAAQS. The NOx SIP Call screening approach involves comparing maximum 1-hour and 8-hour concentrations predicted during the episodes modeled to the 2 ppb threshold. Given that the screening test is applied to episodic model predictions, it is not necessary to tie contribution threshold to the form of the standard. In the final CAIR air quality analysis, 25 States were determined to be significant contributors to poor air quality in any projected downwind 2010 residual nonattainment receptor area. Of the remaining six States in the analysis, five States (ME, MN, NH, RI, VT) have maximum contributions no higher than 0.5 ppb on any potential nonattainment receptor and would not be found significant even if the threshold were significantly lowered.

Protectiveness of the significance level for 8-hour ozone
V.C.2.
Comment:

Maine believes that the 2 ppb 'significance' threshold for ozone established by the proposal is insufficiently stringent to adequately address the impact of transported ozone and ozone precursors on Maine's air quality. Maine is so overwhelmingly impacted by transported pollution that it would continue to violate the 8-hour ozone standard, even in the absence of any in-state emissions.

While 2 ppb may be a relatively small contribution, in can have a very significant impact on our ability to attain and maintain the NAAQS for ozone. For example, the Portland nonattainment area has a 1-hour ozone design value of 126 ppb, while the Hancock and Waldo County maintenance area has a 1-hour design value of 120. With design values so close to the

federal ozone standard it can be readily seen that a contribution even less than 2 ppb could play a significant role in our ability to attain and/or maintain the ozone NAAQS.

Response:
EPA agrees with the portion of the comment that notes that a 2 ppb transport contribution can significantly impact an area's ability to attain and maintain the 8-hour ozone NAAQS. With respect to Maine specifically, EPA modeling projects that all counties with the State will be in attainment of the 8-hour ozone standard in 2010. Hancock County has the highest projected 2010 8-hour design value at 81 ppb. As a result, no Maine counties were used in determining which upwind States should be covered by the rule.

Relative Amount of Contribution Metric
V.C.3.
Comment:

EPA's 'Relative Amount of Contribution' metric is misleading:

EPA in calculating the 'Relative Amount of Contribution' metric assumes that all modeled reductions from zeroing out a states emissions impacts only concentrations that are in excess of the standard. For example on Page 26 of the TSD-AQMA EPA uses the example of Fairfield County, CT. Here EPA sums all ozone concentrations above 84 ppb for the 2010 base case (319.5 ppb) and the 2010 base case with Ohio emissions zeroed out (271.0 ppb). EPA then calculates the 'Relative Amount of Contribution' metric as 100*(319.5 - 271.0)/319.5 = 15.2 percent. This falsely attributes all of Ohio's emissions to the exceedance ozone and thus inflates Ohio's impact. A more appropriate representation would be to sum all of the ozone (not just that greater than 84 ppb) for all exceedances. In this case EPA indicates that there are 27 exceedances in the 2010 base case for Fairfield County, CT. Thus for the base case the total ozone would be 27*84 + 319.5 = 2587.5 ppb. After zeroing out Ohio's emissions the total would be 27*84 + 271.0 = 2539.0 ppb. Therefore Ohio's percent contribution to the exceedances would be 100*(2587.5 - 2539.0)/2587.5 = 1.9 percent. Calculation of this metric in this way assumes that only the original 27 receptors over the standard in the 2010 base case are analyzed. This metric more appropriately shows Ohio's actual impact on days when Fairfield County, CT had exceedances. [[pp.6-7]]

Response:

This comment is addressed in section III.E of the preamble to the final CAIR.

Ozone Significance Level and Model Sensitivity
V.C.4
Comment:

The Department believes the levels selected to determine significant contribution as proposed by EPA are arbitrary. Even though a state's contribution to downwind nonattainment is demonstrated through modeling results, the proposed significance levels are not evaluated in relation to model sensitivity.

Response:

The commenter is not clear about what it means by model sensitivity and did not explain how it relates to the use of a significance level in the context of the CAIR. In responding to the comment, we have considered some possible contributors to what the commenter describes as "sensitivity." There is the possibility that the air quality model has a systematic bias in predicting concentrations resulting from a given set of emissions sources. The EPA uses the model outputs in a relative, rather than an absolute, sense so that any modeling bias is constrained by real world results. As described further in preamble section VI, EPA conducts a relative comparison of the results of a base case and a control case to estimate the percentage change in ambient ozone from the current year base case, holding meteorology, other source emissions, and other factors contributing to uncertainty constant. With this technique, any absolute modeling bias is cancelled out because the same model limitations and uncertainties are present in each set of runs. Another possible source of noise is in the relative comparison of two model runs conducted on different computers. Since the computers used by EPA to run air quality models do not have any significant variability in their numerical processes, two model runs with identical inputs result in outputs that are identical to many significant digits.

Consistency Between Ozone and $PM_{2.5}$
V.C.5
Comment:

The methods and rationale for determining significance levels are not consistent between ozone and PM.

Different, and somewhat inconsistent, approaches were used to define a significant upwind state contribution to downwind nonattainment for $PM_{2.5}$ and 8-hr ozone. Whereas for ozone two measures of upwind state contributions were used (zero-out and source apportionment), for $PM_{2.5}$ only zero-out runs were applied. Also, whereas for ozone an Initial Screening Analysis (ISA) was performed to weed out those upwind state/downwind nonattainment area linkages that were clearly not significant and then EPA analyzed three factors (magnitude, frequency and relative contribution) of the ozone contributions to make the significance determination, for $PM_{2.5}$ EPA defined a 'bright line' threshold where an upwind state/downwind nonattainment monitor $PM_{2.5}$ linkage was determined to be significant if the zero-out run for that state estimates that the state's annual average $PM_{2.5}$ contribution was 0.15 pg/m3 or greater.

Response:

The differences in the methods and rationale for determining significance levels for ozone and PM are due to differences in the time period for which the ozone (8-hours with multiple opportunities for violation per year) and $PM_{2.5}$ (annual average with only one opportunity for violation per year) NAAQS apply, to the fact that multiple precursors substantially contribute to transport of $PM_{2.5}$ versus just NOx for ozone, and to differences in the availability of reliable contribution modeling techniques (two methods available for ozone, only zero-out for $PM_{2.5}$). This explained in sections II and III.C of the CAIR preamble.

Sizes of States
V.C.6
Comment:

Assessment of significant impacts.: The procedures used by EPA to assess the significance of an upwind state on downwind 8-hour ozone nonattainment in the proposed IAQR are nearly identical to those used in the NOx SIP Call. In the proposed IAQR, there is potential inequity in the 'significance' determinations just because of the size of the states. In some cases, smaller states are found not to be significant than some larger ones even though the former have a much higher contribution per ton of emissions than larger ones. For example, Rhode Island was found not to be a significant contributor to 8-hour ozone nonattainment, while Ohio was predicted to produce impacts above the 2 ppb IAS threshold. While Ohio has almost 40 times the landmass, 10 times the population, and clearly more total emissions than Rhode Island, on a per NOx emissions basis, Rhode Island has over 2-6 times the contribution to ozone nonattainment than Ohio. Thus, in this simple example, the EPA significance determination using state boundaries may not identify sources that contribute the most because it fails to account for states size in the determination.

Response:

EPA agrees that the original analytical approach for assessment of the significant of contributions to ozone nonattainment poses issues when applied to states that are geographically small. A separate Notice of Proposed Rulemaking explains and addresses these issues. EPA believes that the issues arise only for small states not idenfitied by the 2 ppb metric and other contribution metrics/thresholds, and that any state that is identified as a significant contributor based on the original approach should definitely be considered to contribute signficantly (pending consideration of costs).

States for Which No Finding Has Been Made Regarding Significant Contribution to Ozone Nonattainment in Another State
V.C.7.
Comment:

Require emission reductions in all states upwind of Texas that contribute to the elevated background ozone levels entering Texas urban areas. In particular, Oklahoma should be added to EPAs proposed rule.

Response:

EPA did not issue a supplemental proposal regarding the signficance of Oklahoma's contribution to ozone nonattainment in Texas because of the present lack of a suitable air quality modeling platform that encompasses all of Oklahoma. We may revisit this issue in the future when such a platform is available.

V.C.8.
Comment:

EPA has not yet predicted North Dakota's ozone contribution to nonattainment areas. With respect to ozone nonattainment, the modeling has not been completed for North Dakota. Therefore it is unknown at this time whether the EPA modeling analysis will show that the EGUs

in North Dakota do or do not contribute to ozone nonattainment in down wind states. We believe emissions from ND do not significantly impact nonattainment areas over 1000 km away and therefore, would not justify, based on cost-effectiveness, reductions of emissions from North Dakota EGUs. The LEC reserves further comment until the ozone impact modeling has been completed.

Response:

EPA did not issue a supplemental proposal regarding the signficance of North Dakota's contribution to ozone nonattainment in other states because of the present lack of a suitable air quality modeling platform that encompasses all of North Dakota. We may revisit this issue in the future when such a platform is available. At that time, we will use the best available estimates of current and future NOx emissions from sources in North Dakota.

V.C.9.

Comment:

EPA identifies 25 States and the District of Columbia as contributing significantly to 8-hour ozone nonattainment in 2010. EPA defers findings for six other states, including Nebraska, which at this time cannot be assessed on the same basis as the states to the east because they are only partially included in the modeling domain. EPA indicates that they will conduct modeling on these six states in the future. It is imperative that the EPA make their assessment of Nebraskas contribution using the same criteria as was used in the original modeling. EPA states they may propose action on them based on that modeling in a supplemental proposal. NPPD urges the EPA to adhere to this statement. A supplemental proposal would allow sources in Nebraska to review modeling results and the contributions to downwind sources prior to Nebraska potentially being identified as a significant contributor to 8-hour ozone nonattainment in downwind states. The EPA should not add additional states to those that are covered under the IAQR without first undertaking a notice-and-comment rulemaking.

Response:

EPA did not issue a supplemental proposal regarding the signficance of Nebraska's contribution to ozone nonattainment in other states because of the present lack of a suitable air quality modeling platform that encompasses all of Nebraska. We may revisit this issue in the future when such a platform is available. At that time, we will use the best available estimates of current and future NOx emissions from sources in Nebraska. EPA will use notice-and-comment rulemaking if the analysis shows a need for additional contribution findings.

V.C.10.

Comment:

CPS [City Public Services of San Antonio, TX] asks that EPA recognize and consider existing state regulatory programs that are adequately addressing air issues (in states such as Texas) and work with state agencies to ensure flexible, cost-effective regional programs. CPS feels that Texas has dealt with ozone nonattainment issues adequately by, among other things, requiring large NOx reductions from electric utilities in counties where ozone attainment is problematic. EPA noted that it is still conducting 8-hour ozone modeling in Texas, raising the question as to whether or not Texas should be in the list of states affected by this rule-making.

Response:

EPA did not issue a supplemental proposal regarding the signficance of Texas's contribution to ozone nonattainment in other states because of the present lack of a suitable air quality modeling platform that encompasses all of Texas. We may revisit this issue in the future when such a platform is available. Our analysis with that platform will take into account all adopted control measures for electric utilitites and other sources. If a finding is made that Texas does contribute significantly to ozone nonattainment in another state, EPA will seek to offer flexible and cost effective options to eliminate the significant contribution.

V.C.11.

Comment:

EPA is deferring findings for Texas, Oklahoma, Kansas, Nebraska, South Dakota, and North Dakota, which at this time cannot be assessed on the same basis as states to the east because they are only partially included in the modeling domain. EPA said in the NPRM that it intends to conduct additional modeling for these six States using a larger modeling domain, and may propose action on them based on that modeling in a supplemental proposal.'

This deferral is nearly identical to the same deferral used in the NOx SIP Call for these 'coarse-grid' states. EPA made promises in the NOx SIP Call rulemakings to conduct additional analyses for these states in 1999. EPA never conducted that analysis and we have no reason to believe they will conduct this analysis. Missouri's position on this issue has remained consistent. Any analyses conducted should be identical for all potential 'upwind' states. If Missouri's potential nonattainment areas (St. Louis and Kansas City) have not achieved the 8-hour ozone standard as predicted by EPA's regional modeling through existing local and regional controls, we believe EPA must, at a minimum, perform this additional analysis for states not included in this rulemaking that are upwind of Missouri. Additional controls in some of these states will be beneficial in reducing incoming background ozone concentrations.

Response:

EPA did not issue a supplemental proposal regarding the signficance of the contributions which Texas, Oklahoma, Kansas, Nebraska, South Dakota, and North Dakota make to ozone nonattainment in Missouri because of the continued lack of a suitable air quality modeling platform that encompasses all of the land area and emissions sources in these states. We may revisit this issue in the future when such a platform is available.

V.D. General

V.D.1.
Comment:

Minnesota should be categorized as a western state and removed from the list of 29 CAIR states: The air quality and emissions profile of Minnesota better matches that of western states and Minnesota should be removed from the list of 29 states targeted for control under CAIR. Minnesota utilities primarily burn western, low sulfur subbituminous coal and have a significantly lower emissions profile than is typical of the 29 states targeted for control under CAIR. Figure 2 portrays how overall SO_2 emissions from Minnesota are lower than most eastern states and more typical of western states. This is reinforced by the Figure 1, relatively lower SO_2 emission rates in Minnesota. Minnesotas status under CAIR is further addressed in ensuing key points.

Minnesota is in attainment with the more stringent eight hour ozone and $PM_{2.5}$ (fine particulate) standards. Emphasis in Minnesota is to preserve air quality to stay in air quality standard attainment. Subsequently, Minnesota has initiated the voluntary Clean Air Minnesota (CAM) program, that provides for voluntary measures to improve Twin Cities metro area air quality and reduce background emissions. Figure 3 portrays the proximity of Minnesota to the nearest nonattainment areas.

EPA modeling gives consideration to all source emissions, not just electric utility emissions, when assigning culpability for nonattainment contributions. However, subsequent control is only proposed for electric utility emissions: Analysis performed for the Clean Air Minnesota program affirms how dominant emissions affecting metro area air quality are from non-utility sources (ref. Figure 8). Electric utility emissions are a more dominant source of SO_2 emissions. However, it is SO_2 emissions that are the focal point for USEPA assigning culpability for Minnesota being included in the group of 29 CAIR states targeted for electric utility emission controls. This serves to reinforce why Minnesota should not be listed as a CAIR state, but rather should be subject to air quality controls more reflective of western state air quality issues such as regional haze. Ultimately, the Clear Skies Act provisions better reflect regional air quality differences because of separation into Zone 1 (eastern) and Zone 2 (western) NOx control regions.

Response:

The issues raised are addressed in sections II and III of the preamble. EPAs air quality modeling shows that Minnesota contributes 0.21 µg/m3 to a $PM_{2.5}$ nonattainment area in another state, Cook County, IL.

V.D.2.
Comment:

We wish to note that the affected states are still in the process of implementing the NOx SIP Call. While that initiative addresses significant contribution to other states' nonattainment for the one-hour ozone standard, those familiar with the history behind the NOx SIP Call recall that the specified control levels were specifically designed to address the same issue for the new

eight-hour ozone NAAQS. Since these controls are still being implemented, we have no monitored benchmark of their effectiveness. Similarly, we have no assessment of any unintended consequences.

Response:

This issue is addressed in section III.B of the CAIR preamble.

V.D.3.

Comment:

PSEG believes that the analysis in the IAQR more than justifies the need for NOx and SO2 reductions from EGUs in the states covered under this proposal. The analyses provided by EPA as part of the proposed IAQR demonstrate the need for a substantial reduction in transported emissions of NOx and SO2 in order for downwind eight-hour ozone and $PM_{2.5}$ nonattainment areas to achieve compliance with the NAAQS. In the eastern United States, the regional contributions of $PM_{2.5}$ mass to the annual average concentrations at urban locations is estimated by EPA to be in the range of 50-60 percent, which equates to a concentration of between 10 and 13 ug/m3. For many rural areas, average $PM_{2.5}$ levels exceed 10 ug/m3 and are often not much below the annual $PM_{2.5}$ NAAQS of 15 ug/m3.

Response:

EPA agrees with this comment.

V.D.4.

Comment:

The science that was utilized for EPA's determination of the appropriate significance level used in evaluating whether a state was in or out relative to the proposed rule is not clear to us. It is our understanding that the proposed rule setting a significance level of 0.15 ug/m3 for $PM_{2.5}$ creates a situation that would have Oklahoma and Nebraska as the only CenSARA states that would not be subject to the rule. As we begin to analyze the significance of not being included as it relates to maintenance of the air quality standards for the Tulsa area, regional haze, and other not yet identified consequences, we may decide it is in Oklahomas best interest to be subject to the rule.

Additional modeling as proposed in the rule may show that Oklahoma's influence is significant enough to be included in the IAQR. However irrespective of the modeled significance level, we would request that this rule be modified to allow those states to opt in to the IAQR should they choose to do so.

Response:

Oklahoma is out of the CAIR based on the 0.2 ug/m3 significance level we are finalizing. Although there are options for sources in CAIR States to opt-in to CAIR, there are no provisions for States not in the CAIR region to do so. The CAIR does not allow excluded states (which do not contribute significantly to nonattainmnet in another state) from choosing to join the CAIR trading programs because doing so could have the effect of allowing smaller emission reductions in states that are included (which do contribute significantly to nonattainment), via transfer of

emissions allowances from the former to the latter. States not subject to CAIR are, of course, free to set in-state emission reduction requirements independent of the multi-state emissions trading program.

V.D.5.
Comment:

Dividing the country into attainment and nonattainment areas is an outmoded concept. Instead, EPA should consider forming a $PM_{2.5}$ transport region or using other parts of the CAA to level the playing field.

Air quality planning with respect to $PM_{2.5}$ is much different from the ozone-dominated planning of the past, so policies may have to be revisited. The basic premise of the Clean Air Act has been that a nonattainment area is on its own to devise stratagems to come into attainment, while attainment areas are, by definition, off the hook for reducing pollution (except to the extent that they have to meet national emission standards for new sources and meet Prevention of Significant Deterioration (PSD) increments). The conceptual premise of dividing the country into attainment and nonattainment areas should be reconsidered.

Maryland believes that we can no longer rely on this false and ineffective dichotomy of attainment and nonattainment designations for achieving the $PM_{2.5}$ standards. We are all in this together.

With the proposed CAIR, EPA has now gone on record to support the assertion that 29 states plus DC each significantly contribute to each other's $PM_{2.5}$ problem. Maryland believes new policies are in order to reflect EPA's assertion.

Maryland supports a larger conceptual framework to deal with the $PM_{2.5}$ problem. In its $PM_{2.5}$ boundary recommendation letter, Maryland suggested establishing a 'primary control region.' In the primary control region, Maryland believes all the states identified as significant contributors to the $PM_{2.5}$ nonattainment problem should be required to control emissions from all sources where a cost effective control measure is available and being implemented by nonattainment states. This regional control base case will 'level the playing field' and ensure that all reasonable control programs are being implemented in the 'area of influence' that affects the nonattainment areas.

This framework means that controls beyond those envisioned by the proposed CAIR will need to be required in regions much larger than nonattainment areas. This framework could be implemented through national rules or through section 110.

If $2500/ton is the dividing line for 'highly cost-effective' controls, then all measures costing less than $2500/ton should be implemented in the primary control region. RACT and RACM requirements should also be implemented across the area of influence or primary control region. Once those highly cost-effective control measures are exhausted, the playing field will only be level at the point where marginal reduction costs in upwind areas equal marginal reduction cost of local controls in nonattainment areas.

To the extent that national rules or section 110 are inadequate to compel sufficient regional controls, the proposed CAIR establishes both the technical and legal rationales for establishing a $PM_{2.5}$ transport region under section 176A of the CAA. Maryland believes the formation of a $PM_{2.5}$ transport region may be the next logical step considering that EPA has defined the significant contribution threshold and issued a finding that the SIPs in the 29 states and DC CAIR region are substantially inadequate to attain the new $PM_{2.5}$ standard. If necessary, EPA may need to establish a $PM_{2.5}$ transport region to 'level the playing field.'

Response:

The conceptual framework for dealing with $PM_{2.5}$ will be addressed in the future in the PM implementation rule. EPA is utilizing the existing Clean Air Act structure using section 110(a)(2)(D) to deal with significant contribution to nonattainment areas.

V.D.6.

Comment:

Western States Face a Different Set of Air-Related Issues than Eastern States - NPPD (Nebraska Public Power District) supports reasonable multi-pollutant control programs aimed at achieving the health and environmental goals established under the Clean Air Act. In the case of the Eastern United States, a comprehensive multi-pollutant control program can be an effective framework for implementing these goals and requirements in the most economic and efficient manner possible. The same compelling case cannot be made with regards to the remaining Western States. This is reflected by the fact that very few areas in the West will be designated as nonattainment for the new $PM_{2.5}$ or 8-hour ozone standards. Furthermore, air quality modeling does not show strong linkages between areas expected to be designated nonattainment and interstate transport of power plant emissions in the West. This difference greatly diminishes the need to include the West in the IAQR control program.

Response:

The final CAIR does not require emission reductions from western States.

V.D.7.

Comment:

In our earlier comments for the Clean Air Interstate Rule and Rule Supplement, Minnesota Power noted that Minnesota should not be grouped with eastern states targeted for CAIR air quality nonattainment controls for several reasons, including:

- Minnesota is an air quality attainment state

- Minnesota is implementing voluntary emission reductions under programs such as Clean Air Minnesota and the Xcel Energy Metropolitan Emission Reduction Proposal (MERP) that have not been given consideration in EPA modeling.

- Minnesota is not significantly contributing to ozone or $PM_{2.5}$ standard nonattainment in other states.

- The REMSAD modeling is subject to overstatement of nitrates compared to monitor measurements, typically by a factor of three.

- REMSAD modeling exhibits significant variability, in the range of +/- 2 micrograms per meter cubed per year.

Minnesota Power values good air quality and has helped implement measures that have contributed to Minnesota's status as an air quality attainment state. The science of emissions transport does not justify grouping of Minnesota with eastern states targeted by CAIR based on modeled transport and significance of contributions to nonattainment. Rather, Minnesota is more appropriately grouped with western states (e.g. Clear Skies Act Zone 2) where preservation of air quality attainment and action to address regional haze are of concern, rather than local NAAQS nonattainment.

Response:

EPA's air quality modeling indicated that Minnesota's contribution to $PM_{2.5}$ nonattainment in Cook County, IL exceeded the threshold for significant contribution. Minnesota's own attainment status is not relevant under 110(a)(2)(D).

EPA has replaced the REMSAD modeling platform with CMAQ, addresssing the comments regarding modeling of nitrates.

V.D.8.

Comment:

Minnesota has a long history of leadership on environmental issues and all Minnesotans value clean air. Our state has been in the forefront of creating innovative programs that have reduced emissions and ensured the benefits of clean air while allowing for the continued expansion of our economy. We are concerned, however, that the CAIR as proposed will impose significant casts on Minnesota's utilities without significant benefits.

As I understand it, the CAIR seeks to further reduce emissions of sulfur dioxide (SO2), nitrogen oxides (NOx) and particulates from utility power plants in 29 eastern state and the District of Columbia. However, by grouping Minnesota in the east with states that have far greater emissions, CAIR would impose hundreds millions of dollars in additional costs on Minnesota electric costumers. These costs are neither consistent with Minnesota's federal air quality attainment status nor Minnesota's utility companies investments to achieve low emission rates.

We support EPA's efforts to improve air quality for out nation. However, EPA should also appropriately recognize regional differences and reward, not punish, states that have already taken action to address these issues.

Response:

The contribution analysis for Minnesota has considered the efforts of Minnesota sources to reduce their emissions. More specific responses on this are givin in section XI.B of the

Response to Comments. Minnesota's own attainment status is not relevant under CAA section 110(a)(2)(D). Minnesota's contribution to $PM_{2.5}$ nonattainment in Cook County, IL was modeled to be 0.21 μg/m3.

V.D.10.
Comment:
Significant Contribution Determination Should Recognize Differing Health Effects of $PM_{2.5}$ Subspecies:

Research aimed at determining whether different $PM_{2.5}$ subspecies pose differing health threats is showing $PM_{2.5}$ that results from EGU NOx and SO2 emissions pose a significantly lower threat than other $PM_{2.5}$ subspecies. The EPA should modify the air quality component of its significant contribution determination and incorporate these findings into its process used to determine the extent of additional Phase II reductions from EGUs.

Response:
This issue is addressed in section III.A of the CAIR preamble.

V.D.11.
Comment:
Independent Evaluation of NOx and SO2 Emissions Contributions:

EPA's modeling evaluated the contribution to downwind nonattainment areas by zeroing out a States total manmade NOx and SO2 emissions. EPA then identified each state's contribution to the nonattainment areas by predicting the change in the $PM_{2.5}$ concentration. This approach does not differentiate between the individual contributions of NOx and SO2 to the $PM_{2.5}$ nonattainment. EPA has acknowledged that sulfates are the larger contributor to $PM_{2.5}$. Unless EPA separately evaluates the NOx and SO2 contribution to $PM_{2.5}$, there is no assurance that there is a basis for including NOx in the IAQR. Otter Tail Power Company believes that EPA must model NOx and SO2 separately to determine the contribution of each pollutant to the nonattainment area.

Response:
This issue is addressed in section III.A of the preamble.

V.D.12.
Comment:
A Nationwide Cap-and-Trade System is the Most Cost Effective Way to Achieve Emissions Reductions:

As commented on by MidAmerican in Docket ID No. OAR-2003-0053 on March 26, 2004, Iowa Code §476.6(22)(c) requires rate-regulated utilities in Iowa to develop a multiyear plan and budget for managing regulated emissions from their coal-fired facilities in a costeffective manner. In the biennial plan, MidAmerican is required demonstrate that it has reasonably balanced costs, environmental requirements, economic development potential, and the

reliability of the electric generation and transmission system. A nationwide cap and trade program would maximize the ability to achieve cost effective reductions. Therefore, MidAmerican favors a national approach with broad applicability that provides MidAmerican the flexibility to determine how best to comply while balancing the costs, environmental requirements, economic development potential, and the reliability of the electric generation and transmission system.

Response:

The issue of national application of the CAIR is addressed in section I.E of the Response to Comments. If the CAIR emission trading region were to extend beyond the states determined to contribute significantly to nonattainment in another state, it could be possible for this to result in emissions increases in states that do contribute significantly, via transfers of allowances.

V.D.13.

Comment:

As proposed in the IAQR, EPA has made a preliminary finding that air pollutant emissions from sources located in the State of Iowa contribute significantly to nonattainment of a National Ambient Air Quality Standard (NAAQS) in at least one downwind state. In light of the technical concerns listed in section two of these comments, Adequacy of Supporting Technical Information, EPA has not reasonably established a determination of significant contribution to downwind nonattainment of the $PM_{2.5}$ or 8-hour ozone NAAQS for emission sources located in the State of Iowa. Such a finding, in light of the numerous and compounding technical errors, can not be reasonably substantiated.

Proposing to hold emission sources in the State of Iowa to a higher environmental standard than others maintaining compliance with all of the NAAQS creates an undue burden that has not been justified by the supporting technical analysis conducted by EPA for this rulemaking. EPA should conduct adequate culpability determinations (as described in section 2) or implement a national emission control program that treats emission sources in all states equally. As such, the State of Iowa should not be held to any emission control standard greater than that of any other state meeting attainment of the NAAQS.

EPA should provide an explanation as to why the stayed 8-hour findings developed in support of the NOx SIP Call were not considered as part of the IAQR. EPA should review the 8-hour findings and explain discrepancies between those findings and the culpability determinations being provided in the IAQR.

EPA should provide adequate scientific justification for the culpability levels used to determine states significantly contributing to downwind nonattainment. In particular, EPA should address inconsistencies such as the percentage of the NAAQS considered significant for 8-hour ozone as compared to fine particulate matter and codified levels of significance such as those provided for particulate matter in 40 CFR 51.165.

Response:

The technical issues have been addressed in the section III of the CAIR preamble and in section XII of this Response to Comment Document. EPA discusses the 8-hour findings and the

NOx SIP Call in section III.B. of the CAIR preamble. The comment pertaining to signicant contribution is addressed in section III.D. of the preamble.

V.D.14.
Comment:

We concur with EPA's finding that interstate transport is not an issue affecting attainment of NAAQS in the western United States, including Arizona.

In the proposed rulemaking, EPA asks for specific comment on expanding the geographic scope of the IAQR to include Arizona and other western states. EPA indicates that this expansion could serve as a 'suitable mechanism' for assisting these states in meeting the requirements of regional haze regulations.

Given that the IAQR was designed to address attainment concerns and that a number of the states in the West, including Arizona, have already made significant progress in preparing plans for compliance with the 1999 regional haze rulemaking, there seems to be no clear rationale for expanding the IAQR to address both NAAQS and regional haze.

Response:

The final CAIR does not address interstate contributions to regional haze.

V.D.15.
Comment:

EPA has signaled the possible extension of the IAQR to states west of the contemplated control area by inviting comment on the ability of the proposed rule to meet BART and other requirements under the Regional Haze program. MidAmerican believes that establishing an emissions reduction program that extends throughout the United States will better assist in overall achievement of air quality improvements at lower overall costs. The IAQR's goal to reduce emissions deemed to 'significantly contribute' to a downwind state's nonattainment of the 8-hour ozone and $PM_{2.5}$ standards may result in a substantial inequity in particular states. For example, the entire State of Iowa is in attainment of the standards in question; however, it is being called upon by EPA to reduce its emissions of NOx and SO2 by approximately 70 percent based on the analysis by EPA that it significantly contributes to one or more area(s) that have been designated as not attaining the standards. The IAQR does not take into consideration the fact that Iowa's emissions are impacted by other states (perhaps to an extent greater than Iowa's contribution to other states' nonattainment) and that but for the influence of emissions from other states, Iowa would likely not have been deemed to be a significant contributor to downwind nonattainment.

A national program requiring emissions reductions nation-wide avoids the inequitable effect of arbitrarily drawn significance criteria and the artificial barriers of state boundaries. MidAmerican encourages EPA to address this inequity by either re-evaluating the significance threshold or considering a nation-wide program of emissions reduction to avoid the economic and air quality disparities in boundary states, including Iowa.

Response:

EPA does not agree that the CAIR treats Iowa inequitably compared to other states, given the requirements of CAA section 110(a)(2)(D). Other issues are addressed elseewhere in the Response to Comments. EPA does not understand the statement that Iowa's emissions are impacted by other states and/or by emissions from other states. A state's emissions are by definition from sources within its boundaries.

V.D.16.

Comment:

The geographic coverage of the program and the industry sectors it addresses need to be expanded to include all regionally-significant points sources of SO2 or NOx in order to enable the implementation of viable and timely regional attainment demonstrations.

Response:

This issue is addressed in section I.E and IV.B of the Response to Comments.

V.D.17.

Comment:

EPA has developed a proposal that addresses only some of the identified problems of interstate transport of ozone and PM ambient precursors in the US. Because all of the country is subject to the ambient standards and areas in many different parts of the country show violation problems, a coherent national plan should be developed to address the transport problems. A great majority of the states and emission units in the continental 48 states have already been demonstrated to impact areas outside their state boundaries in regard to ozone and/or PM-2.5 concentrations and it is clear from EPA's own assessments that at least 41 of the states east of the continental divide contribute at some level to both regional haze and ambient concentrations of PM-2.5 and/or ozone precursors in areas outside their boundaries that exhibit elevated concentration levels.

Response:

On the 28 states included in the final CAIR have been determined to contribute significantly to nonattainment in another state.

V.D.18.

Comment:

Any significant level of demonstrated impact calls into question an area's capability to maintain the ambient standards. Hence, it seems most logical that the entire continental area should be addressed by this program of emission reductions for the source sectors shown to most impact ambient air quality. At minimum, EPA should be looking at impacts on a much larger set of 'potential' nonattainment and 'maintenance' areas that exhibit ambient concentrations close to the level of the ambient standards in order to determine significant contribution. A metric that could be utilized would be all receptor areas within 10 percent of the level of the standard. Historic and current-draft air quality criteria documents for PM-2.5 and ozone indicate significant public health impacts at levels well below the current standards, at least for the more sensitive populations at risk.

At a more regional level, the proposal asks questions regarding the appropriate threshold for evaluation of areas to be included in the proposal and for assessing potential benefit of the emission control investments. A problem with the basic question is that EPA has only identified impacts on the projected residual nonattainment areas for ozone and PM-2.5 as the criteria for program inclusion as noted above. In reality, a much larger U.S. population base than discussed or evaluated, including millions of additional citizens, which stand to benefit from the direct reduction in ambient PM-2.5 and ozone associated with a comprehensive program. The nominal level of the standard is actually 0.08 ppm, not 0.084 ppm for ozone, and the federal courts have noted that 0.08 ppm is not the lower threshold of the demonstrated health ozone impact on sensitive populations.

Response:

Maintenance considerations are addressed in section III.E of the Response to Comments. While important, public health considerations are not directly a consideration under CAA section 110(a)(2)(D).

V.D.19.

Comment:

At this time, EPA is actively investigating a potential significant reduction in the threshold for the annual and daily PM-2.5 standards through its criteria review and updating effort. Yet the potential benefits of an expanded program which can substantially lower ambient levels in many areas, and which can better ensure maintenance of the standards in the likely attainment areas has not been assessed. As a consequence, EPA should be pursuing the lowest meaningful threshold to determine if areas should be included in the EGU control region.

Response:

EPA's action should be and is based only on the current ozone and $PM_{2.5}$ NAAQS, under section 110(a)(2)(D).

Since this proposal now focuses on the electric generation industry, which is connected through a national grid of power transmission and fuel supply corridors, a continent-wide program will be much more able to prevent inter-regional power market anomalies and artificial economic signals regarding the appropriate location of power capacity additions in the form of new coal-based power plants. EPA's modeling shows a modest impact of differential control requirements on both the location of facilities and on the sources of coal utilized to meet new demand. Therefore, any program directly impacting this sector should ensure that the strongest level of emission reduction is installed and that regions are not inappropriately advantaged or disadvantaged through these requirements. This will ensure an efficient and competitive industry without compromising local or regional environments. Even if EPA does not address a broader regional scope for the discrete emission budgets for the Phase 1 and 2 targets, it should establish minimum performance targets that are industry-wide in scope and should ensure that PSD assessment is taken in its broadest interpretation.

Response:

Issues of control level are discussed in section VI of the Response to Comments.

V.D.20.
Comment:

EPA should not add Nebraska to the Interstate Air Quality Rule without undertaking a notice-and-comment rulemaking.

EPA proposes an annual $PM_{2.5}$ significance level of 0.15 mg/m3 for determining a reasonable threshold of significance level for interstate transport. 'We (EPA) therefore propose to adopt an annual $PM_{2.5}$ significance level equal to 1 percent of the standard. We (EPA) believe that contributions equal to or greater than 0.15 mg/m3 would reflect a reasonable threshold for determining significant levels of interstate transport.' Applying this value as a proposed cutoff to the results of the impact transport assessment identifies 28 States and the District of Columbia as contributing to nonattainment in downwind states. EPA also discusses their analysis of using a significance level of 0.10 ug/m3. Adoption of this level would result in the inclusion of 2 additional states.

The state of Nebraska is not identified as contributing to nonattainment in downwind states at significance levels of 0.15 mg/m3 or 0.10 mg/m3. The proposed significance levels of 0.15 mg/m3 and 0.10 mg/m3 are extremely low thresholds for the level of emissions transport hat will make States subject to the rule. The significance level would need to be lowered for Nebraska to be identified as contributing to nonattainment in downwind states. When discussing the significance level of 0.10 mg/m3 the EPA states that 'an increment of this size in the annual average $PM_{2.5}$ concentration is the smallest one that can make the difference between compliance and violation of the NAAQS, due to the treatment of significant digits and rounding in the definition of the NAAQS.' Based on the EPA's own argument, the significance level should not be lowered below 0.10 ug/m3.

Prior to Nebraska being included in a rule as a source significantly contributing to $PM_{2.5}$ nonattainment areas downwind, there should be a notice-and-comment rulemaking. This would allow sources in Nebraska to review the basis for the proposed rule (for example, the rationale or scientific basis) and submit appropriate comments.

Response:

The significance criterion for $PM_{2.5}$ is 0.2 ug/m3. The rationale for this criterion is section III of the preamble. The maximum contribution from Nebraska to downwind $PM_{2.5}$ nonattainment is 0.07 ug/m3 which is below the significance threshold and thus, EPA found that Nebraska is not making a significant contribution to $PM_{2.5}$ nonattainment in other States.

V.D.21.
Comment:

We believe North Dakota should not be included in the Interstate Air Quality Control Rule as written. The contribution from North Dakota sources is extremely small based on questionable regional low resolution modeling techniques.

Response:

North Dakota is not included in CAIR based on the 0.2 ug/m3 significance level. -2003-0053-0935

V.D.22.

Comment:

EPA needs to conduct independent evaluations of NOx and SO2 emissions contributions.

EPA's modeling evaluated the contribution to downwind nonattainment areas by zeroing out a States total manmade NOx and SO2 emissions. EPA then identified each state's contribution to the nonattainment areas by predicting the change in the $PM_{2.5}$ concentration. This approach does not differentiate between the individual contributions of NOx and SO2 to the $PM_{2.5}$ nonattainment. EPA has acknowledged that sulfates are the larger contributor to $PM_{2.5}$. Unless EPA separately evaluates the NOx and SO2 contribution to $PM_{2.5}$, there is no assurance that there is a basis for including NOx in the IAQR. The LEC believes that EPA must model NOx and SO2 separately to determine the contribution of each pollutant to the nonattainment area.

Response:

This issue is addressed in section III.A of the preamble.

V.D.23.

Comment:

Scientifically, EPA's proposal is seriously flawed and underdeveloped. An example of flaws in EPA's modeling include the arbitrary establishment of 0.15 ug/m3 as the $PM_{2.5}$ contribution level considered 'significant'.

Response:

Air quality modeling was not used to establish the significance criteria for $PM_{2.5}$. The rationale for the final 0.2 ug/m3 significance criteria for $PM_{2.5}$ is in Section III .C of the preamble.

V.D.24.

Comment:

The significant contributor classification should be redefined NRG suggests the applicability determination for a significant contributing jurisdiction be redefined. Specifically, EPA should redefine downwind contributors on the basis of Air Quality Control Regions, rather than on the basis of an entire state. NRG has sources in AQCRs that may not have a 'significant' impact on $PM_{2.5}$ or Ozone nonattainment areas but are subject to the IAQR for the sole reason that they are located within states having sources in AQCRs that do have such impacts.

Response:

The issue of using states as the unit of analysis for contribution findings is addressed below in response to comments regarding west Texas and southern Florida.

V.D.25.

Comment:

Page 4584, Column 2, Line 51 - 'The EPA requests comments on the appropriate geographic scope of this proposal and the merits of the proposed 0.15 μg/m3 threshold level as indicating a potentially significant effect of air quality in nonattainment areas in neighboring states. We request comments on the use of higher and lower thresholds for this purpose.'

While EPA does not present a compelling case for any number to be associated with significant impact, the use of a small percentage of the NAAQS to determine significant impact is consistent with the principles used in the new source review program. However, the use of state boundaries to determine significant impact from sources is questionable. For example, a large NOx and SO2 utility source in extreme southwestern Missouri has the same impact as an identical utility source in extreme northeastern Oklahoma. Therefore, the control of these two sources should be identical with respect to the downwind impacts from each. In addition, the controls associated with this rulemaking are also proposed to help mitigate regional haze impacts on federal Class I areas. This leads to the conclusion that each state with a 'significant impact' on a Class I area should be required to meet the control requirements of this rule.

Page 4612, Column 1, Line 1 - 'However, as noted above, we are requesting comment on an approach that would incorporate the effect on downwind States as part of the cost effectiveness component of significant contribution.'

During the OTAG process, the concept of control dollars vs. concentration difference was discussed extensively ($/ppb). This comparison could be completed on a state by state (or regional) basis for each downwind area using either an average downwind impact or a maximum downwind impact on a particular area. This would allow a meaningful comparison of tonnage reduced vs. concentration difference. It would be logical to assume a higher $/ppb impact from states that are more distant from a downwind area (cost of control on Missouri sources would be higher for the same downwind impact on Geauga, OH compared to Crittenden, AR). This concept should be used to provide an equivalency of cost for comparison with local control costs. EPA should use an average downwind impact for consideration of cost vs. impact in this manner.

Response:

The issue of using states as the unit of analysis for contribution findings is addressed below. The issue of cost per ambient ipact is addressed in section II of the CAIR preamble.

V.D.26.

Comment:

In order to determine which upwind areas should be controlled to help remedy projected downwind nonattainment, EPA reviewed modeling results regarding the regional transport of the relevant pollutants and precursors. For $PM_{2.5}$, EPA used a 'zero-out' approach to evaluate the impact modeling, both with and without each state's man-made NOx and SO2 emissions. The Agency compared the predicted downwind concentrations in the 2010 base case, which included the state's NOx and SO2 emissions, to the zero-out case which excluded all of the state's NOx and SO2 emissions. EPA identified which states were significantly contributing to downwind nonattainment, based on the magnitude of the predicted change in the $PM_{2.5}$ concentration in the

downwind nonattainment area, which received the largest impact.

Alliant Energy believes that the Agency's methodology for determining the 'significant contributors' to downwind nonattainment is flawed and results in inequities by failing to take into account the disproportionate impacts some upwind contributors have in the downwind nonattainment areas. These differences should be reflected in the determination of which states are significant contributors and also the determination of state budgets. To address this situation, we recommend that EPA should use additional metrics to get a truly accurate measure of the 'significance' of an upwind contributor's NOx and SO2 emissions.

In the case of both $PM_{2.5}$ and ozone, EPA did not measure 'significance' in terms of the actual downwind human exposure resulting from an upwind contribution. By excluding a population-weighted metric from its analysis of the air quality data, the IAQR proposal takes on a 'one rule fits all' type of approach. Furthermore, in the $PM_{2.5}$ analysis, EPA does not examine the relative amount that each upwind contributor contributes to a downwind receptors' nonattainment. It measures significance only in terms of magnitude of the relevant contribution. We recommend that such disproportionate impacts should be taken into account in determining which states warrant inclusion under the IAQR and in setting state budgets.

Alliant Energy believes that EPA should use a relative-contribution approach to setting state budgets. As with EPA's methodology for determining which areas contribute significantly to downwind nonattainment, the Agency employs an overly broad approach to setting statewide and regional NOx and SO2 budgets that unreasonably ignores the causes of downwind nonattainment. Under its approach, EPA sets the emission budgets for the states without reference to the impact of those states' individual contribution to downwind nonattainment. For example, EPA's proposed SO_2 budget simply would be a uniform reduction of each affected states' Acid Rain Program allowances - by 50 percent in 2010 and 65 percent in 201 5. For NOx, the proposal would set state budgets based on a uniform basis of each state's highest annual heat input for Acid Rain Program units during 1999-2002, multiplied by an emission rate of 0.15 lb/mmBtu for 20 10 and 0.125 lb/mmBtu for 2015.

Response:

These issues are addressed in section II of the final CAIR preamble.

V.D.27.

Comment:

We request that EPA exclude those states, primarily North Dakota and Texas, which already have low emissions and otherwise are not shown to have a measurable impact on downwind nonattainment areas.

Response:

Based on the 0.2 ug/m3 significance level in the final CAIR rulemaking, North Dakota is not included in CAIR. However, our analysis indicates that Texas does contribute significantly to PM nonattainment areas.

V.D.28.
Comment:

In the Eastern U.S., the regional contributions of $PM_{2.5}$ mass to the annual average concentrations at urban locations is estimated by EPA to be in the range of 50-60 percent, which equates to a concentration of between 10 and 13 ug/m3. For many rural areas, average $PM_{2.5}$ levels exceed 10 ug/m3 and are often not much below the annual $PM_{2.5}$ NAAQS of 15 ug/m3. CEG believes that this evidence provides more than adequate justification for the NOx and SO2 reductions from sources in states covered under the proposed rule.

Response:

We agree with this comment.

V.D.29.
Comment:

Tri-State concurs with the technical analysis conducted by EPA that concludes that Colorado and New Mexico do not significantly contribute to nonattainment of the NAAQS for fine particles ($PM_{2.5}$) and ozone in downwind states.

Response:

EPA is making no finding regarding Colorado and New Mexico.

V.D.30.
Comment:

The proposal and supporting technical information includes the results of modeling conducted to determine the maximum downwind impact of each state on $PM_{2.5}$ concentrations in areas that are nonattainment for the standard. Information was also included on cumulative downwind impact of each state. The conclusion regarding which states would be affected by the rule was based solely upon maximum downwind impact at a single point. Why were cumulative impacts not included in consideration of which states should be included in the proposed rule?

Response:

This issue is addressed in section III.C of the preamble.

V.D.31.
Comment:

EPA should provide more justification for its selection of 0.15 ug/m3 as a significance level for fine particles.

Response:

In the final CAIR, we selected 0.2 ug/m3 as the significance level. This is discussed in section III of the preamble.

V.D.32.
Comment:

Several commenters argued that EPA should include only part of certain states in the

CAIR requirements.

One group of commenters contended that West Texas (Texas west of I-35) should be excluded, arguing that:

- Even if East Texas did impact downwind nonattainment areas, West Texas should still be excluded. Plants in West Texas are more than a thousand kilometers from the problem regions and upwind of states that EPA has already found do not contribute significantly to nonattainment. The contribution of West Texas plants to nonattainment areas is well below even EPA's proposed significance level. In addition to being generally lower emitting units and substantially further away from Eastern nonattainment areas, the total coal-fired generating capacity in West Texas is much lower than in East Texas. Indeed, the nameplate coal capacity in West Texas is less than 15 percent of the total coal capacity in Texas.
- The CAIR should not split the commenter's power generation system into two parts, which would occur if Minnesota and West Texas were assigned to the East. Splitting the commenter's system between East and West would create operational difficulties and eliminate many of the synergies and savings on which customers and the commenter rely.
- EPA apparently proposed to include West Texas in the rule for administrative convenience; the Agency simply did not want to divide any states, even a state as big as Texas.
- If West Texas is included in CAIR, power plants in West Texas would be forced to reduce emissions (or purchase allowances), while plants in Oklahoma downwind of West Texas and between West Texas and the nonattainment areas would be free from further regulation.
- EPA has clear legal authority to separate Texas into two parts and exclude West Texas. It clearly has the authority to exclude a portion of a state from requirements to address the interstate transport of pollution. The Clean Air Act requires a state to prohibit 'any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will -- (I) contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to [a national ambient air quality standard].' Section 110(a)(2)(D)(i). As the U.S. Court of Appeals for the District of Columbia Circuit (D.C. Circuit) recognized with respect to this provision, '[o]n its face the statute neither mandates nor prohibits an all-or-nothing statewide perspective.' State of Michigan v. EPA, 213 F.3rd 663, 682 (D.C. Cir. 2000). In that case, EPA had included the entire states of Georgia and Missouri in its rule to reduce the interstate transport of NOx (the NOx SIP Call, 63 Fed. Reg. 57356 (October 27, 1998)) even though only the 'fine grid' portions of those states were shown to be significantly contributing to downwind ozone nonattainment areas. The D.C. Circuit found that EPA had only included the entire states in its rule for 'administrative convenience' and, consequently, vacated the NOx SIP Call rule with respect to Georgia and Missouri and remanded it to EPA. In response to the court's remand, EPA revised the NOx SIP Call to exclude the 'coarse grid' portions of Georgia, Missouri, Alabama and Michigan from the rule. 69 Fed. Reg. 21604 (April 21, 2004).

Another commenter disagreed with EPA's inclusion of all Florida units as a contributor to downwind $PM_{2.5}$ non-attainment areas. This commenter believes that EPA has erred in the determination that all Florida electric generating units contribute to the $PM_{2.5}$ non-attainment status of downwind state counties and should meet the emissions reductions requirements of the CAIR. The commenter argued the following points:

- It is difficult to imagine, that on a peninsular state such as Florida, a plant in Brevard or Palm Beach County can be contributing to $PM_{2.5}$ non-attainment areas in Georgia or Alabama. EPA s determination will burden affected states with the costs of emissions control equipment or allowances that are unnecessary and will not provide meaningful air quality improvements in non-attainment areas.
- Under the requirements of Section 126 EPA modeled the contribution of sources to downwind non attainment to determine the extent of necessary reductions under the NOx SIP Call. The process used by EPA in that rulemaking illustrated that contribution by some of the sources in a state to the non-attainment status in a downwind state required the reduction from those sources and not all similar sources. In the NOx SIP Call final rule, it was determined that in Georgia only those sources above the 32nd parallel would be affected by that rule, since these sources were the primary contributors to downwind non attainment.
- A similar approach must be used in the evaluation of the $PM_{2.5}$ impacts to determine which sources are adversely impacting a non attainment area. FPL Group request that EPA utilize a fine grid model to better determine which units are actually contributing to downwind $PM_{2.5}$ non attainment. Following this fine grid modeling EPA should re-determine which portion of the state or states should actually be included in the requirements to meet the CAIR reductions.

Response:

The commenters are correct that EPA is not legally mandated to assess significance of contribution on a statewide basis, and so need not adopt CAIR controls. State of Michigan v. EPA, 213 F. 3d 663, 682 (D.C. Cir. 2000). EPA's choice of statewide significance of contribution determination and statewide controls, however, is entirely reasonable. First, state boundaries are a natural demarcation point, since they reflect an autonomous political entity. The Act's structure confirms this. The SIP process is statewide. Similarly, section 110 (a) (2) (D) prohibits emissions from States which contribute to nonattainment, or interfere with maintenance, in another State.

Moreover, although EPA may assess significance of contribution on a less-than-statewide basis, EPA is unsure of where to draw the line. Once the logical state boundary is jettisoned, selecting smaller areas would have elements of arbitrariness. Should divisions be county-wide? Some arbitrary number of miles? Some geographic boundary (which would necessarily vary state-by-state)? Source-by source? See State of Michigan, 213 F. 3d at 679-80 upholding EPA's approach of adopting uniform controls notwithstanding the differential air quality impacts of the emitting sources.

We also stress the air quality component of our rationale for determining significance of contribution on a statewide basis. Receptors do not differentiate the source of the $PM_{2.5}$ or ozone to which they are exposed. The impact remains the same regardless of the source. This leads us to a further air quality concern with partial-State contribution schemes. In most states, including Texas and Florida (the two states mentioned by commenters as candidates for subdivision), the power generation grid is interconnected. This means that power generated in part of a state can be readily routed to any other part of the state. Control of sources in only East Texas thus could lead to a situation where capacity is increased in West Texas, power is routed back to east Texas, and downwind receptors remain exposed to the same or similar level of $PM_{2.5}$ and ozone emissions. EPA's statewide approach avoids this real possibility of creating such in-state pollution havens.

Some commenters nonetheless maintained that EPA should use an east/west Texas division for determining significance of contribution, defining 'west' to be any EGU west of Highway I-35. The commenter noted that nameplate coal capacity in West Texas (presumably west of I-35) is 15 percent of total coal capacity (a rough proxy for emissions), and alleged that viewed alone, West Texas EGUs would be below the significant contribution level. The commenter also alleged that West Texas (as defined in the comment) is upwind of states EPA has found do not contribute significantly. The commenter did not provide any modeling to support its position, but did note that an east-west division along the lines it suggested would spare the company administrative inconvenience.

We do not believe that this comment renders EPA's approach unreasonable. We reiterate that a statewide measure of significance of contribution remains the most natural division. We further note that the commenter does not question that emissions from Texas as a whole contribute significantly to nonattainment in upwind states, and that controls on EGUs in Texas (including West Texas) are highly cost effective. We also see nothing in the comment that would satisfy our concern that a partial state division could easily lead to diversion of generating capacity to uncontrolled units in the western part of the State, leading to the situation where significant contributions to nonattainment remain uncontrolled. See State of Michigan v. EPA, 213 F. 3d at 684 (noting the possibility that adopting less-than-statewide boundaries for assessing significance of contributions can artificially eliminate control of emissions which in fact do contribute significantly to nonattainment).

The other commenter was less specific, merely alleging that certain sources in the southern, peninsular part of Florida should not be considered to contribute significantly. The commenter presented no modeling or other supporting information. The above response regarding how to draw the line and what threshold to use for a less-than-statewide assessment applies to this comment also.

Moreover, as in the case of Texas, power generated in one part of Florida can be readily routed to any other part of the state. Control of sources in only northern Florida thus could lead to a situation where capacity is increased in southern Flordia, power is routed back to northern Florida, and downwind receptors remain exposed to the same or similar level of $PM_{2.5}$ and ozone emissions. EPA's statewide approach avoids this real possibility of creating in-state pollution

havens.

Both commenters argued that the situation in this rule parallels that in the NOx SIP Call, where the court held that EPA had failed in two instances to justify statewide controls . 213 F. 3d at 681-85. This is incorrect. In the NOx SIP Call, regional modeling indicated affirmatively that emissions from certain outlying parts of Georgia, Missouri, and several other states (the multi-state "coarse grid" portion of the multi-state modeling domain) did not contribute as strongly to nonattainment in other states as portions of those states lying closer the center of the ozone transport region (the "fine grid" portion). 213 F. 3d at 683. There is no such demonstration in this rule. For $PM_{2.5}$, the modeling domain has only one uniform grid size. Nor is EPA relying here on grounds of administrative convenience to justify a statewide approach, as the commenters mistakenly allege. See id. at 327. Rather, as explained above, EPA has chosen a statewide approach for technical and air quality reasons which EPA believes remain reasonable .

VI. CONTROL LEVEL FOR SO_2 AND/OR NOX

VI.A. Much lower levels are highly cost effective

Comment:

Some commenters argued that the SCR cost ($80/kW) used by EPA in its analyses is too low. Citing certain NOx SIP Call SCR installations, one commenter indicated that the average SCR cost in 2003 was $120/kW. The other commenter indicated that, based on experience from eight SCR installations, a reasonable cost range for SCR would be $75 to $200/kW. This commenter also felt that EPA's FGD costs are more reflective of costs for larger systems and may understate these costs for mid-size or smaller units. Another commenter cites a recent increase in the steel price as a contributing factor for the increased SCR price.

Response:

The EPA notes that, for the final rule, the SCR cost factors used in the IPM have been revised upward to reflect the current industry experience, including effects of increases in the steel prices and construction costs. We based this revision on the actual costs that have been reported in the industry for a large number of recent SCR installations.[42] As a result of this revision, the capital cost for the base unit was revised from the existing $80/kW to $100/kW. It should be noted that, in the IPM, this capital cost of $100/kW is reported on a year-1999 dollar basis. Therefore, the effect of inflation must be taken into account, when this cost is compared to the SCR costs reported by the commenters for the 2002-2003 period.

The EPA cost factors reflect an economy of scale. For example, the $100/kW cost for SCR used in the final rule is for a specific unit size (approximately 243 MW) and scaling correlations are used to adjust this cost to units with different sizes. Therefore, rather than an average cost factor as proposed by one commenter, a range of costs are used by EPA for SCRs retrofitted to different size units. Use of SCR costs based on an economy of scale is supported by the available industry data used to determine the EPA cost factors.

The EPA also notes that the cost data provided by the commenters is based on information from a limited number of SCR installations. The commenters have also not furnished any supporting information with these costs to allow EPA to analyze them and compare them with its own cost factors. For example, the range of costs ($75-$200/kW) provided by one commenter has no defined basis, i.e., the number and MW sizes of units applicable to this cost range are not provided. Also, the commenter provides no justification for the substantial difference between the low and high ends of this cost range. If the higher cost ($200/kW) includes extra scope or modifications that would generally be not required for a typical SCR retrofit, this cost cannot be used to determine the impact on the entire industry.

[42]S. Khan and R. Srivastava, "Updating Performance and Cost of NOx Control Technologies in the Integrated Planning Model," Mega Symposium, August 30-September 2, 2004, Washington, D.C. (docket no. OAR-2003-0053-1951)

The EPA has reviewed the SCR cost information provided in the article in Power Magazine, referenced by one of the commenters.[43] The EPA also notes that the same information as provided in this article was submitted as comments to the NPR proposal (see Hunton and Williams LLP for UARG, VII.C-1017, 1024, and 1786). We have addressed these comments in detail elsewhere (see EPA's response to comments on Section VII.C).

It should also be noted that EPA has conducted a sensitivity analysis to evaluate the effect of increasing the 1999 SCR capital and fixed O&M costs by 30 percent (from the $100/kW level) on the predicted marginal costs of NOx control. This analysis shows that even with this level of cost increases, the emission reductions required by this rule would be highly cost effective. As discussed in the preamble to the final rule, EPA determined that NOx control costs lower than $2,500 per ton are highly cost effective. The modeled marginal costs for NOx control using the increased SCR cost assumptions along with the more conservative EIA's projections for electricity growth and natural gas price are $1,600/ton and $2,100/ton for 2010 and 2015, respectively, well below the $2,500/ton benchmark. The EPA notes that, if its own assumptions for the electricity growth and natural gas price were used in this analysis, these marginal costs would have been even lower. This analysis shows that SCR costs can be raised further, above the 30 percent level, without affecting the cost effectiveness of SCR application for CAIR. The EPA's sensitivity model runs are available in the docket.[44]

The EPA considers the comment that its FGD costs understate requirements for mid-size or smaller units as mere speculation. The commenter has provided no data or other information to justify this concern. On the other hand, EPA considers its FGD costs to be highly conservative. Data available from recent published sources show the reported FGD costs to be below the levels projected by the IPM.[4546474849] In addition, EPA also notes that rigorous

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[43]J. E. Cichanowicz, "Why are SCR costs still rising?" April 2004, Power Magazine

[44]See CAIR eDocket for IPM model runs CAIR 2004_EIA_SCR Costs.

[45]"Utility Fax Alert, #698-November 5, 2004," www.mcilvainecompany.com, accessed on November 17, 2004 (docket no. OAR-2003-0053-1943)

[46]M. Miller, et.al., "Centralia Wet FGD System: State-of-the-Art $_{SO2}$ Compliance," Mega Symposium, May 2003, Washington, DC.

[47]W. Priest, "Economics of Lime and Limestone for Control of Sulfur Dioxide," Mega Symposium, May 2003, Washington, DC.

[48]J. Smolenski, et.al., "Tampa Electric Company Phase II FGD System - Big Bend Station Units 1 & 2 - Advanced Design – Low Cost," Mega Symposium, August 1999, Atlanta, Georgia.

[49]C. Weilert, et.al., "Economics of FGD Retrofit vs. Fuel Switching for Phase II Acid Rain Compliance at a Municipal Utility," Mega Symposium, August 1999, Atlanta, Georgia.

verification of its FGD cost estimates was conducted for IPM.[5051] This verification included small, mid-size, and large units.

Examples of the comparison of the above referenced published data with the FGD capital cost estimates obtained from IPM are provided below (for the methodology on IPM estimates, refer to its documentation):[52]

a. In the first footnote, the average capital cost of five FGD retrofits installed on small units ranging in sizes from 141 to 252 MW is reported at $280/kW. The average IPM-projected cost for the same five units, using the wet- limestone FGD system is higher at $330/kW.

b. In the first footnote, the average capital cost of five FGD retrofits installed on medium to large units ranging in sizes from 411 to 745 MW is reported at $119/kW. The average IPM-projected cost for the same five units, using the wet- limestone FGD system is higher at $167/kW.

c. In the second footnote, the capital cost of wet-limestone FGD retrofits installed on two 700 MW units is reported at $103/kW. The IPM-projected cost for the same unit using the wet-limestone FGD system is higher at $149/kW.

d. In the third footnote, the capital costs for a 500 MW unit retrofitted with wet-limestone, wet-lime, and spray dryer systems are reported at $172/kW, $139/kW, and $163/kW, respectively. The IPM projected costs for the same unit using wet-limestone, wet-lime, and spray dryer systems are higher at $181/kW, $147/kW, and $201/kW, respectively.

It is to be noted that the costs reported in the above published data are based on current dollars, whereas the IPM costs are based on 1999 dollars. The difference between the published costs and the IPM-projected costs is, therefore higher, when the IPM-projected costs are adjusted for the current dollars.

Comment:

One commenter has suggested that over recent years the performance of FGD and SCR technologies have improved and costs have come down.

Response:

The EPA agrees with the commenter that, in recent years, there have been improvements in the performance of the FGD and SCR technologies, as more experience has been gained, resulting in more reliable and efficient designs. The costs of FGD technologies have also decreased, with the higher reliability of designs requiring a lower degree of equipment

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[50]"Controlling $_{SO2}$ Emissions: A Review of Technologies," EPA-600/R-00-093, October 2000

[51]R. Srivastava, et. al., "Flue Gas Desulfurization: The State of the Art," ISSN 1047-3289 Air and Wast Management Association 51:1676-1688

[52]"Documentation Summary for EPA Base Case 2004 (V.2.1.9) Using the Integrated Planning Model," EPA 430/R-04-008, October 2004

redundancy as one of the reasons.[5354] The capital costs associated with SCR have risen. However, the operating and maintenance costs have come down, because of the wide use of innovative catalyst life management techniques having a beneficial impact on these costs.[55]

Comment:

One commenter notes that addition of an SCR to an existing unit can limit its cycling ability. The commenter also suggests that the NOx SIP Call SCR installations did not consider cycling provisions in their designs and, therefore, these installations have to spend more funds to add such provisions for CAIR.

Response:

The EPA notes that addition of an economizer bypass has been used in many installations to maintain the cycling capability of a unit being retrofitted with SCR. This bypass allows a portion of the hotter flue gas from upstream of the economizer to be bypassed and mixed with the flue gas entering the SCR, thereby raising the overall gas temperature at the SCR inlet to a range considered appropriate for the SCR operation. The EPA does not believe that any other provisions, such as an SCR bypass, are required for this purpose.

The cost for the above bypass has been considered in the overall SCR cost estimate for CAIR. The EPA finds the commenter's suggestion that the NOx SIP Call SCR installations did not install this bypass as without any basis. However, EPA notes that the cost of this bypass is relatively small.[56] An IPM sensitivity analysis performed by EPA to assess the impact of adding the cost of this bypass to all of the existing SCR units built for NOx SIP Call shows no appreciable impact on the overall cost effectiveness of this rule.[57]

Comment:

One commenter raised a concern that installation of a large number of environmental controls would make it difficult to optimize designs and would result in installation problems and variation in resulting removal efficiencies.

Response:

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[53]"Controlling $_{SO2}$ Emissions: A Review of Technologies," EPA-600/R-00-093, October 2000

[54]J. Staudt, S. Khan, and M. Oliva,"Reliability of Selective Catalytic Reduction (SCR) and Flue Gas Desulfurization (FGD) Systems for High Pollutant Removal Efficiencies on Coal Fired Utility Boilers," Mega Symposium, August 30-September 2, 2004, Washington, D.C. (docket no. OAR-2003-0053-1952)

[55]S. Khan and R. Srivastava, "Updating Performance and Cost of NOx Control Technologies in the Integrated Planning Model," Mega Symposium, August 30-September 2, 2004, Washington, D.C. (docket no. OAR-2003-0053-1951)

[56]"Utility Fax Alert," McIlvaine website, www.mcilvainecompany.com, February 20, 2004 (docket no. OAR-2003-0053-1942)

[57]See CAIR eDocket for IPM model run CAIR 2004_SCR BYPASS_ NOx SIP Call.

The EPA notes that, following the finalization of CAIR, a sufficiently long implementation period would be available for the sources to plan, select, design, construct, and startup the required controls. Proper planning and scheduling of these activities would minimize the types of problems brought up by the commenter. As pointed out by other commenters, the industry has acquired a lot of experience from the large amounts of SCR built for SIP Call and recent increased activity in the installation of FGDs. This experience would facilitate proper design and installation of these controls for CAIR.

Comment:

One commenter argues that the solid waste generated by FGD has environmental consequences and that EPA's waste program and many states are struggling to develop regulatory alternatives to landfilling practices.

Response:

The EPA disagrees with the commenter's interpretation of any outstanding environmental issues associated with the FGD solid waste. This waste is classified as a non-hazardous waste and landfilling is a viable option for it. A vast number of power plants utilizing a variety of FGD systems currently dispose off the wastes from these systems into landfills. The EPA cannot address the "regulatory alternatives" mentioned by the commenter, since no details on this subject have been offered.

The EPA also points out that landfilling is not the only option available to sources installing FGD. Some FGD systems also produce saleable, industrial byproducts, such as gypsum. Sources opting for such systems will not require landfills. In addition, FGD wastes from other systems may also be used for low-level industrial applications, such as a substitute for road base materials, which would reduce the need for landfills for some of the sources.

Comment:

The MPCA acknowledges economic concerns in the choice of cap levels and timing in this proposal. However, as mentioned earlier, $PM_{2.5}$ is a real health threat today. The monetary value of this threat is billions of dollars annually due to premature mortality and other effects. The cost curves presented in the proposal show that EPA has chosen caps below the point where cost effectiveness becomes a concern. We believe that the level of the caps (particularly the NOx cap) could be tightened and still remain within the parameters chosen to represent 'highly cost effective' controls. Because EPA has not modeled the level of air quality improvements expected to be achieved throughout the control region, however, there is no data to judge where on the cost curve would best balance the improvement in air quality with the costs the proposed rule would impose. This information is directly relevant to determining the level of the caps. [[(p.3)]]

Response:

EPA considered a variety of factors in evaluating the source categories from which highly cost-effective reductions may be available and the level of reduction assumed from that sector. Factors evaluated include the availability of information, the identification of source categories emitting relatively large amounts of the relevant emissions, the performance and applicability of control measures, the cost effectiveness of control measures, and engineering and financial factors that affect the availability of control measures. Considering all of these factors, EPA determined that the final CAIR emissions caps and timing will achieve the greatest amount of

highly cost-effective reductions on as early a schedule as is feasible. See Section IV of the CAIR NFR preamble for a detailed discussion of EPA's cost effectiveness determination, as well as the engineering factors affecting timing of control phases.

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment. As described in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the early step of finalizing CAIR, we are requiring a very substantial air emissions reduction that addresses interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

See the CAIR NFR preamble as well as the Air Quality Modeling TSD for a discussion of EPA's air quality modeling.

Comment:

There are currently 226 counties measuring nonattainment for the 8-hr ozone standard and 49 counties measuring nonattainment for the $PM_{2.5}$ standard. All the air quality modeling we have seen show that control of utility boilers is essential for achieving attainment in many of the counties east of the Mississippi. The control levels proposed in the transport rule, along with other significant reduction measures, will still leave 39 counties in nonattainment in 2015. [[(p.2)]]

In 2001, EPA modeling of more stringent control measures (commonly referred to as the 'EPA Straw Proposal') showed a health benefit to cost ratio of 18.4 to 1 in 2020. The control measures analyzed by EPA in 2001 resulted in caps of 1.25 million TPY for NOx in 2012, 2.0 million TPY for SO_2 in 2010, and 5 TPY for mercury in 2015. This suggests to us that more stringent controls at utilities are warranted given the cost effectiveness of $_{SO2, NOx}$, and particulate control on these large plants. [[(p.2)]]

For these reasons, RAPCA recommends that EPA set NOx and SO2 limits in the transport rule at levels which reflect BACT equivalents and that the implementation of these levels is phased in by the end of 2013. In conjunction with BACT equivalents, RAPCA supports an interim cap-and-trade system to allow industry flexibility in the first years of the control program as long as significant progress is made and all boilers greater than 30 years of age are eventually (within 5 years of the 30 year 'birthday') either controlled to BACT levels or replaced. [[(p.2)]]

Response:

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment. As described above in section VI in the RTC, and in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements.

See section IV in the CAIR NFR preamble for a detailed discussion of EPA's cost effectiveness determination. Also see section IV in the NFR preamble for a response regarding the application of BACT rates in setting control levels.

EPA has historically seen for NOx and SO2 control that setting emission caps in line with air quality objectives is more cost-effective than command-and-control approaches like BACT. This leads to either cheaper reductions to reach the same emission reduction goal or even greater reductions, because the potentially higher costs to reach tighter pollution control objectives are avoided due to the greater flexibility in the program that results in efficiency gains across emissions sources.

Comment:

The rule does not propose emission caps that are commensurate with today's technical emission control capabilities. The 40 and 44 percent electric generator sulfur dioxide reductions predicted by the USEPA for 2010 and 2015 respectively are strong indicators of the weakness of the USEPA proposal. [[(0928, pp.1-2)]]

The USEPA's air quality modeling shows that, even with the maximum measures applied locally, large areas will still not meet the health standards for air quality. [[(0928, p.5)]]

The IAQR would therefore forego much of the easily available reductions in NOx and SO2 emissions from power plants upwind of New Jersey. Proven and widely available technology can reduce power plant emissions of NOx and SO2 drastically and cost-effectively. Most coal-fired power plants in New Jersey are either using this technology already, or have committed to installing it in the near future. A strong federal program would encourage this technology to spread to many more power plants, yielding substantial reductions in NOx and S02. The weak program that the EPA has proposed would make the supply of emissions credits so plentiful that simply buying credits becomes much cheaper than installing today's technology to reduce emissions.[[(0927, p.2)]]

Despite assertions in the rule preamble at 69FR4616, such reductions do not exploit to a significant degree the 95 to 99 percent sulfur dioxide emission reduction capability of readily available flue gas desulphurization systems. [[(0928, p.2)]]

The proposal does not meet our shared goal of attaining the air quality standards in the most cost-effective manner. New Jersey is committed to do cost-effective measures within its borders, but overall cost-reduction can only be accomplished if electric generator controls, which are less costly than local controls, are applied first. The USEPA seems to acknowledge this in the rule preamble (69 FR4599) when it states that the electric generator controls required by the proposed rule have lower cost per ton than the local controls studied. But it does not act on this conclusion. To reduce the overall cost of attaining standards, this conclusion, in and of itself, should propel the USEPA to reduce its cap levels. Further, the USEPA states that the cost estimates of the local controls are uncertain, so even tighter caps could be less costly than local controls. These gaps in cost control also appear in the failure to address directly emitted fine particles from electric generation units (EGUs), where control upgrades or replacements may offer further opportunity for cost-reduction. [[(0928, p.1)]]

The USEPA needs to re-examine its conclusion that all 'highly cost-effective' regional controls have been utilized in the rule proposal. Also, the USEPA characterization of its proposal as 'highly cost-effective' is flawed in several other respects: (1) even more control would be cost-effective than the control levels set forth in the USEPA's proposal when the future improvement in public health is considered, (2) higher than 95 percent control of power plants is more cost-effective than control of smaller sources, and (3) the cost of control is well within the capacity of the electric generator industry and has a small impact on the cost of electricity. Consequently, The proposal does not fully remove the 'significant contribution' to New Jersey from transported nitrates and sulfates, despite there being feasible and cost-effective means to do so. [[(0928, p.2)]]

The Clean Air Act does not contain foundation for, and the USEPA should not use, an inappropriate cost-benefit test between upwind and local controls as a limitation in assessing the significant contribution to a downwind state. Any test based on air quality improvements only in downwind nonattainment areas ignores the benefits from upwind state controls on the upwind state itself and unfairly biases the test toward the use of local controls. [[(0928, p.4)]]

Response:

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment. As described above in section VI in the RTC, and in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements.

The CAIR emission reduction levels were determined to be feasible and highly cost-effective for the 2010 and 2015 compliance dates. See section IV in the CAIR NFR preamble for a detailed discussion of EPA's cost effectiveness determination, as well as a detailed discussion of the feasibility evaluation. The CAIR will result in significant emission reductions in air emissions. See section X for a description of the benefits of CAIR. Under a cap-and-trade program, some units will install controls while others will purchase emission allowances.

See section III in this RTC document, as well as the CAIR NFR preamble, for a discussion of EPA's determination regarding the different components of fine particle pollution.

See section IV in the CAIR NFR preamble for a discussion about cost-benefit analysis. See section VI.D in this RTC document, as well as the CAIR NFR preamble, for a discussion the relationship between regional and local controls.

Comment:

Calpine believes that the fastest and most cost-effective way to reduce emissions from the power sector that will facilitate attainment of the NAAQS for $PM_{2.5}$ and NOx, is by continuing to replace the nation's aging fleet of inefficient, high emitting electric generators with modern, highly efficient, clean, combined cycle natural gas-fired energy centers, renewable energy sources, and CHP facilities. For example, while today's average fossil fuel power plant emits an average of 10.9 lb/MWh of SO_2 and 5 lb/MWh of NOx, Calpine's newest combined cycle, natural gas fired energy centers emit about 0.004 lb/MWh of SO_2 and approximately 0.064 lb/MWh of NOx. Calpine's CHP facilities supply waste steam heat to industrial host facilities that

generally allow them to shut down or reduce operation of their outdated power sources, resulting in even lower net emissions. [[pp. 1-2]]

Include large industrial boilers (> 250 MMBtu/hr) within this proposed program to provide additional cost-effective emission reductions and consistency with other promulgated air quality programs. [[p. 3]] [[See pp. 10-11 for further discussion.]]

Response:

See section IV in the CAIR NFR preamble as well as section IV in this RTC document for discussion of EPA's evaluation of categories of emission sources.

Comment:

EPA's proposal to cut sulfur dioxide (SO_2) and nitrogen oxides (NOx) pollution from power plants in eastern states is an important step toward addressing this pressing public health problem. But the proposed pollution cuts fall well short of those that are necessary to protect public health and the environment. In fact, EPA projects that the pollution reductions it has proposed will still allow unhealthy pollution concentrations in a number of major metropolitan areas. For example, highly populated areas around cities such as Chicago, Detroit, Cleveland, Cincinnati, Pittsburgh, and Atlanta will still be out of compliance with the health-based standard for sooty particles. At the same time, EPA's own analysis shows that much steeper reductions in sulfur dioxide would achieve far reaching public health benefits and be highly cost-effective. [[(pp.10-11)]]

The primary test for determining reduction levels should be a cost-benefit analysis, and unfortunately, EPA fails to use this most logical tool for determining pollution caps. The cost-effectiveness analysis, which EPA relies on in the IAQR, should be used to augment information from a cost-benefit analysis, but it should not replace it. A cost-benefit analysis can help find the reduction levels that maximize societal net benefit (benefits minus costs). EPA should compare the marginal cost of each ton of pollutant reduced to the marginal benefit achieved. Or even comparing the total costs to the total benefits can shed light on the appropriate reduction levels. [[(p.11)]]

EPA's own analysis of alternative programs to lower NOx and SO2 to levels below the IAQR demonstrates that the public health and environmental benefits are staggering, and swamp the estimated costs. Because EPA has failed to conduct a meaningful, robust analysis of alternative control levels, we hereby submit for the administrative record the results of EPA's analysis of the Clean Air Planning Act and Clean Power Act which demonstrate that further reductions would in fact have far-reaching public health benefits and far outweigh the costs. [[(p.11)]]

Even if a 2 to 1 ratio were applied as an acceptable standard, pollution caps would be significantly deeper then those proposed in the IAQR, and society would be better off. Environmental Defense strongly encourages EPA to revisit its criteria for setting reduction levels and to incorporate a cost-benefit test as a primary tool for calculating the pollution caps. [[(p.11)]]

EPA labels it's the reductions in its proposed IAQR as 'highly cost effective.' However, EPA cost-effectiveness assessment is unimpressive for at least two reasons. First, marginal abatement costs are much higher for other EPA standards, and second there are significant marginal health benefits to be achieved by raising the cost effectiveness bar. [[(p.13)]]

States are willing to pay considerably higher cost than what EPA labels 'highly cost effective' in the IAQR to reduce NOx and SO2 pollution. For example, Texas Emission Reduction Plan (TERP) provides funding for projects with a cost effectiveness of up to $13,000 per ton of NOx. The Texas Legislature is spending about $130 million a year between 2004 and 2008 on this program. North Carolina's Clean Smokestacks Act of 2002 requires significant reduction of sulfur dioxide from power plants by 2013. Using cost and tonnage figures from the state environmental agency report to the North Carolina Utility Commission 15 with year 2002 as a baseline, Progress Energy's average cost per ton to reduce SO_2 is estimated to be $5042, while Duke Energy's cost per ton is $7588. The marginal costs of the last ton reduced are likely considerably higher than these figures. Through state laws in Texas, North Carolina and likely others, states have expressed a willingness to pay to much higher cost per ton than EPA 'highly cost-effective' levels in the proposed IAQR. [[(p.14)]]

If the IAQR's cost-effectiveness reference points were increased $2,000/ton, then SO_2 emissions would be lowered by an additional 1.5 million tons and NOx emissions would be lowered by 437,000 tons across the IAQR region. A cost effectiveness threshold of $3,000/ton would yield fewer marginal benefits, decreasing SO_2 emissions by another 339,000 tons and decreasing NOx emissions by another 235,000 tons. [[(p.14)]] [[(The methodology used to extrapolate emission levels to the $2,000/ton and $3,000/ton cost-effectiveness thresholds can be found in Section 3.4.4, pp.16-19, of Docket Number 0786)]]

Increasing the cost-effectiveness thresholds in the IAQR from the proposed levels ($1,000/ton for SO_2 and $1,500/ton for NOx) to $2,000/ton for both NOx and SO2 will lead to greater than proportionate decreases in emissions and adverse health effects. However, further increasing the cost-effectiveness thresholds to $3,000/ton result in less than proportionate decreases in emissions and health effects. This is because the kink in each marginal cost curve, or the point at which the cost curves slope begins to rise significantly, occurs between $2,000 and $3,000 per ton abatement costs. Therefore, a stronger economic argument can be made for increasing the cost effectiveness thresholds in the IAQR to $2,000/ton for both NOx and SO2. Environmental Defense recommends that if EPA fails to use a cost benefit test to determine reduction levels then EPA should use $2000 per ton for both NOx and SO2 as its reference point of highly cost effective. [[(p.19)]]

Response:

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment. As described above in section VI in the RTC, and in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements.

The CAIR emission reduction levels were determined to be feasible and highly cost-effective for the 2010 and 2015 compliance dates. See section IV in the CAIR NFR preamble for

a detailed discussion of EPA's cost effectiveness determination, as well as a detailed discussion of the feasibility evaluation. The CAIR will result in significant emission reductions in air emissions. See section X for a description of the benefits of CAIR.

See section IV in the CAIR NFR preamble for a discussion regarding the use of cost-benefit analysis. Also see section IV in the NFR preamble for EPA's evaluation of the changes in the marginal cost curves at varying levels of EGU emission reductions. Note that EPA uses "knee in the curve" analyses solely to show that the CAIR emissions reductions are very cost effective (the marginal cost curves reflect only emissions reduction and cost information, and not other considerations).

Comment:

For technologies such as IGCC to continue to be developed, commercialized and broadly adopted, federal and state policies must not discourage their deployment, but should instead find ways to facilitate the country's transition to these newer, higher performing technologies. Accelerating the transition to these more efficient energy-producing technologies will not only help secure our energy future, it will also help address the environment problems that are the subject of this rulemaking. [[(p.4)]]

Response:

The CAIR is not intended to discourage the deployment of technologies such as IGCC. In fact, CAIR requires many existing coal-fired units to install expensive pollution controls, which will make IGCC appear more economically attractive.

Comment:

We are concerned that inclusion of our boilers in the IAQR may mandate additional SO_2 controls as well as the associated monitoring system installation. We currently meet our SO_2 limits by firing a low sulfur coal. To achieve the proposed 71 percent reduction in SO_2 emissions upon full implementation of the IAQR would mandate installation of costly SO_2 controls on our stokers; an expense which we have not anticipated so soon. [[(p.2)]]

Response:

States have flexibility in determining which source categories to control. Under a cap-and-trade program, some units will install controls while others will purchase emission allowances.

Comment:

In the area of sulfur dioxide, the Department again argues that it is possible, cost-effective, and beneficial to human health and environment to implement steeper reductions on a faster basis than proposed in this preamble. We strongly encourage EPA to propose a regulation that would have direct, near-term benefits for human health and the environment. As we learn more about the role of sulfur in contributing to $PM_{2.5}$ issues, it becomes even more imperative that we reduce emissions as quickly as possible. [[(p.9)]]

New York and other OTC member States have signed on in support of OTC's multi-pollutant proposal [[(See docket number 0747, pp.15-18, for OTC's multi-pollutant proposal)]]. We believe that the OTC proposal is superior to the IAQR because the OTC proposal would

provide for national (not only regional) caps for $_{SO2, NOx}$ and mercury. The OTC proposal would provide deeper reductions and would achieve them sooner than the IAQR. We believe that the OTC proposal, with its deeper reductions and mercury controls, may be even more cost effective than the IAQR. [[(p.3)]]

EPA should also perform a cost-benefit analysis of the available additional controls that go beyond what New York State and other states have already implemented and compare their cost effectiveness with the cost effectiveness of the IAQR. EPA notes that 'These reductions (IAQR) are among the lowest cost EPA has ever observed in NOx control actions...' 69 FR 4614. It is not possible to assess the relative costs and benefits of national, regional and local control programs without such analysis. [[(p.4)]]

EPA targeted large stationary sources for coverage under the NOx SIP Call because EPA determined that emissions reductions from these sources would be highly cost-effective. The highly cost-effective metric of an average of $2,000 per ton was based on the assumption that these sources would be able to participate in a large and robust regional NOx emissions cap and trade program. See Finding of Significant Contribution and Rulemaking for Certain States in the Ozone Transport Assessment Group Region for Purposes of Reducing Regional Transport of Ozone, 63 FR 57356, 57378 (Oct. 27, 1998). By creating a new system that leaves a fragment of the NOx SIP Call trading system behind, EPA is kicking out from under the orphan sources the very structure that they depended on to achieve those cost effective NOx emissions reductions. [[(p.7)]]

Response:

The CAIR emission reduction levels were determined to be feasible and highly cost-effective for the 2010 and 2015 compliance dates. See section IV in the CAIR NFR preamble for a detailed discussion of EPA's cost effectiveness determination, as well as a detailed discussion of the feasibility evaluation. The CAIR will result in significant emission reductions in air emissions. See section X for a description of the benefits of CAIR.

See section IV in the CAIR NFR preamble for a discussion regarding the use of cost-benefit analysis. See section V in this RTC for a discussion of the state coverage criteria EPA used to determining the CAIR control region.

In the final CAIR, all States for which EPA has made a finding with respect to ozone are subject to an ozone season cap. In order to implement this ozone season cap, EPA has finalized an ozone season $_{NOx}$ trading program in addition to the annual NOx and SO_2 trading programs that were proposed. See section VIII in this RTC for a discussion of the relationship between CAIR and the NOx SIP Call program. Also, see section XIII in this RTC for a relevant responses.

See response regarding OTC's proposal in section VI.F., below.

Comment:

EPA's Proposed Caps on Power Plant NOx and SO2 Emissions are Inadequate to Protect Public Health and Allow NAAQS Attainment and Must be Strengthened:

The severe harm to human health and the environment described above demand the most substantial reductions in regional power plant emissions of NOx and SO2 that are feasible and cost-effective. The nonattainment provisions of the Clean Air Act require no less. EPA's proposal does not accomplish this tighter caps for both pollutants are quite feasible and highly cost effective, and EPA must require them. Specifically, as previously indicated, we believe EPA must limit regional SO_2 emissions to 1.84 million tons annually and regional NOx emissions to 1.04 million tons annually. [[p. 9]] [[See docket number 0742, pp. 9-23 for extensive discussion on: tighter control levels on regional power plant emissions of NOx and SO2 are feasible and highly cost-effective.]]

Response:

The CAIR emission reduction levels were determined to be feasible and highly cost-effective for the 2010 and 2015 compliance dates. See section IV in the CAIR NFR preamble for a detailed discussion of EPA's cost effectiveness determination, as well as a detailed discussion of the feasibility evaluation. The CAIR will result in significant emission reductions in air emissions. See section X for a description of the benefits of CAIR.

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment. As described above in section VI in the RTC, and in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements.

Comment:

According to EPA's own analysis (see proposal pgs. 4636-4637 for $PM_{2.5}$; pgs. 4639-4640 for ozone), after the IAQR is fully complied with there will still be areas of the country that fail to attain the 8-hr ozone and $PM_{2.5}$ air quality standards. There are an even greater number of these nonattainment areas projected for 2010. Given that after all of the IAQR reductions are fully realized, the most cost-effective reductions in sulfur and nitrogen will still be from the power sector, the IAQR proposal does not go far enough or fast enough. [[p. 1]]

Response:

The CAIR emission reduction levels were determined to be feasible and highly cost-effective for the 2010 and 2015 compliance dates. See section IV in the CAIR NFR preamble for a detailed discussion of EPA's cost effectiveness determination, as well as a detailed discussion of the feasibility evaluation. The CAIR will result in significant emission reductions in air emissions. See section X for a description of the benefits of CAIR.

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment. As described above in section VI in the RTC, and in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements.

Comment:

EPA requests comment on whether control cost effectiveness should be measured in terms of cost per ton of emissions reduction or cost per unit ambient concentration reduction. [[(p.6)]]

For a long range transport regulation, it is impractical to calculate cost effectiveness of control on the basis of cost per unit reduction in ambient concentration. Where would the ambient reduction be measured? 100 miles downwind? 1500 miles downwind? That metric is useful in justifying control cost effectiveness for source categories within an individual nonattainment area as part of an attainment SIP, but not for evaluating costs of controlling long range transport. To the owner of a facility having to install controls, however, the only meaningful metric of cost effectiveness is cost per ton of emission reduction. (P.6)

Response:

See section IV in the CAIR NFR preamble for a discussion of cost-per-ambient concentration as a metric for cost effectiveness. Note that EPA actually is using cost per ton of emission reduction as its main metric – using both average and marginal cost results for determining that CAIR is highly cost-effective.

Comment:

NOx and SO2 Emission Caps:

According to emission data in EPA's acid rain program data base, in 2001, electric steam generating units (EGUs) emitted 4.7 million tons of NOx and 10.6 million tons of SO_2. STAPPA and ALAPCO have determined that by applying clearly reasonable levels of today's Best Available Control Technology (BACT), EGU NOx emissions can be reduced to 0.88 to 1.26 million tons per year by 2013 and EGU SO_2 emissions to 1.26 to 1.89 million tons per year. In the calculations presented in Attachments 1 and 2 (which illustrate how these respective NOx and SO2 emission cap ranges were derived) the amount of heat input in fuel burned by power plants in 2001 is multiplied by a range of NOx and SO2 emission performance levels that reflect today's BACT for new and existing units.

The lower (i.e., more stringent) end of each emission cap range reflects the application of new source BACT based on permits for new units to all new and existing EGUs. The new source BACT selected for this analysis represents a somewhat conservative level that is generally less stringent than the most recent permit applications for coal-fired boilers. The higher (i.e., less stringent) end of each emission cap range reflects the application to all EGUs, new and existing, of the most common emission level for existing sources covered under recent EPA settlement agreements for Prevention of Significant Deterioration cases. Gas and oil BACT levels were conservatively assumed to be the same as for coal. Because the NOx and SO2 emission cap ranges resulting from STAPPA and ALAPCO's relatively conservative analysis are at or below the lowest caps contemplated under various legislative proposals, it is reasonable to conclude that the availability of air pollution control technology is not a limiting factor in enacting any of the caps under consideration. Further, it is important to note that technology will continue to improve over time and, as it does, even lower levels of NOx and SO2 emissions will be achievable. Accordingly, the NOx and SO2 emission cap ranges calculated by STAPPA and ALAPCO should enable substantial opportunity for emission trading and the addition of significant electric generating capacity. In fact, they would be achievable even if all gas and oil burning in power plants was switched to coal. [[p. 2]]

Response:

See CAIR NFR preamble section IV for a discussion about using BACT to set control levels.

Comment:

The EGU system level emission control targets in the rule can and should be substantially tightened to a level more reflective of the system-wide application of state-of-the-art NOx and SO2 control technology and techniques - both for retrofit and new capacity. [[(0961, p.3)]]

The reduction levels achievable with the 'default' application of technologies already found 'highly cost effective' need to be revised upward to reflect more current design standards and emission control synergy achievable using composite control strategies (including among other approaches a fully combustion optimized application of maximum $_{\text{SCR for NOx}}$). The near-universal installation of these 'current' technologies to the power system should be the basis for establishing the final program control targets since these applications are shown to be 'highly cost effective'. [[(0961, p.3)]]

EPA needs to discuss a level of highly cost effective marginal regional control for NOx and SO2 more equivalent to the higher marginal cost for alternate (small point source, mobile sector and nonroad engine) local control measures which must be adopted in addition to these (and stronger) regional major point source controls to build viable ozone attainment plans. The marginal cost of these other available NOx and VOC control measures, that are applicable at the local level for SIP development, is far more per unit emission reduction than the marginal cost level for these EGU NOx and SO2 controls noted in the Preamble - even if applied at a near-universal level to the system. [[(0961, p.3)]]

In its modeled system projections, EPA needs to better assess the significant emission reduction potential of ensuring that all new coal capacity added to the regional power system is the very cleanest possible at the time contracted for construction and is as efficient in coal-to-power conversion design as financially viable. This is especially important from a long-term power system stability and security perspective and will also more honestly address the net carbon dioxide emissions cost to society and the environment that we are slowly coming to understand. [[(0961, p.4)]]

From the perspective of a state with ozone nonattainment areas highly impacted by regional emissions, the second phase targets provide a woefully inadequate objective for emission reductions from the sector over the course of the next decade. The structure of the proposed program actually provides incentive to achieve only a portion of the currently attainable emission reduction potential from the sector while essentially making further emission reduction investment in the sector nearly impossible in the near future. As a consequence, the proposal provides little or no incentive to actively replace/retire the oldest, higher pollution rate power plants with control-optimized and highly-efficient replacement generation. [[(0961, pp.8-9)]]

The Phase-2 targets/budgets need to be reduced to reflect the maximum level of system-wide reduction in EGU NOx and SO2 emissions that is still economically viable with only a narrow uncertainty buffer. The direct public health cost of not pursuing such a strategy is quite high, as partially documented by EPA in its proposal, and reflect a higher marginal cost to society

if not pursued than the extra marginal cost to society of going beyond the current proposal. Germany and the rest of Europe have quite successfully built on an approach over the last two decades which directed the largest units to control to a maximum potential on as rapid a timeframe as possible. Reviewing the composite histories of the respective European and U.S. Acid Rain control approaches suggests that a maximum control effort pursued in a flexible approach can very rapidly improve air quality, reduce other environmental impacts and still provide incentives for cost-effective 'extra' and 'early' control efforts. [[(0961, p.9)]]

STAPPA, in its multi-pollutant control principles notes the importance of setting ultimate emission performance standards on a facility basis for EGU's in addition to setting and meeting national emission caps. By not identifying and setting such minimum target performance levels, this program guarantees that many highly cost effective controls won't be installed and that older, dirtier facilities continue to pollute with no limit into the future. As an example, in Wisconsin, EPA's projections have consistently projected that only a subset of the state's large coal facilities will indeed install the 'highly cost effective' emissions controls under the toughest program design structures evaluated under multi-pollutant control scenarios. Much of the existing capacity is neither retrofit nor retired and directly replaced by new generation during a 20-year evaluation window. [[(0961, p.9)]]

There is no minimum performance standard to drive either optimized designs/installations of FGD or the most-advanced multi-pollutant systems, and, the levels of presumptive technology impact are understated in the modeling assessments. Again, more recent BACT-based installations exhibit a higher set of performance levels (especially in higher sulfur coal BACT assessments). If such enhanced designs (96-98 percent+ efficiency) were applied on a system basis, the potential Phase 2 SOx budgets (at a system level) would be much lower at the same marginal cost threshold. [[(0961, p.10)]]

In terms of establishing an appropriate marginal cost, EPA has looked only at average installation costs, especially for FGD systems. Instead, since EPA has established a presumptive technology, the full range of cost/ton for that technology type should be looked at to determine a maximum 'highly cost-effective' control cost. In that type assessment, including installation of controls on smaller, as well as average facilities, and in systems with lower average sulfur content, such installations may show a higher average cost than the marginal cost that EPA suggests in the limit to 'high cost-effectiveness'. Yet, these installations will still prove highly cost-effective on average in comparison to the marginal emission reduction cost in their absence forced on local nonattainment areas. [[(0961, pp.10-11)]]

IPM also provides no means to reflect the expected tightening of emission rates based on BACT determinations for new installations that occur over the evaluated program period (2005-2025). Also, IPM does not reflect transition in the type of coal generation systems most likely to receive new source permits. The model jumps from 'conventional pulverized coal' to an IGCC option with higher embedded financial risk with no intermediate technology option available. The higher risk level associated with a relative lack of large-scale design and installation experience in the U.S. will likely subside as alternate equivalently effective designs enter the market and as the installation history builds for IGCC. A review of evolving energy policy and research suggests that even more efficient coal platforms are as likely to dominate as IGCC, once carbon reduction interest combines with the minimum emissions interest to more highly value

clean and efficient coal power facilities. [[(0961, p.11)]]

In the near term, recent permitting and utility regulatory history indicates that an optimized 'advanced' pulverized coal technology is likely to dominate new capacity for the next few years. The problem with the proposed program design is that it sets a system level performance target at a level of residual emissions far in excess to that actually necessary to develop and operate a 'clean coal' generation system based on current, much less future technology. Therefore it provides no direct incentive to speed the adoption of the cleanest and most efficient technology as it becomes available. [[(0961, p.11)]]

In an effort to minimize financial risk, generation systems and utility regulators are looking to options for new capacity that can be paid off in the shortest term and that have the least potential long term risk to shareholders and ratepayers. A cynical assessment might suggest that they are also looking to craft current air regulatory packages resistant to any intermediate change that is otherwise likely to occur based on emerging knowledge of air emissions impact and added reduction need. Our assessment is that this short-sighted encouragement of a whole new generation of only average efficiency and only moderately clean coal power plants, as exemplified by this program, actually fosters less, not more, future coal power system stability and security. At minimum, it is not fostering the level of research, development and investment on the margin necessary to craft an environmentally sustainable coal-fuel electricity system for the future. [[(0961, p.11)]]

EPA's IPM growth assumptions that drive the assessment of appropriate allocation levels need to incorporate all existing state standards in the baseline assessments. This includes formal, enforceable standards regarding what type generation technology can be built in a given region or state including renewable sources. [[(0961, p.13)]]

Response:

The CAIR emission reduction levels were determined to be feasible and highly cost-effective for the 2010 and 2015 compliance dates. See section IV in the CAIR NFR preamble for a detailed discussion of EPA's cost effectiveness determination, as well as a detailed discussion of the feasibility evaluation. The CAIR will result in significant reductions in air emissions. See section X for a description of the benefits of CAIR

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment. As described above in section VI in the RTC, and in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements.

See section VI.D in this RTC document, as well as the CAIR NFR preamble, for a discussion of the relationship between local and regional controls.

New coal capacity built in the U.S. must meet Federal New Source Performance Standards (NSPS), which requires state-of-the-art pollution controls to be installed on all new coal-fired facilities ($_{SCR\ for\ NOx}$ removal and FGD for SO_2). NSPS is modeled in EPA applications of the power sector, thus is taken into account.

Experience with cap-and-trade indicates that the oldest and dirtiest power plants are the most cost-effective to control. Analysis using IPM also shows that the dirtiest units tend to install SCR and FGD first, providing reductions where they are needed most. Many of the NOx and SO2 reductions under CAIR are anticipated to come from the Midwest, where coal-fired generation is the major source of power production. However, EPA notes that the reductions required under CAIR also promote energy reliability by ensuring that coal-fired generation remains an important part of the generation mix.

IPM does not predict future technologies that may become available without substantial evidence of its performance an/or cost. In this way, IPM also does not incorporate improvement in pollution control technologies that may (or may not) occur in the future. IPM reflects the best and most recent data and assumptions available in the world today.

In making its determination of highly cost-effective controls, EPA modeled controls on EGUs using the IPM. The EPA based its IPM modeling on the best information that we could obtain about the state of emission control technologies. See the IPM documentation for a description of EPA's assumptions regarding performance of emission control technologies ("Documentation Summary for EPA Base Case 2004 (v.2.1.9) Using the Integrated Planning Model, October 2004" is available in the CAIR rulemaking docket and on EPA's website). EPA looked at a full range of control costs in its IPM modeling. See the IPM documentation for a description of EPA's assumptions regarding control costs.

The EPA endeavored to obtain the best information available on existing State emission reduction regulations, and incorporated that information into its 2004 IPM update. See the IPM documentation for a description of the State requirements that are included in EPA's base case modeling.

Section IV in the CAIR NFR preamble includes a discussion of the use of BACT in setting control levels.

The CAIR fosters environmental protection and internalizes externalities of pollution in a cost-effective way. CAIR creates a level playing field where pollutants costs are fully accounted for. It also sets the objective of meeting a cap – and allows industry flexibility on how to get there – which is a proven method leading to innovative compliance.

Comment:

It is critical to ensure that emission reductions under this program and any future program are tied directly to bringing nonattainment areas into compliance with the NAAQS. FMEA is concerned over any future EPA policy that may target electric generating units (EGUs) as a source category to be regulated based on 'relatively large amounts' of relevant emissions. A tonnage approach as proposed will lead to targeting utilities for further reductions, based on whether EGUs as a source category are 1 to 10 percent of the emissions inventory, whether or not such reductions are the most cost-effective means of bringing nonattainment areas into NAAQS compliance., EPA must follow the legal standard set out in Section 110(a)(2)(D) of the Clean Air Act (CAA) that requires EPA to measure a source category's emissions of relevant emissions as it relates to that source category's percent contribution to the total NAAQS exceedance level. The appropriate test to use in deciding whether to target source categories for

future reductions must be the cost-effectiveness of reducing concentrations in nonattainment areas, whether from upwind or local sources, not whether or not cost-effective emissions can be had from a large source category. A tonnage approach will lead to national over control of coal plants instead of targeting the most cost-effective means of bringing nonattainment areas into compliance. Further, EPA should not reach conclusions on requiring additional controls from EGUs in the future without first analyzing other industrial source categories' contribution to nonattainment accedences. [[p.1 & p.2]]

While FMEA supports EPAs intention to establish a cap and trade program for reductions of NOx and SO2, we believe that EPA needs to improve its underlying data and analysis and science to assure that the IAQR achieves its health-related objectives in a sound, efficient and equitable manner, keeping in mind that emission reductions must be tied to the goal of moving nonattainment areas into compliance with the NAAQS.

As stated in the Overview of these comments, it is imperative that the U.S. government undertake further health-related particulate matter speciation studies. We agree with John Graham, Administrator of the Office of Information and Regulatory Affairs (OIRA) in the Office of Management and Budget (OMB) when he stated in his December 2001 letter to then-EPA Administrator Christine Todd Whitman that there is 'emerging evidence that some types of fine particles may pose a greater health risk.' At that time, Dr. Graham recommended that EPA re target some of its research budget to study the comparative effects of different types of particles. 'If research can identify those particles most responsible for health risks, it may be possible to design controls that do more for public health and cost the economy less than would occur through policies that assume all particles are equally toxic.' Dr. Graham further stated, 'Based on our reviews of EGAS recent rulemakings on air pollution and the Agency's 2001 Regulatory Plan, it is clear that we need to understand better which sources of PM in our economy are responsible for the PM-related health effects.'

The expense of the IAQR to American consumers is quite substantial and will be a failed effort if EPA does not achieve reductions in those components of particulate matter that are causing the greatest ill health effects. Given the existence of sophisticated speciation studies that indicate that carbon and ammonia are significant factors in the health effects of PM emissions, it is unreasonable for EPA to exclude these pollutants from controls under the IAQR without further study, particularly since EPA has recognized that other sources play a significant role in the transport of $PM_{2.5}$ and may have a greater health impact.

Before proceeding with Phase II, EPA needs to take into consideration what level of control is highly cost-effective on a state-by-state basis as opposed to a regional basis. There are substantial differences in the ability of individual states to meet the Phase II budgets on a cost-effective basis.

2. EPA Needs to Consider Other Industrial Source Categories for Analysis Before Implementing Phase II and in Before Targeting EGUs for Further Reductions EPA Needs to Base a Source Category's Contribution to All Nonattainment Accedences and Not Upon a Source Category's Percent of the Total Emissions Inventory

Concerning the Proposed IAQR, on page 4611 of the Jan. 30 Federal Register, EPA states, 'We request comment on how to determine what constitutes 'a relatively large amount' of the relevant emissions. One approach [read EGAS preferred approach] would be to consider the percent contribution the source category makes to the total inventory (e.g. 1-10 percent). Another approach, which some have suggested [read others in the Bush Administration] would be to consider the contribution of a source category's contribution to ambient concentrations above the attainment level in all nonattainment areas in affected downwind States for $PM_{2.5}$. We request comment on both of these approaches as well as what the appropriate percent contribution under each approach might be.'

To remedy the significant contribution, the proposed Rule would establish NOx and SO_2 emissions budgets for each State in the covered region based on the amount of the emissions that may be eliminated through highly cost-effective controls. The first step of the proposed EPA process to determine 'highly cost-effective controls' involves the identification of the source categories that are 'emitting relatively large amounts of the relevant emissions. In the case of the IAQR rule, EPA focuses on EGUs given that this emissions from this source category will be about one-quarter (23 percent) of the total NOx emissions and over two-thirds (67 percent) of the total SO_2 emissions in 2010 in the proposed 29-State control region. Although these percentage levels are clearly significant, we are concerned that EPA has proposed to define relatively large amount of the relevant emissions only in terms of the percent contribution the source category makes to the total inventory and to set very low percentage levels, ranging from 1 to 10 percent. This seems to create a presumption for future rulemakings that a percent reduction could be used as an automatic trigger for possible future regulation.

The appropriate test must consider the relative contribution of a source category to the accedences of air quality standards. The legal standard, as set out in Section 110(a)(2)(D) of the CAA, directs states to address their contribution to downwind exceedances of NAAQS. Before EPA considers the need for further reductions of upwind state EGU emissions, in fact before Phase II, EPA needs to analyze the data and model the contribution of other industrial source categories that contribute to downwind accedences. The appropriate impact test for future regulation post-Phase I should be the contribution of source categories to the sum total of all downwind accedences and whether or not controls on EGUs as a source category, following the significant reductions that will result from this program, are as cost-effective as controls on other upwind source categories (industrial boilers, mobile sources) or as cost-effective as controls in the nonattainment areas or closer to the nonattainment areas. In the proposal, EPA notes that comparisons of the cost per ton of pollutant reduced from various control measures is a convenient way to measure cost-effectiveness but it does not take into account the fact that any given ton of pollutant reduction may have different impacts on ambient concentration and human exposure, depending on factors such as the relative locations of the emission sources and receptor areas. We support the alternative approach of measuring the effect of emission reductions on ambient concentrations in downwind nonattainment areas as the measure of effectiveness of further controls. EPA will need to improve its modeling and develop peer-reviewed methodology in order to make such determinations. [[p.10, p.11 & p.12]]

Response:

EPA considered a variety of factors in evaluating the source categories from which highly cost-effective reductions may be available and the level of reduction assumed from that sector.

Factors evaluated include the availability of information, the identification of source categories emitting relatively large amounts of the relevant emissions, the performance and applicability of control measures, the cost effectiveness of control measures, and engineering and financial factors that affect the availability of control measures. Considering all of these factors, EPA determined that the final CAIR emissions caps and timing will achieve the greatest amount of highly cost-effective reductions on as early a schedule as is feasible. See Section IV of the CAIR NFR preamble for a detailed discussion of the factors affecting timing and control levels.

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

As described in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the early step of finalizing CAIR, we are requiring a very substantial air emissions reduction that addresses interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

The EPA developed the CAIR program to meet existing air quality standards for ozone and $PM_{2.5}$ collectively. The existing health standards have stood the test of review by the Science Advisory Board (SAB), and of review by the outside Health Effects Institute Review, and a decision of support by the Supreme Court.

Section IV.B. in the CAIR NFR preamble describes EPA's evaluation of non-EGU sources. As explained in the preamble, although EPA developed the CAIR control requirements based on the application of highly cost-effective controls on EGUs, the States have flexibility in choosing the sources that must reduce emissions including non-EGUs. Section IV.B. in the preamble explains EPA's evaluation of non-EGU source categories, and discusses the relative emissions contributions from EGUs compared to non-EGU boilers and turbines. See section IV.B. in the NFR preamble as well as section IV in this Response to Comments Document for further discussion regarding non-EGU emission sources. EGUs on a regionwide basis are the largest source of SO_2 emissions and the largest source of stationary source NOx emissions. While EPA has not identified a bright-line cut-off for a "relatively large amount" of emissions, EGUs are clearly emitting a relatively large amount of regionwide NOx and SO2 emissions.

See CAIR NFR preamble section IV for a discussion regarding whether cost-per-ambient-impact of controls could play a role in determining upwind control obligations.

See CAIR NFR preamble section III and section III in this RTC document for discussion of $PM_{2.5}$ speciation and effects.

EPA believes that it is most cost-effective to obtain reductions through a regionwide trading program. This was upheld in the NOx SIP Call, and EPA believes it is also appropriate here.

See the CAIR NFR preamble for a discussion of EPA's methodology used to determine if States contribute significantly to downwind nonattainment.

EPA does not view the CAIR as creating a presumption for future rulemakings that a percent reduction could be used as an automatic trigger for possible future regulation.

Comment:

Although the cuts provided by the rule will provide considerable benefits, I believe that deeper cuts are possible and would provide a greater margin for safety in meeting air quality standards and stopping acid rain. I urge EPA to reduce the ultimate SO_2 cap to 2.5 million tons a year by 2013, and under no circumstances to allow for a higher cap of either $_{NOx\ or\ SO2}$ under the final rule.

Response:

EPA considered a variety of factors, and determined that the final CAIR emissions caps and timing will achieve the greatest amount of highly cost-effective reductions on as early a schedule as is feasible. See Section IV of the CAIR NFR preamble for a detailed discussion of the factors affecting timing and control levels.

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

As described in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the early step of finalizing CAIR, we are requiring a very substantial air emissions reduction that addresses interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

See the CAIR NFR preamble, as well as section VIII in this RTC document, for discussion of the relationship between CAIR and the title IV Acid Rain program.

Comment:

EPA states that preliminary analysis indicates that the reductions in NOx and SO2 required by the proposal, if achieved through controls on EGUs, will have a lower cost per ton than most of the measures analyzed in the local emission reduction measures study EPA conducted. (69 F.R.4599) DEP agrees with this conclusion and believes that a more stringent transport rule (with lower caps and shorter timelines) that covers additional sources (non-EGUs) could likewise be expected to have a lower cost per ton than local measures. [[(1172, p.4)]] Unfortunately, EPA has not analyzed the cost-effectiveness of a more stringent transport rule as compared to the cost effectiveness of local controls that will be required in order for areas to attain the 8-hour ozone and $PM_{2.5}$ standards. EPA should analyze: (a) what it will cost areas to attain the 8-hour ozone and $PM_{2.5}$ standard with the caps and timelines as currently proposed, in combination with local measures, versus (b) what it would cost areas to attain under more

stringent caps and timeframes than those proposed, in combination with fewer local controls. Without such additional analyses, EPA's proposed cost-effectiveness threshold is arbitrary. [[(1172, p.4)]]

Response:

EPA considered a variety of factors, and determined that the final CAIR emissions caps and timing will achieve the greatest amount of highly cost-effective reductions on as early a schedule as is feasible. See Section IV of the CAIR NFR preamble for a detailed discussion of the factors affecting timing and control levels.

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

As described in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the early step of finalizing CAIR, we are requiring a very substantial air emissions reduction that addresses interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

See section VI.D. in this RTC document, as well as the CAIR NFR preamble, for discussion of the relationship between regional and local controls.

Using its existing authority under the CAA, the EPA used IPM to evaluate highly cost-effective emission reductions, assuming controls on EGUs. As explained in section IV in the NFR preamble, EPA compared the modeled EGU control costs to the costs of other emission control actions and determined that – relative to the control costs on the reference lists – the CAIR is highly cost-effective. In addition, EPA considered the cost effectiveness of alternative stringency levels to corroborate its findings regarding highly cost-effective control levels. That is, EPA examined changes in the marginal cost curves at varying levels of emission reductions for EGUs. This analysis of alternative stringency levels is discussed in section IV in the NFR preamble and in a TSD in the docket entitled "Modeling of Control Costs, Emissions, and Control Retrofits for Cost Effectiveness and Feasibility Analyses."

As discussed in section IV in the NFR preamble, EPA has been active in a number of efforts to develop regional and national strategies to reduce interstate transport of NOx and SO2 historically. In addition, EPA looked at the work that several organizations (including OTC, STAPPA/ALAPCO and CATF) submitted on control strategies in their comments on the CAIR proposal, during finalization of CAIR.

Comment:

On this basis, it is the responsibility of EPA to utilize the cost effective controls beyond those they currently describe as 'highly cost-effective'. As discussed earlier, by EPA's own definition of highly cost effective, there is significantly deeper reductions still available to the overall CAIR program. If all cost-effective controls are utilized and attainment still is not reached

for all areas, then changes to the overall program structure need to be considered. Such improvements might include flow control of banked emissions or far more limited use of acid rain credits after attainment deadlines. [[(1800, p.5)]]

Response:

EPA considered a variety of factors, and determined that the final CAIR emissions caps and timing will achieve the greatest amount of highly cost-effective reductions on as early a schedule as is feasible. See Section IV of the CAIR NFR preamble for a detailed discussion of EPA's cost effectiveness determination, and the factors affecting timing and control levels.

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment. As described in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the early step of finalizing CAIR, we are requiring a very substantial air emissions reduction that addresses interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

See section XIII in this RTC document as well as section VIII in the CAIR NFR preamble for discussion of flow control, and other discussion relating to the cap-and-trade program.

Comment:

The proposal does not meet our shared goal of attaining the air quality standards in the most cost-effective manner. New Jersey is committed to do cost-effective measures within its borders, but overall cost-reduction can only be accomplished if electric generator controls, which are less costly than local controls, are applied first. The USEPA seems to acknowledge this in the rule preamble (69 FR4599) when it states that the electric generator controls required by the proposed rule have lower cost per ton than the local controls studied. But it does not act on this conclusion. To reduce the overall cost of attaining standards, this conclusion, in and of itself, should propel the USEPA to reduce its cap levels. Further, the USEPA states that the cost estimates of the local controls are uncertain, so even tighter caps could be less costly than local controls. These gaps in cost control also appear in the failure to address directly emitted fine particles from electric generation units (EGUs), where control upgrades or replacements may offer further opportunity for cost-reduction. [[(p.5)]]

The rule does not propose emission caps that are commensurate with today's technical emission control capabilities. The 40 and 44 percent electric generator sulfur dioxide reductions predicted by the USEPA for 2010 and 2015 respectively are strong indicators of the weakness of the USEPA proposal. Despite assertions in the rule preamble at 69FR4616, such reductions do not exploit to a significant degree the 95 to 99 percent sulfur dioxide emission reduction capability of readily available flue gas desulphurization systems. Therefore, the USEPA needs to re-examine its conclusion that all 'highly cost-effective' regional controls have been utilized in the rule proposal. Also, the USEPA characterization of its proposal as 'highly cost-effective' is flawed in several other respects: (1) even more control would be cost-effective than the control levels set forth in the USEPA's proposal when the future improvement in public health is

considered, (2) higher than 95 percent control of power plants is more cost-effective than control of smaller sources, and (3) the cost of control is well within the capacity of the electric generator industry and has a small impact on the cost of electricity. Consequently, the proposal does not fully remove the 'significant contribution' to New Jersey from transported nitrates and sulfates, despite there being feasible and cost effective means to do so. [[(pp.5-6)]]

Response:

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment. As described in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the early step of finalizing CAIR, we are requiring a very substantial air emissions reduction that addresses interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

See section VI.C in this RTC document, as well as the CAIR NFR preamble, for discussion of the interactions between regional and local controls.

See the IPM documentation ("Documentation Summary for EPA Base Case 2004 (v.2.1.9) Using the Integrated Planning Model, October 2004" available in the CAIR docket and on EPA's website) for details about EPA's assumptions regarding performance of emission control technologies.

See section III in this RTC document, as well as the CAIR NFR preamble, for a discussion of EPA's evaluation regarding the different components of fine particle pollution.

Comment:

EPA requests comments on the definition of 'a relatively large amount' determination of what source category is the main contributor of emissions. The TCEQ comments that the relative magnitude of emissions should not be an important factor in determining whether a source category should be controlled, or whether sources in a particular state should be controlled. Rather, it is more important to consider a source's importance to ozone and $PM_{2.5}$ formation and the cost-effectiveness of existing technology. [[(p.6)]]

Response:

EPA considered a variety of factors in evaluating the source categories from which highly cost-effective reductions may be available and the level of reduction assumed from that sector. Factors evaluated include the availability of information, the identification of source categories emitting relatively large amounts of the relevant emissions, the performance and applicability of control measures, the cost effectiveness of control measures, and engineering and financial factors that affect the availability of control measures.

Comment:

We believe the current control measures set in place, given time, will come to fruition and present reductions in regional transport. Now is not the time to administer further unnecessary

and premature controls, increasing costs to a state already suffering from a severe loss of jobs. [[(p.3)]]

Response:

No response is necessary.

Comment:

We have known about these problems for years. We have also known about the source of the problems - coal burning power plants - and have had the available technology for solving these problems, for years. Moreover, as EPA's benefit-cost analysis shows, the benefits of this solution exceed the costs by as much as 20 to one. [[p.2]] In 2001 EPA projects that compliance with the $PM_{2.5}$ and ozone NAAQS and regional haze requirements will require a 2 million ton SO_2 national cap on coal-fired power plants and a 1.25 million ton SO_2 cap. This projection is borne out by EPA's modeling of this proposal, which shows a number of counties remain in nonattainment of the NAAQS in 2015 when the rule is fully implemented. The transport rule caps should be reduced to reflect EPA's 2001 projections. [[p.3]] If required to justify lower NOx and SO2 caps, EPA should increase the cost threshold for determining 'highly cost-effective controls.' EPA's analysis showing a 20-fold increase of benefits over costs justifies an increase in cost threshold. [[p.4]]

Response:

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment. As described above in section VI in the RTC, and in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements.

See section IV in the CAIR NFR preamble for a detailed discussion of EPA's cost effectiveness determination. Also see section IV in the NFR preamble for a discussion regarding the use of cost-benefit analysis.

Comment:

The OTC Position suggests NOx and SO2 emissions from power plants be capped at 1.87 million and 3.0 million tons respectively by 2008, and 1.28 million and 2.0 million tons by 2012. In addition, OTC believes initial mercury control levels should not exceed 15 tons, with an ultimate performance requirement that achieves approximately 5 tons per year by 2015, a 90 percent reduction from current emission. [[p. 5]] The OTC has estimated that the monetized benefits from implementing the caps in the OTC Position will outweigh the costs by a factor of more than 10. The IAQR needs to be strengthened to reflect the caps spelled out in the OTC position. [[p. 5]]

Response:

EPA considered a variety of factors (see CAIR NFR preamble section IV for factors), and determined the final CAIR emissions caps and timing will achieve the greatest amount of highly cost-effective reductions on as early a schedule as is feasible. See Section IV of the CAIR NFR preamble for a detailed discussion of EPA's cost effectiveness determination, as well as the

engineering factors affecting timing of control phases. See section VI.E. in this RTC document regarding mercury control.

Comment:

Although UJAE supports the overall thrust of EPA's Air Quality NPR, we believe the proposal can be made better by encouraging early reduction of SO_2 emissions through technologies. [[(p.2)]] UJAE applauds the Administration's decision to support incentives (within its Clear Skies legislative proposal) to encourage early installation of additional control technologies. [[(p.2)]]

Response:

Incentives for early emission reductions are discussed in section XIII in this RTC document, as well as in the CAIR NFR preamble.

Comment:

If anything, data available for Texas shows that power plants are not the principal source of these emissions. The lack of analysis of contributing source categories also makes it impossible to determine whether the controls recommended in this draft are 'highly cost effective' because no comparison of the relative costs of controlling emissions from different source categories has been conducted. Without a meaningful analysis of what source categories contribute a 'relatively large amount' of relevant emissions and what controls are 'highly cost effective,' it is premature to implement the IAQR. [[(1037, p.9)]]

EPA projects that, pursuant to IAQR, power plants will quickly act to reduce emissions, largely though retrofitting with FGD technology. However, the IAQR proposal is much more likely to result in ultra-high SO_2 allowance prices, heightened fuel switching, and power plant retirement or suspension than it is to stimulate emission control retrofits. The primary reason for this is logistics. The proposed Phase I compliance deadline of 2010 simply does not allow enough time for the planning, financing, and engineering work required to put emissions reductions projects into place. The untenable timeframe for control installation will force many entities to seek methods of meeting IAQR requirements other than the installation of control equipment, such as replacing Gulf Coast Lignite with SPRB coal. [[(1037, p.10)]]

Furthermore, electric utilities and electric wholesale generators are risk averse with regard to investing the substantial capital required to install scrubbers without a high level of certainty regarding the long-term sustainability of higher allowance prices that would be required to justify the investment. As a result, power plant owners will postpone the installation of emission controls, with the effect being felt in volatized market prices for electricity, coal, and allowances. This situation occurred when utilities announced plans to retrofit FGD for Title IV Phase I compliance on more than 45,000 MW of coal-fired capacity as late as 1994. By 1996 this number had dropped to less than 18,0000 MW, largely due to uncertainty about the sustainability of allowance price. The decision of whether to install a scrubber will be one of timing - depending upon who installs scrubbers first and when too many scrubbers have been installed to support earlier investment assumptions about allowance prices. [[(1037, p.10)]]

EPA assumes that construction activities associated with installing FGD or selective catalytic reduction will not start until 2007. Even if you assume that SIP revisions and the start of

SCR installation will be on time, the 2010 deadline allows only 3 years to install control technology on hundreds of power plants. From start to finish, the process for planning and installing scrubbers generally takes four to 5 years. The many steps in the process of installing NOx and SO2 control equipment include engineering planning, negotiating contracts with vendors, obtaining state and local permits, and securing contractors, materials and equipment needed for construction. With EPA allowing only 3 years for these activities to be accomplished, implementation of phase I activities would not be completed in many cases until 2011 - beyond the proposed Phase I deadline of 2010. The 2010 deadline, while difficult to meet for all to whom it would apply, would be particularly problematic for entities with more than one unit to retrofit. [[(1037, p.11)]]

EPA's goal of encouraging emissions reduction will not be served by these unreasonably short deadlines for installing control technology. As noted above, the untenable timeframe for control installation will force power plants to seek alternative methods of meeting IAQR requirements such as fuel switching, the purchase of allowances, and the retirement or suspension of power plant operations. [[(1037, p.11)]]

The TLC recommends a Phase I cap compliance deadline of 2012 and a Phase II deadline of 2018. The extra 2 years provided by the extended Phase I deadline allow for a reasonable and realistic amount of time to install control technology. These more flexible timeframes are necessary to provide enough time to realistically install the tens of billions of dollars in control technology that the IAQR will require. The extended Phase I and Phase II deadlines are necessary to provide incentive for power plants to implement the desired retrofits in a reasonably expeditious manner while at the same time ensuring that the energy supply will remain reliable and affordable. [[(1037, p.12)]]

Response:

Section IV.B. in the CAIR NFR preamble describes EPA's evaluation of non-EGU sources. As explained in the preamble, although EPA developed the CAIR control requirements based on the application of highly cost-effective controls on EGUs, the States have flexibility in choosing the sources that must reduce emissions including non-EGUs. Section IV.B. in the preamble explains EPA's evaluation of non-EGU source categories, and discusses the relative emissions contributions from EGUs compared to non-EGU boilers and turbines. See section IV.B. in the NFR preamble as well as section IV in this Response to Comments Document for further discussion regarding non-EGU emission sources. EGUs on a regionwide basis are the largest source of SO_2 emissions and the largest source of stationary source NOx emissions. While EPA has not identified a bright-line cut-off for a "relatively large amount" of emissions, EGUs are clearly emitting a relatively large amount of regionwide NOx and SO2 emissions.

See the Regulatory Impact Analysis (RIA) for EPA's analyses of the projected impacts of CAIR on allowance prices, fuel use, electricity prices, coal prices, and retirements.

See also section VI.F in this RTC document for a response specifically regarding the projected impact of CAIR on gulf coast lignite production.

With respect to the timing of the CAIR phases, EPA has completed detailed analyses of the feasibility of installing the needed controls by the compliance deadlines. For discussion of

these analyses, see section IV in the CAIR NFR preamble, see section VII in this RTC document, and see the technical support document entitled "Boilermaker Labor and Installation Timing Analysis."

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

Comment:

The high efficiency of CHP systems creates emission reduction benefits by reducing the emissions of all regulated and non-regulated pollutants compared to separate generation of the same thermal and electric output. However, these higher efficiency and lower emission benefits are not recognized in many conventional environmental regulations that focus on end-of-pipe controls or heat input-based measures. [[(pp.1-2)]]

Response:

EPA recognizes the environmental benefits of highly efficient combined heat and power systems (or cogeneration units). As a result, EPA is including an exemption for cogeneration units in the final CAIR. See preamble for further discussion.

Comment:

The EPA power plant proposal is too lenient compared to the clean air investments expected of other economic sectors. The cost-effectiveness threshold for the EPA power plant proposal is disproportionately lax compared with other EPA national clean air standards. In its power plant proposal, EPA selects a cost-effectiveness threshold of $1,000 per ton for SO_2. In other words, the cost of the power companies' compliance with the SO_2 pollution limits is estimated to be $1,000 per ton. Figure 1, which is based on EPA data, compares the SO_2 pollution reduction investments for motor vehicles, diesel freight trucks, and industrial smokestack scrubbing. In dramatic contrast with power plants, these other major economic sectors are expected to invest many thousands of dollars per ton to clean up each ton of SO_2. Stronger power plant clean up standards would annually save thousands of lives and prevent some 100,000 asthma attacks in children. Even a $1,500 per ton threshold for power plants would be highly cost-effective compared to other national EPA programs to reduce SO_2, and such costs would be far surpassed by the human health benefit of controlling SO_2 at smokestacks. The human health benefits of lowering SO_2 from power plants are valued at $15,000 per ton. For the families that will breathe easier, the benefits are much greater. Modestly increasing the cost effectiveness threshold to $1500 per ton for SO_2 and a similar increase for SO_2 would annually prevent some 2,700 premature deaths from particulate pollution, and 140,000 asthma attacks in children across the eastern region subject to EPAs initiative. [[(p.18)]] [[see pp.25-34 for detailed discussion of this issue]]

Response:

As explained in section IV in the NFR preamble, EPA determined the amounts of regionwide NOx and SO2 emission reductions that can be obtained using highly cost-effective controls on EGUs. However, the affected States have flexibility in choosing the sources that must reduce emissions. See section IV in the NFR preamble for further discussion of EPA's cost

effectiveness determination and further discussion regarding non-EGU sources. Also see section IV in this Response to Comments Document for discussion regarding non-EGU sources.

The commenter places EPA's emission cap decisions in a cost-benefit framework which is useful, but it not appropriate for EPA rules to address transport of air pollution. The right framework is cost effectiveness – to obtain reasonable reductions in the most cost-effective manner while consciously not creating economic problems or overcontrolling emissions – which EPA has done.

Comment:

States Should Not Be Precluded From Requiring Additional 'RACM' Measures On EGUs If They Are Cost-Effective When Compared To Other Local Measures. [[(p.7)]] On page 4624 of the NPR, EPA suggests that state or local air pollution control authorities would be allowed to require additional local control measures on EGUs if such measures would be reasonable compared with other reasonably available local controls. (We could not tell, however, whether EGUs are included in Table IV-5 of potentially available RACM measures for PM-2.5 SIPs. Id. At 4597.) Although it may not be as cost-effective to retrofit EGUs with reasonable control measures, once 'very cost-effective' controls are installed under the IAQR, we agree that EGUs may still be a source of cost-effective SO_2 and PM-2.5 reductions compared with other locally available measures. [[(p.7)]]

Response:

CAIR does not preclude state or local authorities from adopting more stringent levels of control.

Comment:

The analysis provided by CATF establishes that the technology exists today to control both of these pollutants. Emissions control technology for SO_2 is well known and has been actively in use for decades while more recently developed and placed into commercial use, selective catalytic reduction (SCR) technology has proven to be a reliable and effective way to achieve reductions in the 90 percent range for NOx emissions. See, e.g., 69 Fed. Reg. At 4612. [[p. 2]] Tighter Caps on NOx and SO2 Emissions from Power Plants are Cost-Effective - Cost effectiveness is not simply a measure of the total cost of a project, but rather the costs as seen in light of the benefits that will result. EPAs IAQR proposal is certainly highly cost-effective by nearly any measure. EPA has conducted a monetary cost-benefit analysis of the IAQR proposal that does not include many benefits because EPA does not have an acceptable method for quantifying them in monetary terms. It is likely, therefore that the true benefits and the resulting cost-effectiveness ratio are substantially understated. Regardless of whether or not the benefits are understated, EPA concludes that the benefits of its proposal exceed costs by a factor of about 21 to 1. Thus, even if EPAs proposal were strengthened to the point where costs of the proposal doubled or tripled, the overall proposal would still be considered by most to be highly cost-effective,with benefits exceeding costs by a range of between at least 7 to 1 and 10 to 1.5 We urge EPA to apply the same approach used in the NOx SIP Call to determine which controls are highly cost-effective in the IAQR. The League supports the argument for this action made by CATF in their comments.

Response:

See section IV in the CAIR NFR preamble for a detailed discussion of EPA's cost effectiveness determination.

CAIR is intended to fulfill EPA's regulatory authority of issuing a rule which reduces upwind $PM_{2.5}$ emission from sources which are determined to have significant contributions to downwind nonattainment areas. EPA does not have the legal authority to issue a rule which is specifically intended to maximize the total benefits to total costs ratio.

Comment:

EPA's Proposed Caps on Power Plant NOx and SO2 Emissions are Inadequate to Protect Public Health and to Allow NAAQS Attainment and Must be Strengthened.

EPA's proposed CAIR region annual emission caps of 2.7 million tons for SO_2 and 1.3 million tons for NOx are woefully inadequate, arbitrary and capricious, and inconsistent with the Clean Air Act and controlling policy and precedent thereunder. As we stated in our CATF Group IAQR Comments:

> "EPA must apply the approach to determining an appropriate control level that it actually used in the NOx SIP Call. Application of that approach leads to a determination that "highly cost-effective" controls are those that achieve the "greatest feasible emission reductions" but cost on average up to $2000 per ton of SO_2 removed and up to $2500 per ton of NOx removed. As our analysis … will demonstrate, regional annual control caps for power plants of 1.84 million tons for SO_2 and 1.04 million tons for NOx are well within these limits for highly costeffective controls.

EPA has neither applied the approach to determining 'highly cost effective' controls actually used in the NOx SIP Call nor explained why it has deviated from that approach in the CAIR proposal.

We will not repeat the information and discussion in our CATF Group IAQR Comments supporting our argument that EPA's cap levels are unlawfully lax, but have corrected and enhanced that information in certain respects.

Initially, we note that following EPA's January 30 IAQR proposal in this docket, on May 5, 2004 EPA reproposed its BART Guidelines addressing, among other things, presumptive control levels for power plant NOx and SO2 emissions. As we have previously mentioned, EPA determined in that rulemaking that using available and 'highly effective control technologies (i.e., FGD),' power plants can generally reduce uncontrolled SO_2 emissions by about 95 percent or to a rate of 0.10 to 0.15 lb/mmBTU, at a cost averaging between $200 and $1300 per ton of SO_2 removed. In fact, in an earlier study cited by EPA in the BART rulemaking, EPA estimated FGD costs ranging from $145 per ton of SO_2 removed to $965 per ton. Significantly, EPA acknowledged that the cost of these rigorous BART controls is well within the levels considered for application under many CAA regulatory programs. In spite of the clear availability of highly cost effective controls capable of reducing SO_2 emission by 95 percent or the 0.10 lb/mmBtu level, the CAIR caps are based on much less stringent control levels 0.60 lb/mmBtu for phase 1 and 0.42 lb/mmBtu for phase 2.

In addition, in comments submitted in the BART docket, the Institute of Clean Air Companies (ICAC), a national trade association of more than 80 companies that actually supply air pollution control technology for stationary sources, provided substantial additional information on emission control technologies. The ICAC Comments are attached hereto as Appendix E and made apart hereof. [[See docket number 1818 for Appendices A through L2.]] In its Comments, ICAC confirmed that current technologies are capable of reducing SO_2 emissions by over 95 percent, and stated that there already are 38 coal-fired power plants that are meeting a 0.15 lb/mmBtu SO_2 emission rate. Given the availability of highly-cost effective SO_2 controls capable of reducing power plant SO_2 emissions to levels much lower than reflected in the CAIR cap, EPA must lower those caps substantially. [[pp. 26-27]] [[See docket number 1762, pp. 27-36 for discussion of CATF Alternate Control Strategies and Scenarios.]]

Response:

See response regarding CATF Alternate Control Strategies and Scenarios in section VI.F., below.

Comment:

Electric generating sources like Entergy that have already made financial investment to be cleaner through nuclear, clean coal, and natural gas will be disadvantaged by requiring a common percentage reduction to sources regardless of contribution. Technologies that presently exist are designed to achieve a high percentage removal from sources with higher emission. Cleaner sources would be forced to install this same technology at a much higher cost per ton of pollutant removed or deal with the uncertainty of the allowance market. [[(p.5)]]

EPA identifies its 'highly cost-effective controls' approach as one that derives the allowance budget. However, EPA appears instead to take the budget a given and to ensure that the budget achieves its cost effectiveness criteria. This works at a regional level, but does not address state to state fairness when adding incremental states to the program. The Agency acknowledges that their cost effectiveness measures do not take into account the fact that any given ton of pollutant reduction may have different impacts on ambient concentration and human exposure, depending on factors such as the relative locations of the emissions sources and receptor area. It seeks comment on whether to take such considerations into account and what measures to use. These considerations should definitely be taken into account for states that have a low contribution. [[(p.5)]]

If EPA concludes that it will not derive state budgets from an air quality analysis, EPA should consider what level of control is highly cost effective on a state-by-state basis as opposed to a regional basis. There are significant differences in the states regarding the current level of emissions and the ability to meet budgets on a cost effective basis. Failure to adjust state budgets to reflect these differences would be especially important if a state does not participate in the interstate trading program. If EPA is determined to maintain the current level of its regionwide budget, EPA should at the least apportion the regionwide budget to the states recognizing the very real differences that exist. [[(p.7)]]

EPA's cost effectiveness argument does not address state level cost effectiveness. Once EPA established the affected states, it only evaluated costs over the entire region and did not

consider costs on a state by state basis. This is not a fair comparison given the disproportionate impact on clean states given the much smaller allocation. [[(p.7)]]

Response:

The CAIR emission reduction levels were determined to be feasible and highly cost-effective. See section IV in the CAIR NFR preamble for a detailed discussion of EPA's cost effectiveness determination and feasibility evaluation. Also see a TSD in the docket entitled "Boilermaker Labor and Installation Timing Analysis" for further discussion of factors affecting feasibility.

Under a cap-and-trade program all units are not mandated to achieve a standard level of control, some units will install controls while others will purchase emission allowances.

See section II.C in this RTC document for discussion regarding the application of uniform control measures.

See preamble section V and section X in this RTC for discussion of apportioning regionwide emission budgets to States.

Comment:

When determining emission cap targets, EPA utilized a strategy very similar to the one it employed in developing the Section 110 NOx SIP Call of 1997, namely, emission caps were based on the level of emission reductions that would accrue from the use of 'highly cost-effective' controls. While Maine believes that emission cap targets should be determined on the basis of contribution, we do believe that the cost of controls should be factored into the equation. Unfortunately, EPA has over-emphasized cost considerations in determining the final emission caps. EPA has continued to use the Section 110 NOx SIP Call metric which calls those controls with a cost-effectiveness of $2000 per ton or less 'highly cost effective.' Maine believes that the use of this 1997 metric reduces the potential benefits of the proposal,,and results in significantly greater pollution transport. [[(p.3)]]

It is important to recognize that many of the CAA mandated control programs currently implemented by states have cost effectiveness estimates that are well above the $2000 threshold. For example, programs such as SO_2 RACT have cost effectiveness estimates well above this level. There exists a fundamental inequity in any proposal that continues to impose high costs of control upon a state such as Maine, while upwind sources are only required to utilize the most cost-effective controls. Although we believe there are sound arguments for justifying a substantially higher metric (if needed) in determining the emission caps, the metric should be raised to a level more comparable to the costs imposed on downwind states.

In the absence of a more rigorous determination of 'highly cost effective,' EPA should at least adjust its current estimates upward to account for inflationary effects occurring since the 1997 Section 100 NOx SIP Call. [[(p.3)]] Maine's experience with Wyman Station in Yamnouth, Maine provides a good example of the types of new control technology that, when used in concert with controls such as SCR, can reduce NOx emissions to levels well under the 0.125 lbs/mm Btu emission rate limit. [[(pp.3-4)]] [[(see docket number 0962, pp.4-5, for a detailed discussion of this issue)]] We believe that the IAQR reduction requirements should be

based on the level of reduction achievable through the use of both combustion engineering techniques and SCR (or equivalent) add-on controls. Used in concert these technologies could achieve emission rates well below 0.125 lbs/mm Btu, and do so in a cost-effective manner - especially compared to additional controls in those areas most affected by ozone and PM transport. [[(p.5)]] Similar levels of reductions in SO_2 can also be achieved in a very cost-effective manner. Wet flue gas desulfurization systems are achieving operational control efficiencies of 98 percent, and dry systems are currently achieving control efficiencies of more than 90 percent on coal-fired boilers, and the effectiveness and durability of these systems has been well documented. While Maine does not have any proposed PM fine nonattainment areas, meeting Regional Haze Program goals will require maximum upwind reductions of SO_2. [[(p.5)]]

Response:

EPA has determined through air quality modeling which states contribute to downwind nonattainment problems. Morever, EPA has determined levels of controls which are considered to be highly cost effective which are applicable to all the identified states. It may be that some States have greater impact on downwind attainment areas than emissions from more distant States. Even so, EPA has determined that each CAIR State have s

Comment:

Michigan supports the inclusion of requirements for each existing power plant to meet a minimum level of control by an established final compliance date. [[(1181, p.1)]] Michigan supports the development of national regulations to establish a floor or minimal energy efficiency levels for continued operation of all new and existing electric generating units. [[(1181, p.1)]] Michigan supports inclusion of incentives for the development of new technology for emission reductions, energy efficiency, and conservation. [[(1181, p.2)]]

Michigan believes that a multipollutant rule such as the IAQR should include requirements for each existing power plant to meet a minimum level of control by an established final compliance date. This would ensure that older plants are making some improvements in emissions. Cases have been made by power companies that controlling older EGUs is not cost-effective. However, it has been seen recently that the installation of various burner controls on EGUs can result in much larger reductions in NOx emissions than previously thought, making the cost per ton much lower even for older EGUs. [[(1181, p.5)]]

Response:

EPA does not mandate minimum EGU control levels in CAIR, but instead implements cap and trade programs which are intended to promote energy efficiency in new and existing EGUs, promote the development of emission reduction technologies, as well as promote industry conservation.

We disagree with the commenters statement “that controlling older EGUs is not cost effective”. Many of EPA’s projected pollution control technology installations are anticipated to be on older EGUs.

Comment:

FMEA believes EPA needs to refine and improve its modeling capability used to determine which upwind areas should be included as significant contributors to downwind nonattainment, at the very least before proceeding with Phase II. FMEA supports developing other metrics, beyond the zero-out approach, including examining the annualized costs for each state per ambient impact on each downwind nonattainment receptor. EPAs current method results in inequities by failing to take into account the disproportionate impacts some upwind contributors have in the downwind nonattainment areas, resulting in unfair apportionment of state budgets.

EPA needs to measure the significance of an upwind states contributions to $PM_{2.5}$ nonattainment in terms of its relative contribution to the exceedance level. While EPA discussed modeling based on magnitude, frequency and relative contribution, it measured the magnitude of the upwind contribution but failed to measure the relative amount of an upwind states contribution to downwind nonattainment. Thus, a state contributing a relatively small amount to a downwind states nonattainment area is deemed as significant a contributor as a state contributing relatively large amounts. EPA needs to model this relative contribution metric, at the very least before determining which states remain in Phase II.

EPAs choice of 1 percent as constituting significant contribution to downwind nonattainment is not well-supported in the proposal. This threshold differs from others, including the threshold for significant contribution for ozone, where EPA is using 2.5 percent for the 8-hour ozone NAAQS. EPA needs to provide a better and more thorough justification of a 1 percent threshold before departing from previous thresholds used in the ozone and other rulemakings.

Taking into account other rulemakings and the reductions that will occur through both downwind and upwind state SIPs in Phase I, EPA needs to provide modeling of what areas may come into attainment before 2015. To the extent many downwind nonattainment areas may already be in compliance before 2015, it may be inappropriate for some states to remain in the cap and trade for Phase II.

Response:

See the CAIR NFR preamble, in particular sections II.B, III.D, and IV.A.

VI.B. Benefits of additional NOx control are not adequately demonstrated

Comment:

EPA based the proposed IAQR emission reduction requirements on the application of highly cost effective controls on large electric generating units (EGUs). EPA focused on EGUs because this source category emits a relatively large amount of NOx and SO2 in the affected region, based on either the percent contribution the source category makes compared to the total inventory or under an alternative approach that considers the contribution the source category makes to the total NAAQS exceedance level. Secondly, EPA decided not to require IAQR emissions reductions from non-EGU sources (particularly non-EGU boilers and turbines), because the Agency stated they had relatively little information on other source categories for their relative emissions and costs of controlling those emissions.

In response, the commenter believes that EPA is required both legally, as well as, from a public policy standpoint to consider all source categories for inclusion under the IAQR. This should include source categories that may be relevant on the basis of their size within the entire emissions inventory or in terms of their percent contribution to NAAQS exceedance levels. Ultimately, the determination of which source categories to use as a basis for establishing control levels must be based on those categories' relative role in creating nonattainment conditions. Thus, the commenter objects to EPA's exclusion of other source categories under IAQR, on the sole basis that the Agency does not have adequate information to examine them for highly cost-effective controls. In particular, the commenter believes that EPA should consider inclusion of large non-EGU boilers and turbines, especially given prior precedent where these source categories were included in emissions reductions under the NOx SIP Call.

Response:

Section IV.B in the CAIR NFR preamble describes EPA's evaluation of non-EGU sources. As explained in the NFR preamble, EPA determined the amounts of regionwide NOx and SO2 emission reductions that can be obtained using highly cost-effective controls on EGUs. However, the affected States have flexibility in choosing the sources that must reduce emissions. See section IV.B in the NFR preamble as well as section IV in this Response to Comments Document for further discussion regarding non-EGUs emission sources.

Comment:

A word of caution is in order when relying upon the cost effectiveness argument. The traditional measure of the success of a State's SIP is the attainment of the NAAQS. Over reliance on cost effectiveness changes that measure. It may eliminate it, altogether. Cost effectiveness is a moving target. It changes every year. It does not include a health benefits test. It does not include a NAAQS attainment test. It simply says that if the cost of control falls below some newly defined dollars per ton figure, the controls must be implemented. This implies that a State would never be done with its obligations under Section 110. Continued progress in reducing emissions is a practice that the commenter wishes to maintain. However, the commenter believes that there are more appropriate mechanisms for accomplishing this within existing State and Federal regulatory programs.

Response:

In determining the CAIR emission reduction requirements, EPA generally followed the statutory interpretation and approach under CAA section 110(a)(2)(D) that was developed in the NOx SIP Call rulemaking (see discussion of the NOx SIP Call approach in section IV in the CAIR NFR preamble). That is, EPA identified the emissions in each upwind State that contribute significantly to nonattainment as being those emissions that can be eliminated through highly cost-effective controls. The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

The CAIR will bring many nonattainment areas further along towards attainment, greatly reducing the amount that remains to be done. Alternatively, if EPA had tried to bring every area into attainment through the CAIR, it is likely that some over-control would have occurred that

would not have been cost-effective. The EPA endeavored to strike the right balance with CAIR, especially on $PM_{2.5}$ given only 14 areas out of attainment after 2015, and we believe we have done a good job at striking that balance.

EPA's cost effectiveness determination is described in section IV in the CAIR NFR preamble. As was done for the NOx SIP Call rulemaking, EPA developed reference lists of control costs under recently promulgated or proposed rules and compared those costs to projected control costs under CAIR. The control costs on the reference lists represent actions that policy-makers at the local, State and Federal levels have determined to be cost-effective actions to limit or reduce emissions. Using IPM, EPA modeled the future control costs under CAIR and determined a control level for which the projected costs would be at the lower end of the range of costs in the reference lists.

Contrary to the commenter's contention, the construct created by EPA will not result in ever tighter controls on upwind sources as a simple result of decreasing control costs. As a threshold matter, prior to any additional controls being required, the upwind State would, at the time of the analysis, contribute significantly to nonattainment in, or interfere with maintenance by" a downwind State. This determination is independent of our analysis of highly cost-effective controls. Moreover, as explained in section IV in the CAIR NFR preamble, control costs are not the sole determining factor in concluding that upwind controls are necessary.

See section X in the CAIR NFR preamble for a discussion of the health benefits of CAIR.

Comment:

The USEPA's own modeling shows that many of Ohio's large cities and Ohio River communities would still remain in nonattainment by 2015 - 5 years past the deadline to meet the fine particulate standards.

Response:

To determine the CAIR emission reduction requirements, EPA generally followed the statutory interpretation and approach under CAA section 110(a)(2)(D) that was developed in the NOx SIP Call rulemaking. That is, EPA identified the emissions in each upwind State that contribute significantly to nonattainment as being those emissions that can be eliminated through highly cost-effective controls. The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

The CAIR will bring many nonattainment areas further along towards attainment, greatly reducing the amount that remains to be done. Alternatively, if EPA had tried to bring every area into attainment through the CAIR, it is likely that some over-control would have occurred that would not have been cost-effective. The EPA endeavored to strike the right balance with CAIR, especially on $PM_{2.5}$ given only 14 areas out of attainment after 2015, and we believe we have done a good job at striking that balance.

The CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the

NAAQS are met in local areas. By taking the initial step of finalizing CAIR, we are requiring a very substantial reduction in interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

Next, against a backdrop of Federal actions that lower air emissions and some substantial State programs, States will develop plans designed to achieve the standards in their local nonattainment areas. EPA has not yet promulgated rules interpreting the Act's requirements for State implementation plans for $PM_{2.5}$ and ozone nonattainment areas, nor have States developed plans to demonstrate attainment. (EPA did promulgate phase I of the ozone implementation rule in April 2004 (69 FR 23951; April 30, 2004) but has not issued phase II of the rule, which will interpret CAA requirements relating to local controls (e.g., RACT, RACM, RFP). As a result, there are significant uncertainties regarding potential reductions and control costs associated with State plans. We believe that some areas are likely to attain the standards in the near term through early CAIR reductions and local controls that have costs per ton similar to the levels we have determined to be highly cost-effective. We expect that other areas with higher $PM_{2.5}$ or ozone levels will determine through the attainment planning process that they need greater emissions reductions, at higher costs per ton, to reach attainment within the Act's time frames. For those areas, States will need to assess targeted measures for achieving local attainment in a cost-effective (but not necessarily highly cost-effective) manner, in combination with CAIR's significant reductions. Given the uncertainties that exist at this early stage of the implementation process, EPA believes this rule is a rational approach to determining the highly cost-effective reductions in $PM_{2.5}$ and ozone precursors that should be required for interstate transport purposes.

As explained in section IV in the CAIR NFR preamble, the timing of the initial compliance phase is limited by the feasibility of installing necessary pollution control retrofits within the available time frame. EPA did move-up the $_{\text{initial NOx}}$ compliance phase from 2010 to 2009 after the CAIR proposal, however it is not feasible to accelerate the compliance schedule any further.

Comment:

EPA data indicates that the NOx reductions predicted by the proposed IAQR will yield, at most, 1 to 2 parts per billion (ppb) ozone reductions on a per county basis, leaving most affected counties out of ozone attainment. This is not a significant step beyond the level of controls required by the NOx SIP Call and is not enough to help bring the Northeastern states into attainment of the 8-hour ozone standard. EPA's next phase of NOx controls should provide reductions deep enough to achieve attainment objectives, consistent with the OTC's multi-pollutant principles of January 27,2004 and consistent with STAPPA/ALAPCO multi-pollutant principles of May, 2002 that were further explained in the STAPPA/ALAPCO of March 2004.

Response:

As explained above in this section of the RTC document, the emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment with the $PM_{2.5}$ and 8-hour ozone standards. However, CAIR is not intended to bring every nonattainment county into attainment. As discussed in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment

plans to ensure the NAAQS are met in local areas. By taking the initial step of finalizing CAIR, we are requiring a very substantial reduction in interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

The CAIR will bring many nonattainment areas further along towards attainment, greatly reducing the amount that remains to be done. Alternatively, if EPA had tried to bring every area into attainment through the CAIR, it is likely that some over-control would have occurred that would not have been cost-effective. The EPA endeavored to strike the right balance with CAIR, especially on $PM_{2.5}$ given only 14 areas out of attainment after 2015, and we believe we have done a good job at striking that balance.

See response

Comment:

While improving air quality trends and the stage of implementation of the requirements of the NOx SIP Call indicate that the need for additional NOx reductions under the CAIR is premature, the following comments are provided to ensure that the final regulatory program adopted by EPA achieves ambient air quality benefits in a flexible and cost effective manner.

Response:

See section IV in the CAIR NFR preamble for a description of EPA's determination of the CAIR emission reduction levels and timing.

The CAIR will bring many nonattainment areas further along towards attainment, greatly reducing the amount that remains to be done. Alternatively, if EPA had tried to bring every area into attainment through the CAIR, it is likely that some over-control would have occurred that would not have been cost-effective. The EPA endeavored to strike the right balance with CAIR, especially on $PM_{2.5}$ given only 14 areas out of attainment after 2015, and we believe we have done a good job at striking that balance.

Comment:

EPA's own modeling of the improvements in downwind ozone nonattainment areas show that only three additional counties would attain the ozone standard as a result of the IAQR as compared to the 2010 base case and that the IAQR would result in only eight more counties reaching attainment as compared to the 2015 base case. The serious and sweeping NOx cuts that would be imposed across the affected region under the proposal are not justified based on those relatively minor projected improvements in ambient ozone. [[(p.2-3)]]

Response:

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment with the $PM_{2.5}$ and 8-hour ozone standards. However, CAIR is not intended to bring every nonattainment county into attainment. As discussed in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the initial step of finalizing CAIR, we are requiring a very substantial reduction in interstate transport

of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

The CAIR will bring many nonattainment areas further along towards attainment, greatly reducing the amount that remains to be done. Alternatively, if EPA had tried to bring every area into attainment through the CAIR, it is likely that some over-control would have occurred that would not have been cost-effective. The EPA endeavored to strike the right balance with CAIR, especially on $PM_{2.5}$ given only 14 areas out of attainment after 2015, and we believe we have done a good job at striking that balance.

See section IV in the CAIR NFR preamble for a description of EPA's method for determining the CAIR regionwide NOx and SO2 emission reduction requirements.

Comment:

Some commenters raised concerns with the application of cyclone-fired boilers cofiring tire-derived fuel with coal. The commenters argued that SCR technology is not feasible for this specific application, since the SCR catalyst would be exposed to wire impingement, which would reduce its operating life. The tires contain wires and they may get entrained with flue gases within the boiler.

Response:

The EPA does not agree with the concerns raised by the commenters, since SCR has been successfully applied to boilers that cofire coal with tire-derived fuel, including a cyclone-fired boiler at Dynergy Baldwin Plant. Also, several applications of SCR on other cyclone-fired boilers exist.[58] It should also be noted that SCR catalyst modules can be equipped with wire mesh screens that protect the catalyst from falling or entrained debris, and this screen would also protect it from wires that might originate from tire fuel. Normally, flow straighteners in the form of dummy catalyst layer are also installed upstream of the catalyst and will protect the catalyst from debris.

The EPA also notes that technologies other than SCR can also be used to provide substantial NOx reduction on boilers mentioned in the comments. Technologies that have already been successfully applied to such boilers include combustion controls, SNCR, and reburn.

Comment:

Several commenters argued that SCR technology is not feasible for application on lignite-fired boilers. Some of these commenters claimed that an SCR pilot test on a slipstream from a boiler firing lignite had shown catalyst plugging and blinding. One commenter attributed this problem to sulfates of calcium and sodium, which are present in the flue gas stream entering the SCR, as a result of firing of lignite in the boiler. One of these commenters also claimed that SCR was not feasible for boilers firing sub-bituminous coals and another claimed that, due to lack of any large-scale applications, SNCR was not considered feasible for boilers firing lignite. In addition, a commenter noted that when SCR is used for mercury oxidation, ammonia injected for NOx control renders the catalyst ineffective for the oxidation of mercury.

[58]Email from J. Staudt to S. Khan, Update to IAQR comments - Comments 1-5, August 26, 2004 (docket no. OAR-2003-0053-1949)

Response:

The EPA notes that there is considerable experience in the industry to show that use of SCR on sub-bituminous coals and lignite is technically feasible. SCR is currently in use on several sub-bituminous coal-fired boilers in the U.S. firing Powder River Basin coal.[59] Regarding the use of SCR on boilers firing lignite, EPRI testing of SCR catalyst in a slipstream at the Martin Lake plant showed acceptable results from Texas Lignite.[60] Furthermore, the technology suppliers report that SCR has been successfully used on lignite and brown coal boilers in Europe.[61] From this experience, it can be concluded that SCR can be used on sub-bituminous coal and lignite boilers in the U.S. and catalyst suppliers have indicated that they will offer performance guarantees on these applications in the U.S.[62]

The EPA also notes that the commenters have not provided any details of the pilot test that has been mentioned with regards to the plugging and blinding of a catalyst from lignite-generated fuel gases. Without this information, this part of the comment cannot be addressed properly. The EPA's own investigations show that the main reason for this problem was ash build up on the catalyst, which is a problem commonly experienced in pilot test facilities.[63] In the full-scale installations, this concern is addressed during the SCR design stage. The methods used to avoid this problem include duct design to promote ash fallout prior to the SCR, catalyst reactor design to avoid ash build up, and on-line cleaning methods (sootblowers and sonic horns).

SNCR technology has been used on several boiler installations firing sub-bituminous coals and lignite (see Fuel Tech, Inc. VII.B-0981 and ICAC VII.B-0772).[64] In view of this experience, EPA considers this technology to be feasible for boilers firing these fuels.

Regarding the role of the SCR catalyst in oxidation of mercury from sub-bituminous coal and lignite, there is no evidence to suggest that SCR would have a detrimental effect on mercury

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[59]"SCR Lowest NOx Ranking, 3rd Quarter 2003," McIlvaine Website, www.mcilvainecompany.com, accessed on December 23, 2003 (docket no. OAR-2003-0053-1940)

[60]"Impacts of Texas Lignite Coal on SCR Catalyst Life and Performance: Field Data from TXU's Martin Lake Plant," EPRI Website, www.epri.com, accessed on December 11, 2003 (docket no. OAR-2003-0053-1944)

[61]Email from J. Staudt to S. Khan, Lignite Installation List, July 5, 2004.(docket no. OAR-2003-0053-1946)

[62]Email From J. Staudt to S. Khan, Response to Comments- IAQR, July 2, 2004 (docket no. OAR-2003-0053-1945)

[63] Email From J. Staudt to S. Khan, SCR on ND Lignite, August 20, 2004 (docket no. OAR-2003-0053-1947)

[64]M. R. Comparato," SO_2 Control Technologies: Focus SNCR," Western Coal Council, April 24-26, 2001, Brimingham, Alabama, Website http://www.fueltechnv.com/air_pollution_frameset.htm, accessed on March 2, 2005 .

control from these boilers and there is evidence that SCR may have a beneficial effect on mercury capture in some cases.[65]

Comment:

One commenter points out that EPA has not considered the use of the currently available computer-aided combustion optimization techniques that, if used with SCR, would improve the effectiveness of SCR considerably. The commenter also states that EPA's IPM assessments appear to assume less than 90 percent NOx reduction with SCR, even though EPA has indicated in the docket that 90 percent SCR NOx reduction is the presumptive highly cost-effective technology.

Response:

The EPA confirms that IPM was updated to include the controlled NOx levels being achieved with the recently installed combustion controls. EPA performed a detailed analysis to establish these control levels and incorporated them into the IPM analyses performed for the final rule.[66] The documents covering the basis for these updates were placed in the CAIR docket.

As indicated in the preamble for the NPR proposal, EPA used 90 percent NOx reduction as the SCR performance capability in the IPM analyses performed for this proposal. In addition, the minimum NOx rate was limited to 0.05 lb/MMBtu for these analyses. The EPA has used the same 90 percent NOx reduction capability for SCR in the IPM analyses for the final rule. However, the minimum NOx rate limit was revised to 0.06 lb/MMBtu, which was selected as a reasonable minimum NOx rate for SCR technology, based on the latest available industry data from a large number of recent SCR installations.[67]

It should be noted that the controlled NOx rate at the SCR outlet depends on the SCR inlet NOx level. Therefore, even with 90 percent reduction, the controlled NOx rate from an SCR installation can be higher than the minimum selected level of 0.06 lb/MMBtu. For example, for an inlet NOx level of 0.7 lb/MMBtu, the 90 percent efficient SCR controlled NOx rate would be 0.07 lb/MMBtu. This inlet NOx rate depends on the boiler type, coal type, and availability of combustion controls. The highly effective, modern combustion controls mentioned by the commenter are available for tangential- and wall-fired boilers only. Even, within these boilers, the effectiveness of these combustion controls varies, depending on the type of coal fired and boiler design. The 2004 data reported to EPA's Electronic Data Reporting system from units

[65]"Performance and Cost of Mercury and Multipollutant Emission Control Technology Applications on Electric Utility Boilers," EPA-600R/-03-110, October 2003.

[66]S. Khan and R. Srivastava, "Updating Performance and Cost of NOx Control Technologies in the Integrated Planning Model," Mega Symposium, August 30-September 2, 2004, Washington, D.C. (docket no. OAR-2003-0053-1951)

[67]J. Staudt, S. Khan, and M. Oliva,"Reliability of Selective Catalytic Reduction (SCR) and Flue Gas Desulfurization (FGD) Systems for High Pollutant Removal Efficiencies on Coal Fired Utility Boilers," Mega Symposium, August 30-September 2, 2004, Washington, D.C. (docket no. OAR-2003-0053-1952)

equipped with SCR shows the stack NOx rate varying from 0.03 to 0.26 lb/MMBtu.[68] In addition, EPA notes that not all affected coal-fired units will install SCR. Therefore, EPA has considered these differences between boilers and used an average NOx rate of 0.11 lb/MMBtu to establish the CAIR NOx caps.

Comment:

One commenter argues that the capital and operating costs associated with SCR controls would be prohibitively expensive for the municipal solid waste (MSW) facilities.

Response:

The EPA notes that CAIR does not require controls on MSW plants. In addition, EPA does not require states to include MSW plants for CAIR. However, if any state elects to include an MSW plant as part of its SIP, EPA notes that SCR has been applied to a large number of worldwide MSW facilities.[69] In addition, such facilities have an option to consider other technologies, such as SNCR and reburn, which are considered viable for such applications.

Comment:

One commenter has argued that the waste-coal circulating fluidized-bed (CFB) boilers should be required to comply with only the NOx control requirements under CAIR, exempting them from compliance with the NOx control requirements of this rule. This commenter points out that, since these two pollutants (NOx and SO2) are controlled through operational practices in CFB boilers, their emissions are interrelated to the extent that increased control of one may cause increased emissions of the other. Therefore, the commenter believes that compliance with the requirements for both pollutants would not be possible for the CFB boiler plants firing waste coal.

Response:

The Agency agrees with the commenter that there may be an interdependency between the control of NOx and SO2 in a CFB boiler, if only operational practices are considered for this purpose. However, the Agency does not agree that operational practices are the only methods available to CFB boilers firing waste coals for controlling emissions of NOx and SO2. A large number of CFB boilers are equipped with selective non-catalytic reduction (SNCR) systems to control NOx.[70] Use of a polishing spray dryer absorber (SDA) to provide control of $_{SO2}$ emissions, in addition to limestone injection in the furnace, has also been amply demonstrated on a CFB boiler installation.[71] Both of these technologies are used downstream of the boiler combustion zone and they operate independent of each other.

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[68]"EPA's Website - Acid Rain/OTC Programs Hourly Emissions Data," www.epa.gov/airmarkets/emissions/raw/index.html

[69]Email from J. Staudt to S. Khan, Update to IAQR comments - MSW, August 26, 2004 (docket no. OAR-2003-0053- 1948)

[70]"Fuel Tech NOx Out Process Experience List," Comment Received on CAIR from ICAC, (VII.B-0772)

[71]W. Goodrich, et. al, "Summary of Air Emissions from the First Year Operation of JEA's Northside Generating Station," ICAC Forum '03, Nashville, Tennessee

As mentioned by the commenter, further control of $_{SO2}$ emissions in an existing CFB boiler can be provided by increasing the limestone injection rate. If this is used in conjunction with an SNCR system, further reductions in SO_2 emissions can also be provided. As an alternative, SNCR can be used along with a polishing SDA to reduce both NOx and SO2 emissions. Since the CFB boilers mentioned in the comment have these options available to them for reducing NOx and SO2 emissions over and above the levels that can be achieved with operational practices, the Agency cannot agree with the commenter that simultaneous control of these two pollutants is not possible for these boilers.

Comment:

EPA has not done an economic analysis to demonstrate that additional NOx reductions are cost-effective in reducing $PM_{2.5}$ and ozone exceedances:

EPA should separately model the $PM_{2.5}$ and ozone benefits derived solely fromthe proposed reduction in year-round NOx emissions. Reducing NOx emissions in the winter provides no benefits in reducing warm season $PM_{2.5}$ exceedances. It is not a cost-effective approach. EPA should either provide a straightforward cost-effective justification of year-round NOx controls, or drop this requirement from the IAQR. [[p. 4]]

Response:

See III in the CAIR NFR preamble.

Comment:

Duke Energy has serious concerns about the technical and legal basis for the additional electric generating unit (EGU) NOx reductions that EPA has proposed, especially in those states already affected by the NOx SIP Call rule. The minimal downwind air quality impacts to both 8-hour ozone and fine particles that EPA's modeling indicates might result from the additional reductions are not compelling and do not support EPA's proposal for additional NOx reductions from EGUs to address transport. In fact, EPA's modeling indicates that 8-hour ozone levels may actually increase in Mecklenburg County, N.C. if the proposed NOx reductions are implemented (EPA modeling indicates that the 2010 8-hour ozone design value increases for Mecklenburg County). See OAR-2003-0053-0162,Tables X-7 and X-9. At the most, rather than require installation of further NOx controls on EGUs, Duke recommends that EPA simply adjust the NOx SIP Call to an annual program requiring year-round operation of the controls that are already being installed to meet the SIP call. [[(0965, pp.3-4)]] [[(See Section IV, pp.3-5, of Docket Number 0966 for detailed discussion of this issue)]]

Response:

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment of the $PM_{2.5}$ and 8-hour ozone standards. However, CAIR is not intended to bring every nonattainment county into attainment.

As described in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ nonattainment and maintenance requirements. The Clean Air Act requires states to submit 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the early step of finalizing CAIR, we are requiring

a very substantial air emissions reduction that addresses interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule. As explained in the CAIR NFR preamble, although EPA developed the CAIR control requirements based on the application of highly cost-effective controls on EGUs, the States have flexibility in choosing the sources that must reduce emissions including non-EGUs.

The commenter's statement that EPA modeling indicates ozone levels might increase in Mecklenburg County is based on modeling that EPA did for the CAIR proposal. Modeling done for the proposal indicated the potential for a 1 ppb increase in the 8-hr ozone design value in Mecklenburg County, which was attributed to local increases in EGU NOx emissions in the IPM modeling. However, in the modeling done for the final CAIR, Mecklenburg County is projected to experience ozone reductions as a result of CAIR in both 2010 and 2015. See the Air Quality Modeling Technical Support Document for further information on EPA's air quality modeling for the CAIR NFR.

Comment:

Regarding the policy choices in EPA's proposal, the cost of implementing NOx and SO2 reductions to mitigate ambient concentrations of $PM_{2.5}$ is unjustifiable when considering the unresolved legal, scientific, environmental and economic issues outlined above. It is simply too expensive to move forward without a more sound basis, especially given the uncertainty regarding whether further analysis will show that certain states (such as Florida) will continue to be subject to the rule. [[(p.3)]]

Response:

EPA's air quality analysis found that Florida did significantly contribute $PM_{2.5}$ emissions to downwind nonattainment areas. For a more detailed response see the CAIR NFR text and other sections of this RTC document.

Comment:

SO_2 reductions for the 8-hour ozone NAAQS are not warranted. As MOG stated in its comments filed in this proceeding on March 30, 2004, NOx SIP Call States eliminated in May 2003 or in May 2004 any significant contribution to 8-hour ozone nonattainment. U.S. EPA represented in the preamble to the proposed NOx SIP Call Rule that in 2007 the Agency would evaluate the effect of the final NOx SIP Call. 62 Fed. Reg. At 60371/1 (November 7, 1997). Indeed, many areas that U.S. EPA designated as nonattainment for the 8-hour ozone NAAQS on April 30, 2004 (69 Fed. Reg. 23858) exceeded the 8-hour standard by only 1 to 2 ppb. By May 31,2004 at the latest, all sources subject to Phase I of the NOx SIP Call were required to have implemented controls. Further, U.S. EPA itself has projected extremely small reductions in 8-hour design values as a result of the proposed CAIR. Because the 8-hour design value reductions from the proposed CAIR are so small and because so many areas are so close to achieving the 8-hour standard, MOG submits that U.S. EPA should not accelerate the CAIR compliance deadlines. MOG urges U.S. EPA to evaluate the need, if any, for additional SO_2 controls only after full implementation of the NOx SIP Call. States with 8-hour ozone and $PM_{2.5}$ nonattainment areas are not without an adequate remedy. As U.S. EPA correctly notes in the preamble to the SNPR for the CAIR, States with hour ozone nonattainment areas may request reclassification to higher classifications and may also qualify for two one-year extensions. 69 Fed. Reg. At 32690/2. Likewise, U.S. EPA correctly notes that States with $PM_{2.5}$ nonattainment areas may also qualify

for two one year extensions. Id. Further, U.S. EPA correctly explains that the proposed CAIR creates 'a strong financial incentive for early reductions' of SO2, which will help $PM_{2.5}$ nonattainment areas achieve the $PM_{2.5}$ NAAQS. Id. In addition, U.S. EPA correctly explains that States with $PM_{2.5}$ nonattainment areas may receive a maximum five year extension. Id. [[(p.3)]]

Response:

See CAIR NFR preamble.

VI.C. Controls levels cannot be highly cost-effective if they cannot be achieved by attainment dates

Comment:

To be 'Highly Cost Effective,' the reductions must be practically achievable. Several factors must be considered when determining the amount of emissions that can be reduced in a highly cost effective manner. One that EPA focused on in the original CAIR proposal was the dollar cost of emission controls relative to the amount of reductions achieved by such controls (in units of $/tons removed). Another equally important factor, however, is the time needed to install and make operational such controls, i.e., the feasibility of the deadline for control. Regardless of the cost of controls (in $/ton of pollutant removed), if controls cannot feasibly be installed and made operational by a given compliance deadline, because of the impracticability of designing, installing or making operational such controls, then the emissions reductions to be achieved by the controls are by definition not cost effective. In another commenter's CAIR comments, EPA's analysis of its conclusion that enough boilermakers should be available for the first phase of the program, as well as how many GW of scrubbers and SCRs would be needed to meet the 2010 cap are critiqued. The commenter adopts that analysis. It shows that the proposed CAIR caps can not be achieved by 2010. In addition, as the other commenter noted in its comments, EPA must identify the dollar per ton threshold that it proposes to use in its highly cost effectiveness determination. Although it provides extensive discussion of dollar per ton values in the proposal, EPA never indicates what threshold value it is using for assessing whether the proposed $_{NOx\ or\ SO2}$ caps are highly cost effective. EPA must correct this deficiency before finalizing its proposed CAIR. The availability of and time needed to obtain financing is also a relevant consideration, when determining whether a required level of reductions is highly cost effective. With regard to financing, electric cooperatives have special considerations that EPA should account for, since much of their financing is done through the Rural Utilities Service ('RUS'), the lender of choice for electric cooperatives. The following is based on the commenter's experience with obtaining financing needed to install the necessary pollution controls.

Before discussing the time needed to obtain the necessary financing, one must project when the rules will become concrete enough such that the projected timeline for the installation of control technology can reasonably begin. As EPA noted in the original CAIR proposal, the process of installation can begin only after the date that the States have developed and submitted their respective SIPs, since they must have considerable discretion to choose which sources to regulate and how to regulate them, Those decisions will not be in place until the States have adopted their State rules and submitted them to EPA for approval. Given that SIPs will not be due under the CAIR until mid-to-late 2006, utilities will have at most only 3 years to plan, design,

contract, order, install and test the relevant control technology before the January 1, 2010 compliance deadline. From the starting point of the timeline, various activities, as summarized in the previous paragraph, will have to be performed before construction of the relevant controls has been completed and adequate testing has been conducted to assure sufficient performance. Based on its experience with RUS and the process for installation of new controls at a power plant, the commenter estimates that it will take much more than 3 years, perhaps even as long as five or six years, before a deadline to comply with the CAIR can be achieved. EPA's proposed deadline of 2010 for the implementation of the Phase I caps for NOx and SO2 is infeasible on the basis of the inability to obtain the financing from RUS in the given timeframe.

Response:

See section IV in the final CAIR preamble, as well as the technical support document entitled "Boilermaker Labor and Installation Timing Analysis," for discussion regarding the feasibility, timing, and cost effectiveness of the control levels. Also see related responses under section VII (Compliance Timing) of this Response to Comments document.

See section IV in the final CAIR preamble, as well as the technical support document entitled "U.S. Utility Industry Financial Status and Potential Recovery," for discussion regarding financing the required emission reductions.

The EPA need not identify a bright-line cutoff for highly cost-effective controls, but only need justify its conclusion that the level of control selected is highly cost-effective. Moreover, the Agency's approach of evaluating the cost effectiveness of CAIR emission reductions in relation to the range of costs of other programs does not necessitate such line drawing. See section IV in the final CAIR preamble for a detailed discussion of EPA's cost effectiveness evaluation.

Comment:

The proposed rule does not provide a cost-effective analysis, address the potential increases in the economic costs of power on businesses and grossly underestimates the impact of the proposed requirements. In addition, the EPA does not demonstrate that the proposed control strategies can be realistically met. As a result, smaller EGU's may not be able to attract contractors and vendors to meet deadlines. The commenter remains concerned with an economic shift in the reliance and thus increase usage in natural gas, ultimately driving up costs, reducing availability and further impacting businesses that solely rely on natural gas.

Response:

See section IV in the final CAIR preamble, as well as the technical support document entitled "Boilermaker Labor and Installation Timing Analysis," for discussion regarding the feasibility, timing, and cost effectiveness of the control levels. Also see related responses under section VII (Compliance Timing) of this Response to Comments document.

See section IV in the final CAIR preamble, as well as the technical support document entitled "U.S. Utility Industry Financial Status and Potential Recovery," for discussion regarding financing the required emission reductions.

See the Regulatory Impact Analysis for a discussion of impacts, including projected natural gas prices in the base case and with CAIR. These impacts are small. Additionally, EPA looked upstream at manufacturing industry impacts in a macroanalysis of the entire economy, and found that CAIR has little effect. The macroanalysis can be found as Appendix E in the Regulatory Impact Analysis (RIA).

VI.D. EPA did not clearly articulate the desired balance between local and regional control

Comment:

Page 4597, Column 2, Line 30 - 'Specifically, the control measures were applied to all counties in Consolidated Metropolitan Statistical Areas (CMSAs) for which any county in the CMSA contained a nonattainment monitor.' This statement refers to the local control sensitivity analyses conducted by EPA. The use of the CMSA is not appropriate for Missouri since some counties contained in the St. Louis were not part proposed as part of the $PM_{2.5}$ nonattainment area (Lincoln and Warren). We propose that EPA conduct this evaluation with a refined set of controls in the appropriately proposed nonattainment counties.

Response:

EPA does not believe it essential to the conclusions of this analysis that the control strategies be applied to the exact boundaries of the proposed or final PM nonattainment areas. This analysis was intended to estimate of the magnitude of reductions from an ambitious local strategy. While reducing the size of the area to which measures would decrease the impacts slightly, it would not alter EPA's conclusion that the analysis supports the need for regional reductions in EGU emissions.

Comment:

EPA's analysis confirms the self-fulfilling prophecy that states will not include adequate local controls in their SIPs leaving some portion to federally imposed regional controls. Such conclusions are technically premature until areas develop SIPs, which will include an extensive evaluation of local $PM_{2.5}$ speciation data and perhaps better modeling platforms (obtained from RPO work) in an effort to solve the local area's nonattainment problem. Only after states complete these SIPs will this information be readily available. Any remaining transport issues can be more accurately addressed at that time.

Response:

See preamble.

Comment:

The IAQR must provide downwind States the opportunity to achieve attainment with reasonable additional local controls. In Technical Support Document For The Interstate Air Quality Rule Air Quality Modeling Analyses (January 2004) - Docket # OAR-2003-0053-0162 (TSD), EPA states that eight metropolitan areas, including New York City, '...are projected to remain above the standard in 2010, despite the application of significant amounts of local control.' The Department requests EPA to identify what additional controls are available to a State like New York which has already adopted a broad array of local reductions (most recently, rules reducing emissions from architectural coatings, consumer products, portable fuel containers,

and solvent cleaning operations, as well as ongoing programs such as NOx RACT, the California low emission vehicle program, and a stringent automobile inspection and maintenance program, to name only a few).

Response:

The EPA believes that the substantial reductions in emissions provided by this rule will greatly assist States in achieving the reductions needed to attain air quality standards.

Comment:

Across the board controls in excess of the NOx SIP Call are not supported by science.: The EPA analysis of air quality describes efforts to assess the effect of local controls. The work is described at 69 Fed. Reg. 4596-99 in Section IV.F of the preamble. While EPA interprets the data to show that additional local controls are not effective, MOG submits that the model performance demonstrates the effectiveness of local controls. The impact of local controls comes very close to achieving attainment in the Philadelphia area and MOG submits that, if EPA determines that additional controls are necessary for attainment, those controls should be taken in the areas that will provide the most impact on the scattered residual nonattainment areas remaining after implementation of the IAQR.

Response:

See preamble (section III, regarding discussion of 25 percent emissions reduction modeling, and sections III, VI and IV regarding basis for CAIR ozone controls). In addition, EPA believes that both local controls and upwind state controls are effective and will both contribute to achieving attainment of the 8-hour ozone standard.

Comment:

MOG suggests that EPA review the 'rollout' modeling done in conjunction with the OTAG process, which clearly demonstrated that controls are more efficient and cost effective if taken nearer the sources which are contributing the largest amount to the nonattainment problem area. Following implementation of the IAQR, the scattered residual nonattainment areas will be most heavily impacted by sources in the local vicinity of the nonattainment area, since the transport component of the problem will have been removed. Accordingly, MOG submits that science does not support any proposal for emissions reductions beyond those required in the current NOx SIP Call.

Response:

See preamble and response to previous comment.

Comment:

EPA has failed to properly distinguish between regional and local controls.: In the preamble to the IAQR, EPA states 'The requirements in this proposal are intended to address regional interstate transport of air pollution.' 69 Fed. Reg. 4570. In Table V-5, however, we note that the maximum annual $PM_{2.5}$ impact of Madison County, Illinois on Missouri is 0.89 ug/m-3 and the maximum impact of St. Louis County, Missouri on Illinois is 1.50 ug/m-3. Significantly, these counties are in the same MSA and are proposed to be in the same $PM_{2.5}$ nonattainment area and there contributions are clearly not regional in nature.

This analysis illustrates the impact of nonattainment counties in one state on nonattainment counties in the other state in a situation where all counties are in the same nonattainment area. EPA's stated intention is to address regional transport, not the contribution of a nonattainment area on itself. These local contributions are better left to the individual states to resolve. As EPA further states in the preamble, 'There are likely more localized transport problems that will remain, particularly between contiguous urban areas located in two or more States. States that share an interstate nonattainment area are expected to work together in developing the nonattainment SIP for that area, reducing emissions that contribute to local-scale interstate transport problems.' (69 Fed. Reg. 4570). This flaw in EPA's analysis must be addressed by EPA before this rule is finalized.

Response:

The commenter misreads Table V-5 from the proposal to include impacts of individual counties to other States, which is not the case. Rather, this table indicates the contributions from entire States to individual locations. Accordingly, the commenter is incorrect that these values can be used to make observations about the impact of nonattainment counties within an individual nonattainment area. See preamble for discussion of basis for the rule, and discussion of findings of significant contributions.

Comment:

The final IAQR must be designed to allow local air pollution control authorities to be able to account for the IAQR reductions in their SIP- plan submissions, including their attainment demonstrations, If states cannot account for the regional IAQR reductions in their NAAQS SIP planning, they will have to over-control other sources or prohibit other types of emissions, with resulting harm to local economies that could be otherwise avoided.

EPA appears to have historically required reductions from future regulations to occur before projected attainment dates in order for states to take SIP credit for them. See, e.g., EPA 'Guidance on the Relationship Between the 15 percent Rate-of-Progress Plans and Other Provisions of the Clean Air Act,' pip. 16,28 (1991) (future MACTs not creditable unless reductions will be achieved before attainment date). In contrast to those situations in earlier ozone SIP-planning, emission reductions from future IAQR Phase 1 and Phase 2 requirements are quantifiable and enforceable. For instance, only three MACT rules had been promulgated by the time that the ozone SIPs were due in 1997, and EPA had not quantified the regional effect of reduced VOCs from specific affected sources. Here, the quantities of regional emission reductions that will result from the IAQR are known. Moreover, EGUs will be bound legally to install controls, or if cap and trade budgets are authorized, buy surplus regional NOx and SO2 reductions by a date certain. Therefore, we submit that EPA can authorize credit in local SIP plans and demonstrations where it has been reluctant to do so past SIP-planning.

Response:

Issues related to attainment dates for PM and ozone will be addressed in an upcoming rulemaking on PM implementation, and in the upcoming Phase II portion of the ozone implementation rule. This commenter does, however, appear to request that EPA credit emissions reductions which occur before statutorily required attainment dates, thereby effectively

requesting that EPA extend those dates. We do not believe that we have the authority to do so.

Comment:

The IAQR includes an analysis of local controls at three selected urban centers to examine the impact of locally applied controls versus a regional control strategy. However, the magnitude of emissions reductions for the simulation of the locally applied control measures appear overly low. Thus, the effectiveness of local controls, in comparison with regional controls, may have been underestimated.

Response:

See preamble. The EPA believes that the reductions continued in the local measures analysis to be ambitious, and we find no specific recommendations in the comments to support the assertion that the reductions " appear overly low." Because there is no specific information provided by the commenter to support this conclusion, we find the comment to be speculative.

Comment:

A comprehensive national program that covers relevant sources and that contains expeditious deadlines and stringent caps is more cost effective in controlling most NOx and SO2 emissions than controls state and local authorities could adopt. EPA's own analysis suggests that. EPA modeled scenarios that assumed the application of 'ambitious' local control measures, and projected only between 0.5 and 0.9 μg/m3 improvement in ambient $PM_{2.5}$ concentrations in 2010.(p. 4597) EPA's explanation for why the improvement was so small is telling: 'a substantial part of local emissions is attributable to mobile sources, small business, and household activities for which practical, large-reduction, and quick-acting emissions reductions measures could not be identified at this time' (p. 4599). In other words, a substantial portion of the emissions inventory in a nonattainment area consists of sources for which practical, large-reduction and quick-acting emission reductions are not easily identifiable. Therefore, it makes more sense to enact a national program that covers all significant relevant sources with emission reductions and deadlines that adequately deal with transport and to impose best available controls on those sources.

EPA should instead consider how costly it would be to rely on local measures to attain the standards (in other words, the cost of not applying controls nationally to sources). Given that stationary internal combustion engines and industrial boilers are projected to emit a significant portion of NOx and SO2 emissions in 2010 and that clearly many areas are affected significantly by transport of these pollutants, the presumption should be that these sources do contribute significantly to nonattainment and thus should be controlled, unless it can be shown that local controls would be more cost-effective. EPA estimated $PM_{2.5}$ concentrations in nonattainment areas in the East in 2010 after application of its regional control strategy (the IAQR). Twenty-three of the areas would still be in nonattainment for $PM_{2.5}$ by 2010 (p.4636-4637). Assuming areas implemented the 'highly ambitious' local controls identified by EPA (p.4597), between 12 to 17 of these areas would still not attain the $PM_{2.5}$ standard even if they adopted all of EPA's 'highly ambitious' local controls. In short, even with the IAQR and even with highly ambitious local controls, 12 to 17 areas in the East would fail to attain by 2010, the likely deadline for attainment of the $PM_{2.5}$ standards. Clearly, then, additional national measures to address transport are required; EPA's own analysis indicates that local controls to address these emissions are likely to be found wanting even with the IAQR.

Response:

See preamble.

Comment:

There are numerous opportunities for optimizing the environmental benefits of the IAQR, and many of them are based on the fact that the $PM_{2.5}$ and ozone standards cannot be achieved solely through regional measures, but must rely on an appropriate mix of regional and local controls. EPA should carefully examine newly available information regarding actual ambient air quality measurements, and the continual advances in the understanding of ambient air quality science, emission characteristics, and local versus regional impacts before making a final determination on the scope and content of the IAQR. For example, the science of fine particulates is still evolving and is only beginning to mature.

If finally adopted in its proposed form, the IAQR would result in the installation of tens of billions of dollars of emission control equipment in the electric generating sector. These costs ultimately will be borne by electricity consumers and will impact every sector of the domestic economy. Therefore, it is imperative that the requirements of the final rule represent an optimal emission reduction strategy, one that correctly balances the need for both local and regional controls, and captures the most cost effective controls that produce real ambient air quality benefits.

The sources and characteristics of emissions contributing to any specific area's lack of attainment with the National Ambient Air Quality Standards (NAAQS) for fine particulates and ozone are variable in type, location, quantity, and potential impacts. Thus, the optimal strategy for achieving attainment must include appropriate reductions from many source types and locations. While State Implementation Plans are required per Section 110 (a)(2)(D) to include provisions to address significant contributions of transported emissions, this does not replace the primary focus in developing an attainment strategy from reducing emissions of local sources to reducing emissions of upwind sources. Rather, the attainment strategy must be a holistic approach based on reaching attainment through the most beneficial and cost-effective balance of local and regional emission controls. This is particularly true for SIPs designed to achieve compliance with the fine particle and ozone air quality standards, where multiple precursor emissions, and complex chemical, physical, and atmospheric interactions play such a significant role. Development of an optimized IAQR is highly contingent upon achieving the appropriate balance of emission reductions. EPA further recognizes the necessity of a proper distribution of reductions by noting 'some consideration needs to be given to a reasonable balance between regional and local controls to reach attainment.' (P. 4585) [[(0703, p.3)]]

As discussed in more detail in UARG's comments, EPA should refine its analysis of the impact of local controls, and include the effects of implementing local controls in all areas of the Consolidated Metropolitan Statistical Areas that include nonattainment counties. EPA should further refine its analysis of the impacts of local controls in the context of the upcoming implementation rule for fine particles, which will include EPA's guidance on required implementation measures for nonattainment areas. [[(0703, p.3)]]

Response:

See preamble.

Notes:

Docket number 1745 is the cover letter. Also see docket numbers 1746 (updated re-submittal of Maryland's original 2004 comments); 1747 (Supplemental Proposal comments); 1748 (Impact to Maryland from a Freeze on its State Transportation Plan - Prelim. Results); 1749 (Aircraft Observations v/s CAMx Model); 1750 (A Guide to Mid-Atlantic Air Quality presentation); 1751 (A Conceptual Model for Severe Ozone Episodes in Maryland); 1752 (Regional Transport of Pollutants and Implications for 8-Hour Ozone Nonattainment Areas in Maryland); and, 1753 (Nocturnal Low Level Jets presentation).

Comment:

A broader area of influence needs to be considered for 'local' controls. NOx, VOC, and SO_2 reductions from the measures that EPA considers to be 'local' controls can be effective if implemented on a regional basis. EPA considers only the impact of local controls in each nonattainment area instead of considering the impact of implementing those controls over the entire Eastern U.S. Furthermore, EPA does not make it clear in the modeling whether the 25 percent reductions suggested by the sensitivity modeling represent what might actually be gained from an aggressive local control program or if they represent a best case scenario for an area where local controls have yet to be implemented. EPA does not tie the 25 percent figure to any actual emission reduction programs, but merely suggests that this might be expected from an aggressive local program.

In Maryland, almost all common sense controls have been implemented already. Many of Maryland's current controls are phased in and will generate more reductions over time. Maryland believes that it will be very difficult, if not impossible, to identify and implement new local controls that could achieve an additional 25 percent reduction as assumed in the EPA modeling.

Since many of Maryland's current controls are highly cost effective, EPA should model the impact of broadening the area of implementation for these kind of 'local' control programs. EPA has not considered the impact of such a broad implementation of these measures, deciding instead to go with local implementation in nonattainment areas. If $2000/ton is to be set as the dividing line for 'highly cost-effective' controls, then all measures costing less than $2000/ton should be implemented regionally.

Response:

EPA agrees that depending on the level of reductions needed for attainment of an area, a state may need to consider controls beyond nonattainment area boundaries. On other points, see preamble discussion on distinction between "significant contributions to downwind nonattainment" vs. reductions needed for attainment. (Air quality test and "highly cost-effective" test in Sections III and IV). See also preamble discussion on 25 percent emission reduction modeling in section III.

Comment:

Non-EGU sources in states with nonattainment arms need to be evaluated for emissions reductions. EPA should evaluate non-EGU sources for emission reductions in states that have nonattainment areas. The localized impact from sources in nonattainment areas should be a primary focus for contributions to comply with the national Ambient Air Quality Standards. EPA observes that Federal requirements for new on-road and off-road engines and motor vehicles will substantially reduce emissions. The LEC believes vehicle emissions and other sources of $PM_{2.5}$, SO_2, and NOx in and around nonattainment metropolitan areas contribute significantly to the nonattainment status of these areas, much more so than EGUs in North Dakota. The LEC recommends that EPA conduct more research into the culpability of these other non-EGU sources in proximity to these nonattainment areas.

Response:

EPA believes the local measures analyses for the proposed rule demonstrate it will be very difficult if not impossible to achieve attainment of PM and ozone standards through local measures alone, even if a list of ambitious and possibly costly control measures were applied. Thus, we disagree that local measures are the primary focus of efforts, especially when highly cost-effective measures are available to address transported PM and ozone.

Comment:

Distance of Ozone and It Precursors Is Relatively Short: EPA continues to assert here, as it did in the NOx SIP Call rule, that ozone and ozone precursors are transported long distances. 69 Fed. Reg. 4599. The Southern Oxidant Study (SOS), in which both TVA and EPA have been active participants, calls this assertion into serious question. During the summer of 1995, the SOS research effort moved to Nashville, Tennessee, to measure and track ozone in thus multi-state area around Nashville. Coincidently, this was the same time period for the key episodes that are the foundation of the modeling done to support the transport rule. The SOS study in Nashville was the most intensive examination of actual ozone levels ever conducted in the eastern United States. Actual measurements of ozone levels were taken, and ozone plumes were tracked by aircraft, producing a wealth of data.

SOS researchers concluded that, at least in the southeast, most ozone production associated with emissions from large stationary sources occurs within 100 km (62 miles) of the source and production is essentially complete within 150 km (93 miles) (EPA acknowledged this at 62 Fed. Reg. 60,333-334 in the NOx SIP Call rule). SOS researchers also concluded that urban plumes produce ozone much more efficiently than plumes of large stationary sources, calling into question EPA's desire to regulate only power plants under the transport rule. This research emphasizes the importance of urban sources and the desirability of addressing all source categories and pollutants that contribute to ozone levels. It also suggests that 'local' source controls are going to be more important in remedying nonattainment problems than EPA's analyses indicate. (Refer to our previous Specific Comment 1 concerning efficiencies of plumes to generate ozone.

Burdens on Upwind States Should Not Be Increased: EPA asks whether it has appropriately allocated the burden of attaining the $PM_{2.5}$ and 8-hour ozone standards between upwind and downwind states. 69 Fed. Reg. 4623. As discussed in earlier comments, available

research suggests that controls on 'local' sources are going to be the most important tool to remedy local nonattainment problems. While transported pollution does contribute to nonattainment problems, the level of this contribution significantly declines with distance. Urban sources and urban plumes are the most important contributors to 8-hour ozone levels and the fraction of the fine particle mass that is associated with health problems. Each state must control its urban sources to address nonattainment successfully. TVA believes elevated upwind sources, such as power plants, should not be additionally burdened and more of the burden should be shifted toward local urban sources. Regardless, EPA must ensure that all states meet their responsibilities to implement local control measures in a timely manner. While upwind sources may contribute to some part of downwind nonattainment problems, this should never excuse downwind states' refusal to implement the measures that are necessary to meet the reasonable further progress and reasonably available control technology requirements of the CAA.

Response:

See preamble discussion of basis for NOx contributions to ozone areas in Section III and accompanying air quality modeling TSD.

Comment:

We understand that the primary focus of the proposed rule is to reduce emissions of sulfur dioxide and nitrogen oxides. We further understand that the proposed rule is not oriented toward regulation of carbonaceous materials or direct emissions of crustal materials. Nevertheless, the proposed rule would allow local regulation of carbonaceous materials and direct emissions of crustal materials. Regulating such materials locally might adversely affect our ability to protect the operational readiness of our forces and to train the way we fight.

DoD must conduct ordnance and weapons testing in a realistic manner to ensure safety and survivability in battle. Our military readiness exercises are relatively small, periodic sources of $PM_{2.5}$ emissions. The largest component of these emissions is crustal dust. which is a relatively small component of $PM_{2.5}$, particularly in the eastern U.S. As such, the negative impacts of regulating our military readiness activities would greatly outweigh the relatively minor incremental benefit of such regulation. Given these circumstances, we encourage EPA to urge State and local agencies to follow the Federal lead and focus their attention on significant sources of $PM_{2.5}$ pollution, and not on the testing and training activities of the military.

Response:

We agree that the proposed rule is not directed at the types of sources described by the commenter. Issues related to measures for such sources needed for $PM_{2.5}$ attainment will be addressed by States and EPA over the next several years as States develop implementation plans and strategies for areas recently designated as nonattainment for the $PM_{2.5}$ standards.

VI E. Coordination of control levels with Mercury rule

Comments:

One commenter noted that EPA should harmonize the mercury compliance dates with the deadlines for the $_{NOx\ and\ SO2}$ reductions. Only coordination of these control programs will permit affected entities to develop cost-effective planning strategies that allow them to take advantage of

co-benefit mercury reductions that can be achieved through $_{NOx\ and\ SO2}$ control technologies. Failure to synchronize these deadlines could affect electricity rates and reliability.

Another commenter noted that EPA should carefully consider the proposed compliance deadlines, so as to ensure sufficient time is provided for maintaining reliable and cost-effective electricity generation. Of particular concern are the near-term compliance deadlines, occurring in 2010 for IAQR and possibly as early as 2007 under the Agency's proposal for mercury controls. The timing and phasing of $_{NOx\ and\ SO2}$ removal technology installations must be carefully planned out, especially given the proposed timetable for mercury controls. Therefore, the commenter recommends that the final rule provide for a short-term compliance extension for individual companies under certain circumstances, e.g., a confirmed showing of grid security or reliability concerns, technological unfeasibility, and/or financial hardship. The commenter also recommends that EPA coordinate the timing of future mercury reductions to occur after the initial phase of the IAQR proposal, by staggering these compliance deadlines in a manner that allows for cost-effective strategies which permit companies to take advantage of co-benefit mercury reductions achieved through $_{NOx\ and\ SO2}$ control technologies.

Response:

EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2,\ NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for $_{SO2,\ NOx}$, and mercury. We have designed the CAIR rule and the mercury section 111 proposal to take advantage of the combined emissions reductions that existing technologies provide. The section 111 proposal would take advantage of Hg emissions reductions that can be achieved by the air pollution controls designed and installed to reduce $_{NOx\ and\ SO2}$. Given EPA's analysis that the control levels of the program are achievable and highly cost-effective, EPA does not anticipate the need for compliance extension provisions.

Comment:

One commenter noted that the mercury rule provides a reason to lower the $_{SO2}$ cap under CAIR. The commenter notes that lower $_{SO2}$ caps will provide incentives for more and earlier installation of FGD, and that this would lead to greater mercury reductions.

Response:

EPA agrees that there are co-benefits from the reduction of $_{NOx\ and\ SO2}$ that we cannot quantify and directly take into account in our analysis of highly cost-effective control levels for $_{SO2}$. The $_{SO2}$ budgets under CAIR reflect EPA's assessment of the amount of emissions reductions that would be achievable based on the control strategy determined to be highly cost-effective in the timeframe required to improve $PM_{2.5}$ attainment status.

Comment:

The commenter notes that because of the relationship between the Clean Air Interstate Rule and the proposed mercury rule, and the complexity of the proposals, EPA should extend the deadline for the submittal of technical comments.

Response:

EPA believes that the Agency has provided adequate time to consider both rules and it is necessary to move forward in order to maximize the compliance period for initial control levels in 2009 for $_{NOx}$ and 2010 for $_{SO2}$, in order to provide as much assistance to States for nonattainment problems as is possible

VI.F. General

Comment:

The commenter offers the following recommendations for the proposed rule:

1. Accelerate and Increase Emission Reductions. Although the proposed reductions in emissions are significant, the commenter recommends that the EPA consider even deeper cuts in NOx and SO2 emissions. The commenter also recommends that these cuts be implemented on a shorter timetable.

With the severe ecological degradation that the entire Northeast has endured due to acid rain, the need for an accelerated rate of recovery is vital. Faster and deeper cuts in emissions will hasten the ecological recovery of places such as the Adirondack Park.

Response:

EPA considered a variety of factors in evaluating the source categories from which highly cost-effective reductions may be available and the level of reduction assumed from that sector. Factors evaluated include the availability of information, the identification of source categories emitting relatively large amounts of the relevant emissions, the performance and applicability of control measures, the cost effectiveness of control measures, and engineering and financial factors that affect the availability of control measures. Considering all of these factors, EPA determined that the final CAIR emissions caps and timing will achieve the greatest amount of highly cost-effective reductions on as early a schedule as is feasible. See Section IV of the CAIR NFR preamble for a detailed discussion of the engineering factors affecting timing of control retrofits.

Comment:

Emissions from power plants should be reduced to levels no less stringent than national caps of 2 million tons of sulfur dioxide and 1.25 million tons of nitrogen dioxide annually. This will save many additional lives, and will be highly cost effective.

Response:

EPA considered a variety of factors in evaluating the source categories from which highly cost-effective reductions may be available and the level of reduction assumed from that sector. Factors evaluated include the availability of information, the identification of source categories emitting relatively large amounts of the relevant emissions, the performance and applicability of control measures, the cost effectiveness of control measures, and engineering and financial factors that affect the availability of control measures. Considering all of these factors, EPA determined that the final CAIR emissions caps and timing will achieve the greatest amount of highly cost-effective reductions on as early a schedule as is feasible. See Section IV of the CAIR

NFR preamble for a detailed discussion of the engineering factors affecting timing of control retrofits.

Comment:

The emissions caps established in the IAQR proposal are not sufficiently stringent. EPA has proposed emission budgets for electric generating units that do not anticipate technological advances that would be expected over the next 10-20 years. The proposed emissions budgets lock in levels for the foreseeable future of emissions based on easily achievable, historical emission control technology, efficiency and electric generation technologies. It is critical that EPA set tighter caps appropriately at the outset that are consistent with Best Control Technology requirements. If EPA fails to set the appropriate tighter caps now, additional emission reductions will be extremely difficult to achieve and far less cost-effective when regulatory agencies are forced to impose an additional round of controls on the utility industry in the future to meet current clean air standards.

Response:

EPA considered a variety of factors in evaluating the source categories from which highly cost-effective reductions may be available and the level of reduction assumed from that sector. Factors evaluated include the availability of information, the identification of source categories emitting relatively large amounts of the relevant emissions, the performance and applicability of control measures, the cost effectiveness of control measures, and engineering and financial factors that affect the availability of control measures. Considering all of these factors, EPA determined that the final CAIR emissions caps and timing will achieve the greatest amount of highly cost-effective reductions on as early a schedule as is feasible. See Section IV in the CAIR NFR preamble for a detailed discussion of the factors affecting timing and control levels.

The commenter states that EPA's proposed EGU emissions budgets "...do not anticipate technological advances that would be expected over the next 10-20 years," but the commenter does not identify any specific technological advances for the Agency to consider. A description of the emission control technologies that EPA assumes in its IPM modeling for the final CAIR is found in the 2004 IPM documentation, which is available in the CAIR docket.

Comment:

Considering regional air quality, electric reliability, control technology and cost effectiveness, EPA's proposed emission reduction levels are achievable. [[p. 1]]

Response:

EPA agrees with the commenter that the emissions reduction levels are achievable.

Comment:

The commenter does not believe that the proposed levels of the NOx and SO2 caps are stringent enough to fully address transported emissions from the electric generating unit source category. The Ozone Transport Commission (OTC) has conducted it own modeling and analysis of the necessary reductions using Calgrid, and has proposed that caps on $_{SO2, NOx}$ and Mercury should be set as follows: [[(see docket number 0962, p. 3, for a table of OTC's proposed pollutant caps)]]

The commenter fully supports the OTC's convention that these caps would be considerably more effective than EPA's proposed caps in addressing pollution transport, and believes that EPA would be well served to give the OTC analysis careful consideration.

EPA should re-evaluate it reduction targets based on the application of BACT-equivalent emission control technology. With expected health and environmental benefits of $58 billion and $84 billion in 2010 and 2015, respectively, the benefits of this proposed far outweigh costs. There are simply no technical or economic reasons not to require a greater level of emission reductions.

EPA should establish more stringent caps with earlier deadlines than proposed. As previously noted, EPA's proposed NOx and SO2 caps are simply not stringent enough nor timely enough to address transported pollution in the necessary timeframe(s). Whether the ozone or PM fine NAAQS, or regional haze and acid rain, the IAQR proposal does not go far enough, soon enough.

Response:

EPA considered a variety of factors in evaluating the source categories from which highly cost-effective reductions may be available and the level of reduction assumed from that sector. Factors evaluated include the availability of information, the identification of source categories emitting relatively large amounts of the relevant emissions, the performance and applicability of control measures, the cost effectiveness of control measures, and engineering and financial factors that affect the availability of control measures. Considering all of these factors, EPA determined that the final CAIR emissions caps and timing will achieve the greatest amount of highly cost-effective reductions on as early a schedule as is feasible. A detailed discussion of the engineering factors that affect the timing of control retrofits is found in Section IV of the CAIR NFR preamble. Also see Section IV for a response regarding the application of BACT emission rates for setting CAIR requirements. See Section IV for a discussion regarding EPA's interpretation of CAA section 110(a)(2)(D) with regard to basing emission reduction requirements on benefits. For further discussion of EPA's benefits analysis see section XIV.A in this RTC document, see section X in the CAIR NFR preamble, and see the RIA.

Comment:

The commenter wants to take this time to reiterate their strong support for nitrogen reductions on a year-round basis. In its 1995 report to Congress on the progress of the acid rain control program, the EPA observed that the contribution of nitrogen emissions to the overall acid deposition problem had been underestimated. In the Adirondacks, nitrogen builds up in the winter snow pack, and with the spring snow melt, contributes heavily to the episodic acidification of lakes and streams. There is substantial science that the saturation of nitrogen in soils has resulted in the depletion of essential minerals from forest soils in much of the northeastern United States.

The commenter urges the Agency to resist calls for the relaxation of the proposed caps or for the adoption of a wait and see approach after 2010. The caps proposed in both phases are necessary for the protection of the environment and the welfare of tens of thousands of Americans.

The commenter has testified that EPA should propose additional reductions in the emissions of sulfur dioxide from Electric Generating Units. Many other regional and national

environmental organizations share that view including the Citizens Campaign for the Environment, Chesapeake Bay Foundation, Clean Air Task Force, and the National Resources Defense Council. Commentators from state agencies like the New York State Department of Environmental Conservation, and their counterparts in Vermont, Massachusetts, South Carolina, Wisconsin, Pennsylvania, Maine, Minnesota and North Carolina also are in agreement. Deeper cuts were also recommended by the State and Territorial Air Pollution Program Administrators and Association of Local Air Pollution Control Officials as well as the Ozone Transport Commission.

Deeper reductions in 2015 will help speed the chemical and biological recovery of acidified lakes and streams in the Adirondacks along with the Appalachian chain. The commenter calls on the Agency to be as protective of human health and the environment as it can and adopt a lowered cap.

Response:

EPA considered a variety of factors in evaluating the source categories from which highly cost-effective reductions may be available and the level of reduction assumed from that sector. Factors evaluated include the availability of information, the identification of source categories emitting relatively large amounts of the relevant emissions, the performance and applicability of control measures, the cost effectiveness of control measures, and engineering and financial factors that affect the availability of control measures. Considering all of these factors, EPA determined that the final CAIR emissions caps and timing will achieve the greatest amount of highly cost-effective reductions on as early a schedule as is feasible. See Section IV of the CAIR NFR preamble for a detailed discussion of the factors affecting timing and control levels.

Comment:

The Agency must rely on NOx's role in $PM_{2.5}$ transport to justify the NOx budget proposed in the IAQR. There is also a question concerning the Agency's overestimation of NOx's role in $PM_{2.5}$ formation and overestimation of the harmful effects of the inorganic species of $PM_{2.5}$ emitted by utilities. This may lead EPA to overestimate the level of NOx reductions that are reasonable and necessary, thus warranting further study of these issues.

Response:

For reasons discussed in section III in the CAIR NFR preamble, EPA disagrees with this comment.

Comment:

The commenter has concerns with the dates for reduction levels. The terminology 'when the rule is fully implemented' the door wide open for industry to push the reduction level goals farther and farther into the future leaving EPA and American citizens with no power to get these rules implemented. As the dates are set now the first stage of the rule isn't until 2010 with no follow-up dates. This makes this rule a suggestion to industry, not a mandate. With the hard dates for reduction goals, the commneter wants to see the reduction levels tightened over the years to gain better use of this rule and better reductions air pollution. Both NOx and SO2 emissions should be able to reach 90 percent emission reduction rates with today's technology, future advances, and more efficient industrial practices. 65 percent for NOx and 70 percent for SOx is not acceptable for the life of this rule.

Response:

EPA considered a variety of factors in evaluating the source categories from which highly cost-effective reductions may be available and the level of reduction assumed from that sector. Factors evaluated include the availability of information, the identification of source categories emitting relatively large amounts of the relevant emissions, the performance and applicability of control measures, the cost effectiveness of control measures, and engineering and financial factors that affect the availability of control measures. Considering all of these factors, EPA determined that the final CAIR emissions caps and timing will achieve the greatest amount of highly cost-effective reductions on as early a schedule as is feasible. A detailed discussion of the engineering factors affecting timing of control retrofits is found in Section IV of the CAIR NFR preamble. Information on EPA's assumptions about the performance of control technologies is in the IPM Documentation Report for the 2004 update, available in the CAIR docket.

Comment:

EPA proposes additional controls for 2010 and 2015. By 2015 the reductions of NOx in Virginia would be 53 percent from the 2010 baseline and the reductions of SO_2 would be 76 percent from the 2010 baseline. In view of the lead time necessary to design, purchase, install and fine tune the control equipment the commenter believes that these levels of reductions and timing in Virginia will significantly improve air quality throughout the Commonwealth of Virginia and virtually eliminate nonattainment areas for $PM_{2.5}$ and Ozone within Virginia.

Response:

EPA agrees.

Comment:

Should SO_2 Reductions Precede NOx Reductions?: In light of the limitations on materials and skilled labor, EPA asks whether it should phase the schedules for reductions to require that SO_2 reductions be achieved before NOx reductions. 69 Fed. Reg. 4622. From the standpoint of health implications, reducing SO_2 before NOx makes little sense in light of scientific evidence concluding that the SO_2 produced sulfate fraction of the fine particle mass is not causing adverse health problems. Regardless, EPA should explain more fully what this would mean for the schedules proposed in the rule. If the same 2010-2015 phased schedule would be retained for SO_2 and an extended schedule established for NOx, this would allow utilities more flexibility to rationally schedule control projects and allocate limited craft and material resources. The commenter would support this additional schedule flexibility. On the other hand, accelerating the schedule for SO_2 reductions and retaining the 2010-2015 schedule for NOx reductions, would exacerbate the craft and material resource problems. The commenter would oppose this.

Response:

EPA considered a variety of factors in evaluating the source categories from which highly cost-effective reductions may be available and the level of reduction assumed from that sector. Factors evaluated include the availability of information, the identification of source categories emitting relatively large amounts of the relevant emissions, the performance and applicability of control measures, the cost effectiveness of control measures, and engineering and financial factors that affect the availability of control measures. Considering all of these factors, EPA determined that the final CAIR emissions caps and timing will achieve the greatest amount of highly cost-effective reductions on as early a schedule as is feasible. A detailed discussion of the

engineering factors affecting timing of control retrofits is found in Section IV of the CAIR NFR preamble.

Comment:

Texas is also a national leader in the reduction of SO_2 emissions. Texas has 36 coal and lignite units within its borders, 14 of which have flue gas desulfurization ('FGD') units - which results in Texas having more scrubbed capacity (9,330 MW) than in any other state. Nearly all Texas lignite-fired power plants have already installed scrubbers. Additionally, Texas power plants are among the lowest emitters of SO_2 among the IAQR states that use coal (3rd lowest out of 28) with average SO_2 emission rates that are half the national average, as shown on the bar chart provided as Attachment 2.** [[(See docket number 1038, p.2, for Attachment 2)]]**

Significant Reductions in Ozone and $PM_{2.5}$ Precursors Have Already Been Achieved, Especially in Texas, which is a National Leader With Regard to NOx and SO_2 Emission Controls.

In designing a program such as IAQR, it is also important to consider that, although additional emissions reductions from the power industry can be achieved, substantial reductions have already been accomplished and air quality in the United States has improved overall.

Positive results would be achieved by rewarding, rather than punishing, Texas and other 'clean' states for the progress already made toward the reduction of NOx and SO2 emissions. The commenter recommends that states that have already achieved substantial NOx and SO2 emissions reductions be rewarded in some manner, such as with an extension of the Phase I compliance deadline by up to two years for units that currently have scrubbers and/or low NOx emissions (i.e., units that emit below 0.2 lbs/mmBtu). At minimum, incorporation of 'rewards' for early emissions reductions would provide some measure of relief to 'clean' states from having to achieve even greater emissions reductions. This would also help in minimizing the risk of the type of fuel switching that will lead to the end of the Gulf Coast Lignite industry.

EPA has acknowledged that its analysis regarding contributing sources has been deficient. Although EPA indicates that one of the factors it used to determine states' obligations under the rules was the identification of source categories that emit 'relatively large amounts of the relevant emissions,' EPA has not even defined what that phrase means. EPA even seeks comment from the public regarding what constitutes a 'relatively large amount' of relevant emissions. The commenter believes that it is legally indefensible for EPA to proceed with the IAQR based on so little information and so vague a standard as the phrase 'relatively large amount.' These fatal flaws in EPA's analysis render it impossible to conduct the comparisons necessary to conclude that power plants should be singled out for regulation in the manner called for by the proposed IAQR.

Response:

EPA considered a variety of factors in evaluating the source categories from which highly cost-effective reductions may be available and the level of reduction assumed from that sector. Factors evaluated include the availability of information, the identification of source categories emitting relatively large amounts of the relevant emissions, the performance and applicability of control measures, the cost effectiveness of control measures, and engineering and financial

factors that affect the availability of control measures. Considering all of these factors, EPA determined that the final CAIR emissions caps and timing will achieve the greatest amount of highly cost-effective reductions on as early a schedule as is feasible. A detailed discussion of the engineering factors affecting timing of control retrofits is found in Section IV of the CAIR NFR preamble.

The EPA applauds the actions that many States, including Texas, have taken to address particular local or regional air pollution issues. EPA believes that providing incentives for early NOx and SO2 reductions can provide early environmental benefits and lower the costs of compliance. The CAIR NFR provides for incentives for early NOx and SO2 emission reductions, as explained in section XIII.A of this RTC document.

EPA evaluated the impacts of CAIR on projected coal production using the Integrated Planning Model (IPM). Comparing projected gulf coast lignite production under base case conditions and with CAIR, our modeling predicts no change in gulf coast lignite in the 2010 or 2015 model run years. Our modeling predicts a slight decrease (one percent) in gulf coast lignite in the 2020 model run year. EPA's IPM model data files are in the CAIR docket and on EPA's website.

Section IV.B. in the CAIR NFR preamble describes EPA's evaluation of non-EGU sources. As explained in the preamble, although EPA developed the CAIR control requirements based on the application of highly cost-effective controls on EGUs, the States have flexibility in choosing the sources that must reduce emissions including non-EGUs. Section IV.B. in the preamble explains EPA's evaluation of non-EGU source categories, and discusses the relative emissions contributions from EGUs compared to non-EGU boilers and turbines. See section IV.B. in the NFR preamble as well as section IV in this Response to Comments Document for further discussion regarding non-EGU emission sources. EGUs on a regionwide basis are the largest source of SO_2 emissions and the largest source of stationary source NOx emissions. While EPA has not identified a bright-line cut-off for a "relatively large amount" of emissions, EGUs are clearly emitting a relatively large amount of regionwide NOx and SO2 emissions.

Comment:

Several commenters are asking that the Environmental Protection Agency enact steep emission reductions in sulfur dioxide and nitrogen oxide pollution from power plants and manufacturers.

These emissions are a risk to all Americans' health and a risk to the environment. Not only has the soot from power plants been related to asthma, but it has been linked to heart attacks as well. Right now there is a chance to enforce stricter regulations on these harmful pollutants. Why not act now? It will be more cost-effective now to place these restrictions than if waiting 5, 10, or 50 years. And what will the air look like in 50 years without these regulations? Cities will be covered in a layer of smog, the children will be suffering from asthma more than ever, and the surrounding area's soil will be ruined.

Several commenters urge EPA to attempt to reduce harmful sulfur dioxide and nitrogen oxide emissions by finalizing an Air Quality Rule. Ideally this would include the following things:

- A reduction in harmful pollution from power plants nationwide that will protect both the people and the environment;

- A national cap of 2 million tons on sulfur dioxide emissions;

- Adoption by September 2004.

This is important to all Americans. Without help now, the environment will deteriorate to an unlivable state. Please, the commenters need the EPA to enact these more strict criteria for air quality control.

Response:

EPA agrees that NOx and SO2 pollution from power plants is linked to increases in the number of asthma and heart attacks. The Agency is finalizing this rule because of the substantial benefits to public health and the environment that would be achieved by reducing these pollutants from power plants. This rule will also bring many areas into attainment with the $PM_{2.5}$ and 8-hour ozone standards. While the Acid Rain Program along with state and local programs and programs for mobile sources are expected to keep the environment from deteriorating in the future, CAIR will still help us make further improvements for the environment and public health.

EPA considered a variety of factors in evaluating the source categories from which highly cost-effective reductions may be available and the level of reduction assumed from that sector. Factors evaluated include the availability of information, the identification of source categories emitting relatively large amounts of the relevant emissions, the performance and applicability of control measures, the cost effectiveness of control measures, and engineering and financial factors that affect the availability of control measures. Considering all of these factors, EPA determined that the final CAIR emissions caps and timing will achieve the greatest amount of highly cost-effective reductions on as early a schedule as is feasible. See Section IV of the CAIR NFR preamble for a detailed discussion of the factors affecting timing and control levels.

Comment:

The commenter urges EPA to reduce the ultimate SO_2 cap to 2.5 million tons a year by 2013, and under no circumstances to allow for a higher cap of either $_{NOx\ or\ SO2}$ under the final rule.

Response:

See section IV in the CAIR NFR preamble for an explanation of EPA's determination of the CAIR control levels and timing. Also see a technical support document entitled "Boilermaker Labor and Installation Timing Analysis" that is available in the CAIR docket.

Comment:

The proposed IAQR would achieve a reduction in regional transport of NOx and SO2 by establishing emissions budgets for NOx and SO2 for each of 29 states in the eastern US and the District of Columbia. The reductions would be achieved through market-based programs built on the foundation of the existing Acid Rain Program and the Eastern US NOx Budget Program. Given the magnitude of the reductions, the commenter supports EPA's proposed use of two-phased market-based programs. The successes of the Acid Rain Program and the eastern US NOx Budget Program have proven market-based emission reductions strategies to be effective and far

more economically efficient than traditional command-and-control regulations. EPA's proposal to achieve these reductions in two phases allows time for controls to be installed in an orderly fashion, and for controls to be focused where they will be most effective, while minimizing economic disruption to the power generation industry. The use of a market-based program for both NOx and SO2, the implementation of the ultimate cap in two phases, and the coordination of compliance deadlines with other air quality measures such as the proposed mercury rules will bring cleaner air, sooner, at a lower cost, while providing greater certainty to the industry.

Response:

EPA appreciates this comment.

Comment:

The proposed IAQR would achieve a reduction in regional transport of NOx and SO2 by establishing emissions budgets for NOx and SO2 for each of 29 states in the eastern US and the District of Columbia. The reductions would be achieved through a market-based program built on the foundation of the existing Acid Rain Program and the Eastern US NOx Budget Program. Given the magnitude of the reductions, the commenter supports EPA's proposed use of a two-phased market-based program. The success of the Acid Rain Program and the eastern US NOx Budget Program have proven market-based emission reductions strategies to be effective and far more economically efficient than traditional command-and-control regulations. EPA's proposal to achieve these reductions in two phases allows time for controls to be installed in an orderly fashion, and for controls to be focused where they will be most effective, while minimizing economic disruption to the power generation industry. The use of a market-based program for both NOx and SO2, the implementation of the ultimate cap in two phases, and the coordination of compliance deadlines with other air quality measures such as the proposed mercury rules will bring cleaner air, sooner, at a lower cost, while providing greater certainty to the industry.

Response:

EPA appreciates this comment.

Comment:

The commenter urges the EPA to reduce the annual control region SO_2 cap to 1.8 million tons (approximately equivalent to a 2 million ton nationwide cap); and reduce the NOx cap to a 1.25 million ton nationwide cap; and make all the reductions effective in one phase, by 2009.

Response:

See section IV in the CAIR NFR preamble for an explanation of EPA's determination of the CAIR control levels and timing. For additional discussion of the engineering factors affecting the timing, see the technical support document entitled "Boilermaker Labor and Installation Timing Analysis" that is available in the CAIR docket. Also see section VII.B in this RTC document for further discussion of engineering factors affecting the timing.

Comment:

The commenter continues to support revising State Implementation Plans (SIPs) to address regional air quality problems. The commenter also supports integrating emission reduction requirements that impact specific source sectors. Both of these are objectives of CAIR. The commenter remains concerned, however, about the schedule for and severity of CAIR's

proposed reductions. CAIR will result in the most massive and expeditious emission reduction effort ever required of a source sector in this country. Coal-fired utilities east of the Rocky Mountains will have to invest significant amounts of capital in the design and installation of a large number of additional major control systems. The commenter has already spent $4 billion on reducing emissions at its 11 coal-fired power plants, and they are in the process of spending almost another $2 billion on more emission controls. The commenter roughly estimates that CAIR will require the installation of yet another $4 billion worth of controls on the system.

Response:

See section IV in the CAIR NFR preamble for an explanation of EPA's determination of the CAIR control levels and timing. For additional discussion of the engineering factors affecting the timing, see the technical support document entitled "Boilermaker Labor and Installation Timing" that is available in the CAIR docket. Also see section VII.C in this RTC document for further discussion of timing.

Comment:

In its NOx SIP Call Rule, EPA imposed ozone season emission caps for 2007, taking into account growth in heat input for affected units to the year 2007. Compliance was required for the EGUs and non-EGUs covered by the program by May 31, 2004. Growth was considered and caps were adjusted, to ensure that excessive emissions reductions would not be required. Although EPA's specific approach for taking growth into account was challenged by industry and some States, no one challenged EPA's rule accounting for growth. Now, however, in proposing the CAIR and developing the 2010 and 2015 emissions caps for NOx and SO2 EPA fails to provide for any growth in heat input. The effect of such an approach is to force additional emissions reductions at individual units, beyond the level contemplated in the CAIR, to offset any emissions increases that occur solely due to the growth in electricity generation. As reflected by the growth in heat input. EPA's approach unduly penalizes economic growth in an arbitrary and capricious fashion. Since EPA provided for growth in the NOx SIP Call rule, it should do so in the CAIR, or provide a satisfactory explanation of why it omitted heat input growth. EPA has done neither. The lack of a suitable explanation is unreasonable.

Assuming EPA revises its approach to account for the growth in electricity generation by 2010 and 2015, it should ensure that such approach is applied to all affected CAIR States in an equitable manner, so as not to unduly enrich one or more States at the expense of others. As one of the fastest growing States in the CAIR region, Georgia is especially vulnerable to an approach that either fails to account for growth or does so in an inequitable manner.

Response:

See section IV in the CAIR NFR preamble for a response regarding how the Agency has taken growth into account in developing the CAIR.

Comment:

Air Quality Continues to Improve: The commenter's facilities are subject to a number of environmental regulations - both state and federal - which require them to meet certain standards and ensure that none is free of regulation. As a result of the Clean Air Act and subsequent amendments to it, the commenter's emissions of criteria pollutants have fallen, and the commenter expects they will continue to fall due to lower targets resulting from the Act.

Significant investments in environmental improvements have been made over the last several decades, in order to ensure that the plants provide safe, environmentally protective, affordable and reliable electric power to the commenter's customers. The commenter is proud to have been part of the trend in air quality improvements most recently cited in the EPA's report, 'Latest Findings on National Air Quality.' The EPA found that since 1970, aggregate emissions of the six principal pollutants have been cut 48 percent. This improvement in air quality occurred even while the U.S. gross domestic product increased 164 percent and energy consumption increased 42 percent during the same time.

The Commenter has Begun to Make Significant Reductions: In 2002, the commenter partnered with legislative, government, environmental and business leaders in the passage of the landmark Clean Smokestacks legislation in North Carolina, a partnership which EPA recognized with a 2004 Clean Air Excellence Award. This law established a cap-and-trade program, with reductions similar to those in the CAIR, limited to the North Carolina coal-fired plants owned by the commenter and Duke Energy. As a result of this law, the commenter's North Carolina NOx emissions will be more than halved - a 56 percent reduction - by 2007 from 2001 levels. SO_2 emissions will see an even greater reduction, falling 74 percent from 2001 levels by 2013. To comply with the SO_2 emissions caps, the commenter's current plans are to install flue gas desulfurization (FGD or scrubber) control systems on many of its coal-fired units in North Carolina. The commenter plans to operate existing selective catalytic reduction (SCR) and other NOx controls year-round and install NOx controls on an additional four units to meet and maintain the fixed NOx caps. Compliance with the Clean Smokestacks Act will cost over $800 million, on top of the almost $400 million already spent for compliance with the Acid Rain and NOx SIP Call programs.

It is important to note that the NC Clean Smokestacks Act was structured to achieve the overall NOx and SO2 reductions in the most cost-effective manner while maintaining system reliability. Within the framework of an overall emissions reduction target and timetable, the Act allows flexibility in determining which units are controlled and the specific timing for the controls to be installed. This approach ensures that the environmental improvements will be achieved in the most economical manner for the ratepayers, consumers and citizens of North Carolina.

Response:

The Agency appreciates this comment.

Comment:

Ozone attainment is not the commenter's only concern. As noted in their March 30 comments, the commenter barely meets the annual fine particle standard and cannot be certain of meeting this standard over the long-term. The commenter needs reductions beyond those EPA is proposing to ensure continued $PM_{2.5}$ attainment. Greater reductions are also needed in light of studies demonstrating that the current fine particle standard does not adequately protect public health.

Response:

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

As discussed in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires states to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the initial step of finalizing CAIR, EPA is requiring a very substantial air emissions reduction that addresses interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

Comment:

The commenter believes that the proposed NOx and SO2 emission reduction levels and compliance timetables, implemented through a regionwide cap-and-trade program, are feasible and achievable considering the current status of emission control technologies, the availability of suppliers and skilled labor and other relevant factors.

Response:

The EPA agrees.

Comment:

Tighter Caps on NOx and SO2 Emissions from Power Plants are Needed and Possible - EPA's proposed caps on NOx and SO2 in the IAQR are not strong enough to adequately protect human health and our natural resources. The commenter believes that more stringent caps for both pollutants are feasible and highly cost-effective. The commenter urges EPA to strengthen the proposed caps.

Response:

As discussed above in section VI in this RTC document, the emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

As discussed in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires states to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the initial step of finalizing CAIR, EPA is requiring a very substantial air emissions reduction that addresses interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

EPA considered a variety of factors in evaluating the source categories from which highly cost-effective reductions may be available and the level of reduction assumed from that sector. Factors evaluated include the availability of information, the identification of source categories emitting relatively large amounts of the relevant emissions, the performance and applicability of control measures, the cost effectiveness of control measures, and engineering and financial

factors that affect the availability of control measures. Considering all of these factors, EPA determined that the final CAIR emissions caps and timing will achieve the greatest amount of highly cost-effective reductions on as early a schedule as is feasible. See Section IV of the CAIR NFR preamble for a detailed discussion of the engineering factors affecting timing of control retrofits.

Comment:

The commenter urges that the EPA reduce the annual control region SO_2 cap to 1.8 million tons to be completed by 2009.

Response:

EPA considered a variety of factors in evaluating the source categories from which highly cost-effective reductions may be available and the level of reduction assumed from that sector. Factors evaluated include the availability of information, the identification of source categories emitting relatively large amounts of the relevant emissions, the performance and applicability of control measures, the cost effectiveness of control measures, and engineering and financial factors that affect the availability of control measures. Considering all of these factors, EPA determined that the final CAIR emissions caps and timing will achieve the greatest amount of highly cost-effective reductions on as early a schedule as is feasible. See Section IV of the CAIR NFR preamble for a detailed discussion of the engineering factors affecting timing of control retrofits.

As explained in section IV in the CAIR NFR preamble, the timing of the initial compliance phase is limited by the feasibility of installing necessary pollution control retrofits within the available time frame. EPA did move-up the $_{\text{initial NOx}}$ compliance phase from 2010 to 2009 after the CAIR proposal, however it is not feasible to accelerate the compliance schedule any further.

Comment:

Maine does not believe that the proposed levels of the NOx and SO2 caps are stringent enough to fully address transported emissions from the electric generating unit source category. The Ozone Transport Commission (OTC) has conducted it own modeling and analysis of the necessary reductions using Calgrid, and has proposed that caps on $_{\text{SO2, NOx}}$ and Mercury should be set as follows: [[(p.2)]] [[(see docket number 0962, p. 3, for a table of OTC's proposed pollutant caps)]]

Maine fully supports the OTC's convention that these caps would be considerably more effective than EPA's proposed caps in addressing pollution transport, and believes that EPA would be well served to give the OTC analysis careful consideration. [[(p.3)]]

EPA should re-evaluate it reduction targets based on the application of BACT-equivalent emission control technology. With expected health and environmental benefits of $58 billion and $84 billion in 2010 and 2015, respectively, the benefits of this proposed far outweigh costs. There are simply no technical or economic reasons not to require a greater level of emission reductions. [[(p.5)]]

EPA should establish more stringent caps with earlier deadlines than proposed. As previously noted, EPA's proposed NOx and SO2 caps are simply not stringent enough nor timely enough to address transported pollution in the necessary timeframe(s). Whether the ozone or PM fine NAAQS, or regional haze and acid rain, the IAQR proposal does not go far enough, soon enough. [[(p.6)]]

Response:

EPA considered a variety of factors in evaluating the source categories from which highly cost-effective reductions may be available and the level of reduction assumed from that sector. Factors evaluated include the availability of information, the identification of source categories emitting relatively large amounts of the relevant emissions, the performance and applicability of control measures, the cost effectiveness of control measures, and engineering and financial factors that affect the availability of control measures. Considering all of these factors, EPA determined that the final CAIR emissions caps and timing will achieve the greatest amount of highly cost-effective reductions on as early a schedule as is feasible. A detailed discussion of the engineering factors that affect the timing of control retrofits is found in Section IV of the CAIR NFR preamble. Also see Section IV for a response regarding the application of BACT emission rates for setting CAIR requirements. See Section IV for a discussion regarding EPAs interpretation of CAA section 110(a)(2)(D) with regard to basing emission reduction requirements on benefits. For further discussion of EPA's benefits analysis see section XIV.A in this RTC document, see section X in the CAIR NFR preamble, and see the RIA.

Comment:

In addition to acid rain and ozone, particulate matter is also an important air quality and health issue that both Canada and the U.S. have acknowledged they need to address. Technical analyses in Canada and the U.S. conclude that there are transboundary flows of particulate matter and its precursors from the U.S. to Canada and from Canada to the U.S. To a certain extent, this is being addressed by acid rain and ozone reduction measures, but further reductions in Canada and the U.S. are necessary, particularly in regions where there is transboundary flow. [[(pp.1-2)]]

Environment Canada is very pleased to note that, when fully implemented, the proposed IAQR would yield cumulative reductions of up to 34 million tons of NOx and SO2 between now and 2015 (EPA, 2004). Those emissions reductions will result in significant health and environmental benefits for Canadians and Americans. Further, Environment Canada estimates that, if the U.S. were to advance the caps such that both Phase I and Phase II were fully implemented by 2010, the environment would be spared more than 2 million additional tons of SO_2 and almost 1 million additional tons of NOx for the five-year period. [[(p.3)]]

It is important that the U.S. further reduce its emissions of NOx and SO2 as quickly and as aggressively as possible, thereby contributing to the ongoing Canadian efforts to achieve the Canada-wide Standards (CWSs) for ozone and PM, two of the most important components of smog, and to prevent acidification of Canadian ecosystems. [[(p.4)]]

Between 1980 and 2000, significant SO_2 emissions reductions took place in eastern Canada as a result of national and provincial programs aimed at reducing acid rain and smog. Specifically, between 1980 and 2000, total provincial SO_2 emissions were cut as follows: Quebec by 70 percent, Ontario by 65 percent, New Brunswick by 75 percent, Manitoba by 20 percent, and

Nova Scotia by 12 percent. Nationally, total SO_2 emissions have decreased by about 50 percent, to 2.6 million tonnes in 2002. Nationally, SO_2 emissions have decreased by 6 percent, more than 150 000 tonnes, since 1987. [[(pp.6-7)]]

Over a similar time period, as a result of the U.S. title IV Acid Rain Program, SO_2 emissions from electric generating units have decreased by 41 percent (35 percent from 1990 levels). Emissions reductions from other sources have also contributed to the 39 percent decline in total U.S. SO_2 emissions since 1980. Title IV also specified reductions in SO_2 emissions from electric generating units. Nationally, total SO_2 emissions have decreased by 12 percent from 1990 through 2001. [[(p.7)]]

However, NOx and SO2 emissions in the U.S. are about 10 times greater than those from Canada, and can be transported hundreds of miles from their origin in accordance with regional weather patterns. This long-range transport is largely responsible for acid rain in New England and eastern Canada. Several quantitative trajectory and chemistry analyses strongly suggest that NOx and SO2 sources in the U.S. are the major contributors to wet and dry deposition at sites in eastern Canada. [[(p.7)]]

Canada has an integrated approach to addressing air quality, under which a series of federal and provincial measures are being implemented to reduce pollutants and their precursors, including NOx and SO2. This includes the CWSs for PM and Ozone, and the Canada-Wide Acid Rain Strategy for Post-2000. [[(p.9)]] [[(See docket number 0964, pp. 9-11, for detailed discussions of the CWSs for PM and ozone and the Canada-Wide Acid Rain Strategy)]]

From a transboundary perspective, the following information provides qualitative estimates of ambient reductions needed to achieve the CWSs, and indicates that under certain meteorological conditions commonly associated with high smog levels, emissions from the U.S. significantly influence the ozone concentrations in eastern Canada. The information also indicates that while the IAQR will contribute to reducing ambient ozone concentrations, the proposed reductions will not be sufficient to achieve the Ozone CWS in all parts of eastern Canada, particularly in southwestern and central Ontario. [[(p.15)]] (See docket number 0964, pp.15-17, for a detailed discussion of modeling results related to the above issue)]]

Canada carried out additional model simulations using ADOM, a three-dimensional Eulerian chemical transport model, to determine the impact of specified SO_2 emissions reductions across eastern Canada and the U.S. (Kaminski, 2002). [[(p.18)]] [[(See Docket number 0964, p.18, for a detailed discussion of the modeling used to determine the impacts of SO_2 emissions reductions across eastern Canada and the U.S.)]]

Based upon the atmospheric deposition modeling, the results indicate that the proposed emissions reductions in the IAQR are a good step to further reduce acid deposition to lake ecosystems in eastern Canada. The additional reduction in SO_2 emissions proposed under the IAQR will have co-benefits in terms of reducing acidification. However, more reductions will be required to fully address the problem. [[(p.18)]]

Response:

EPA is concerned about air quality in Canada and committed to the goals of the U.S.-Canada Air Quality Agreement.

See section IV in the CAIR NFR preamble for an explanation of EPA's determination of the CAIR control levels and timing. Also see a technical support document entitled "Boilermaker Labor and Installation Timing Analysis" that is available in the CAIR docket, for a detailed discussion of the feasibility limitations affecting the timing of controls.

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment. As discussed in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires states to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the initial step of finalizing CAIR, EPA is requiring a very substantial air emissions reduction that addresses interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

We project that CAIR will eliminate chronic acidification in lakes in the Adirondack Mountains by 2030. In addition, the rule is expected to decrease the percentage of chronically acidic lakes throughout Northeast from 6 to 1 percent. However, some lakes in the Adirondacks and New England will continue to experience episodic acidification even after implementation of this rule.

Comment:

Deeper cuts would serve two important goals - allowing for recovery of more streams and allowing for some margin of safety for threatened streams. The modeling is only a prediction of what may happen in the future; it does not provide a guarantee. In light of this uncertainty, deeper cuts would provide a margin of safety for threatened streams in the Southeast and may even provide some impetus for recovery. TU urges EPA to reduce the overall sulfur cap for the region by an addition 500,000 to 1 million tons a year. Doing so would facilitate ultimate compliance with the $PM_{2.5}$ NAAQs, and would provide needed protection for mountain trout streams in the Southeast. [[p.2]]

Response:

The purpose of the CAIR is to reduce $PM_{2.5}$ emissions from sources which significantly contribute to nonattainment in upwind areas. EPA believes this rule will have significant, indirect affects on improving the quality of water bodies in the US. See section X for a description of the benefits of CAIR.

The CAIR emission reduction levels were determined to be feasible and highly cost-effective for the 2010 and 2015 compliance dates. See section IV in the CAIR NFR preamble for a detailed discussion of EPA's cost effectiveness determination, as well as a detailed discussion of the feasibility evaluation.

Comment:

We understand that the primary focus of the proposed rule is to reduce emissions of sulfur dioxide and nitrogen oxides. We further understand that the proposed rule is not oriented toward carbonaceous materials or direct emissions of crustal materials. Nevertheless, the proposed rule would allow local regulation of carbonaceous materials or direct emissions of crustal materials. Nevertheless the proposed rule would allow local regulation of carbonaceous materials and direct emissions of crustal materials. Regulating such materials locally might adversely affect our ability to protect the operational readiness of our forces and to train the way we fight.

DoD recommends that EPA include language in the preamble to emphasize the unique nature of military readiness activities and to indicate that regulation of military activities is not necessary to achieve reductions of transported $PM_{2.5}$. Specifically, DoD requests the following paragraphs be added to section IIID.5.d of the preamble. [[(p.4)]]

'The Department of Defense (DoD) engages in activities that are unique to the armed forces and without comparison to activities in the commercial or industrial sector. DoD must engage in live-fire smoke, communications, and maneuver activities to train its personnel for combat. DoD's training activities may include training in classrooms and simulators, but culminates in live-fire and maneuver training under conditions simulating the stress, confusion, distances, and complexity of combat. Such activities are critical to DoD's operational readiness and in the best interests of our national defense. Realistic combat training involves the use of smoke and obscurants, vehicles traversing unpaved terrain, and mobile combustion sources. DoD must train in realistic combat settings to be able to operate in a global environment. Similarly, DoD is required by various laws to conduct realistic survivability and safety testing of ordnance and weapons systems and aircraft. All of these uniquely military activities are relatively small sources of $PM_{2.5}$ and do not significantly impact air quality.

As a Federal agency, DoD must also comply with environmental statutes in a manner that the private sector does not. DoD, as the third largest land manager, must engage in environmental stewardship land management activities to maintain its ranges and other training lands; activities that would not normally occur in the private sector. For example, DoD may be required to engage in mandatory prescribed burns of certain areas to maintain habitat for endangered species under the Endangered Species Act (ESA). Likewise, DoD may need to conduct a prescribed burn in a portion of a range to enable Explosive Ordinance Disposal personnel to enter an area safely. As management of such activities is better suited to guidance elsewhere, we defer regulating such activities under the proposed rule.

EPA does not see the need for Defense activities to be the target of control strategies designed to achieve $PM_{2.5}$ reductions. EPA has analyzed data on $PM_{2.5}$ and found that it is clear that military testing and training activities are actually among the smallest sources of $PM_{2.5}$ in areas likely to have a fine particulate problem. EPA would not recommend that States focus regulatory attention on military training, testing and operational activities.' [[(p.4)]]

Response:

Neither the proposed rule, nor the final rule allow States to meet the requirements of the rule by regulating carbonaceous materials and direct emissions of crustal materials. For further explanation, see Section III of the preamble.

Comment:

Under the IAQR, hundreds of NAM member companies may be required to install pollution control equipment at costs in the billions of dollars. Accordingly, the final rule must get the most 'bang for the buck' by making substantial pollution reductions, preventing further exacerbation of natural gas supplies and prices, maintaining reliable electricity generation and minimizing costs to electric utilities, manufacturers and homeowners. Any multi-emission policy must also streamline regulatory requirements while providing certainty to business planners.

Since 1970, all of the major pollutants targeted by the CAA have been drastically reduced by 48 percent against the backdrop of a 164 percent growth in gross domestic product, 42 percent increase in energy consumption, 155 percent increase in vehicle-miles traveled, and 38 percent rise in population (EPA Air Trends Report 2002). And because mercury has been targeted for substantial future reductions - assured, in part, by the technological developments of innovative manufacturers - the EPA anticipates it, too, will decline in the future like other targeted pollutants. Now that we are trying to get at further incremental reductions of NOx and SO2, the NAM looks forward to working with the EPA to promulgate efficient, cost-effective and environmentally advantageous rules. [[0706, p 8]]

Response:

EPA considered all these factors in determining highly cost effective NOx and SO2 control levels which we feels are efficient, cost effective and environmentally advantageous. See RIA and section IV in the CAIR NFR preamble for a detailed discussion of EPA's cost effectiveness determination, as well as a detailed discussion of the feasibility evaluation.

Comment:

Reduction of NOx and SO2 at power plants can be accomplished in amounts that are greater than U.S. EPA has proposed and in a timeframe shorter than US EPA has proposed. Control technology is readily available - scrubbers, selective catalytic reduction and other technologies can be employed at most units, though costs and implementation issues will vary. Therefore, it is a matter of when installation of these controls is cost effective, needed to meet attainment goals and what schedule is reasonable, achievable and as expeditious as possible, given cost, availability of labor and other resources, and reliability of the power system. [[(p.2)]]

EPA's analyses show that the IAQR will bring $PM_{2.5}$ values only slightly below 15 ug/m3. The states may have very limited options for controlling regional transport from this sector in the future, which will be particularly important in the event that the PM air quality standard is revised downward. EPA's documentation states that local measures may only be able to practically achieve less than 1 ug/m3 reductions. We urge EPA to ensure that the Phase II cap level be set after a re-examination of highly cost effective control levels associated with the cap and trade program in 2015 in light of current operating rates. [[(p.6)]]

Response:

See section IV in the CAIR NFR preamble for an explanation of EPA's determination of the CAIR control levels and timing. Also see a technical support document entitled "Boilermaker Labor and Installation Timing Analysis" that is available in the CAIR docket. See other

responses in this section of the RTC document for a discussion of the relationship between CAIR and attainment of air quality goals.

Comment:

Electric generating units (EGUs) are a significant source of air pollution they emit more than half of the nation's SO_2 emissions and almost a fifth of the nation's NOx emissions, according to EPA's 2001 inventory. By not proposing caps that reflect the application of BACT, and not proposing deadlines that more closely track with the attainment deadlines for states and localities, EPA is shifting the burden to states and localities to seek emission reductions from sources such as drycleaners, paint shops or bakeries in their areas that are likely to be far less cost-effective to control. [[(p.3)]]

Response:

See section IV in the CAIR NFR preamble for an explanation of EPA's determination of the CAIR control levels and timing. For additional discussion of the engineering factors affecting the timing, see the technical support document entitled "Boilermaker Labor and Timing Analysis" that is available in the CAIR docket. See other responses in this section of the RTC document for a discussion of the relationship between CAIR and attainment of air quality goals. Also see section VII.B in this RTC document for further discussion of the timing of controls. See section IV in the CAIR NFR preamble for a discussion of BACT for setting control levels.

Comment:

Old Dominion requests that the Environmental Protection Agency (EPA) ensure that any future particulate matter and ozone reduction requirements be achieved in an efficient and cost effective manner. Old Dominion being not-for-profit will be forced to pass along the costs of meeting new emissions reduction requirements to our consumer-owners. [[(p.1)]]

Response:

EPA believes the emission reductions required by CAIR are both cost effective and efficient in reducing significant contribution from upwind States, which will help downwind States to achieve attainment.

Comment:

Available Control Technologies could achieve 90 percent reductions: EPA's proposed rule falls short of calling for the maximal emissions reductions that can feasibly be attained, and therefore should be strengthened. There is no safe level of a pollutant like $PM_{2.5}$, therefore the EPA should press for an aggressive reduction of particulates.

Canada has already moved to reduce ozone precursor and $PM_{2.5}$ emissions. Five eastern Canadian provinces have agreed to SO_2 reductions as part of the Canada Wide Acid Rain Strategy, with most of the targets to be attained over the next five to six years. A Canada-Wide Standard for ozone has also been passed, committing the federal government to achieve substantial reductions by 2010.

In the matter of feasible reductions, we wish to draw your attention to the comments of the Clean Air Task Force (CATF), as the representative of various American environmental groups.

In their written comments on the rule CATF wrote,

& tighter caps for [NOx and SO2] are quite feasible and highly cost-effective, and EPA must require them . . . Emissions control technology for SO_2 emissions is well demonstrated and established, and has been commercially available for decades. Wet and dry flue gas desulfurization (FGD) technologies have been available for over 30 years, and routinely achieve SO_2 control efficiencies of 90 to 95+ percent . . . Reductions in power plant NOx emissions in the 90 percent range are also feasible using selective catalytic reduction (SCR) technology. SCR technology for NOx control, although much more recent than FGD control for SO_2, is now in widespread use in the utility industry and is proving to be reliable and effective. EPA reports that [o]perating data available from many plants indicate that the 90 percent NOx removal rate has been met or exceeded at these plants.:

CATF urged the EPA to reduce the annual control region SO_2 cap to about 1.84 million tons (approximately equivalent to a two million ton nationwide cap) and reduce the annual control region NOx cap in two phases to about 1.04 million tons (approximately equivalent to a 1.25 million ton nationwide cap). CATF analyzed the data and concluded that such reductions are feasible and cost-effective, and that 'EPAs failure to require tighter emission controls will result in thousands of additional premature deaths, billions of dollars in social costs, but relatively insignificant increased costs to the power sector.' [[pp. 5-6]]

Thus, in the context of ongoing harm to Canadians and Americans living downwind of coalfired power plants we recommend that the US EPA: Set additional reductions to eliminate continuing adverse impacts on Canada by 2008 and beyond. [[p. 6]]

Response:

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment. As described above in section VI in the RTC, and in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements.

The CAIR emission reduction levels were determined to be feasible and highly cost-effective for the 2010 and 2015 compliance dates. See section IV in the CAIR NFR preamble for a detailed discussion of EPA's cost effectiveness determination, as well as a detailed discussion of the feasibility evaluation. The CAIR will result in significant emission reductions in air emissions. See section X for a description of the benefits of CAIR. Under a cap-and-trade program, some units will install controls while others will purchase emission allowances.

Comment:

The second phase caps appear to be set at about the right level, and should be neither increased nor decreased. [[1790, p. 3]]

Response:

This comment is generally supportive of the CAIR rule.

Comment:

Considering the average annual cost as estimated by EPA ($800/ton NOx table VI-7 page 4615) the cost per ugm-3 of ammonium nitrated reduced is approximately $5.7 Billion for the 2010 controls. Assuming an annual marginal cost of $1300/ton NOx (table VI-7) to get the additional 300,000 tons of NOx required in 2015 the cost is increased by approximately $2 Billion in 1999 dollars. Clearly this would be a very significant investment to achieve the insignificant reductions shown above. [[p. 7]]

Response:

According to EPA's projections, the total increase in cost between 2010 and 2015 is $1.3 billion. Between 2010 and 2015, EPA projects a 1.1 million ton reduction in NOx and a 200,000 ton reduction in SO_2. This is significantly less expensive than the $2 Billion that the commenter calculates for reducing 300,000 tons of NOx. With respect to the $5.7 billion cost number that the commenter cites, EPA projects that the rule will cost $2.3 billion in 2010 and will have significant benefit beyond reducing ammonium nitrate. See the RIA for further discussion of the costs and benefits of this rule.

Comment:

Electric generators in the United States, including EEI members, already have achieved massive reductions in their NOx and SO2 emissions under existing CAA programs. For example, EGUs have dramatically reduced SO_2 emissions through the Acid Rain Program of Title IV of the Act, by about 40 percent, and those reductions will grow through 2010. [[(p.3)]]

Coal-based EGUs also have reduced SO_2 emissions substantially through widespread installation and use of combustion controls to meet the Title IV SO_2 requirements. In addition, many EGUs in the eastern half of the United States have cut their NOx emissions even further in response to the NOx State Implementation Plan (SIP) Call rule that went into effect in most Northeastern states in 2003 and went into effect throughout the eastern U.S. in May 2004. EGUs in Northeastern states also achieved NOx reductions pursuant to the 1994 Ozone Transport Commission (OTC) Memorandum of Understanding program. Furthermore, many electric generators have implemented or will be implementing NOx emissions reductions under state legislative initiatives or under SIP provisions to address ozone nonattainment. All in all, NOx emissions also are down 40 percent and will go even lower with the NOx SIP Call. [[(pp.3-4)]]

Regarding the NOx SIP Call, this new regulation requires roughly 20 states to revise SIPs to cut industrial NOx emissions during the summer months. A large portion of the Eastern coal-based electric generating fleet is installing state-of- the art pollution control technology, called selective catalytic reduction or 'SCR,' to cut NOx emissions by nearly one million tons. The power industry will spend almost $10 billion to install the new pollution control technology, and hundreds of millions each year to operate and maintain the equipment. [[(p.4)]]

As a result of this new ozone-reduction regulation, issued and enforced by EPA, power sector NOx emissions will fall to approximately one-fifth of the nation's total. Coupling these reductions with the fact that the industry is responsible for less than 1 percent of U.S. volatile organic compounds emissions (the other emission of importance to ozone formation) supports the conclusion that the electric power industry's contribution to ozone formation in the future will be relatively minor. [[(p.4)]]

As noted, we have already cut NOx and SO2 about 40 percent due to the acid rain and ozone programs. These emissions cuts have been achieved despite a 93 percent increase in gross domestic product and a 75 percent increase in electricity use since 1980. The national trend is positive as well. EPA's most recent air trends report found that emissions of six principle air pollutants have been cut 48 percent since enactment of the federal CAA in 1970. [[(p.4)]]

The bottom line is that the electric power industry has made major strides in cutting emissions already, and we will do much more. Future emissions from power plants will be reduced dramatically under the CAIR or perhaps through new legislation by Congress. Either way, emissions will be reduced by another two-thirds from current levels over the next decade or so. Emissions rates per ton of coal used will be reduced by more than 90 percent from their peaks. [[(p.5)]]

EPA has stated that the combination of the CAIR and the agency's proposed mercury regulations will demand the largest single industry investment in emission reductions in the history of the CAA. [[(p.5)]]

Ironically, these positive overall trends in air quality have not reached the public. A poll conducted by EEI last fall revealed that 68 percent of the public believed the nation's air quality had gotten worse over the last three decades, and 54 percent said air pollution would worsen in the future. This misperception may be due in part to such factors as greater public awareness of ozone alerts on hot summer days, or increased traffic congestion and sprawl in urban areas. There is a major gap between public perception about air quality and the very real gains we've made so far. Whatever the reasons for this disparity, one thing is certain - power plants will continue to reduce emissions, and the nation's air quality will continue to improve. [[(p.5)]]

Response:

EPA agrees with the commenter that the power sector has made significant reductions and will make significant additional reductions under Today's ruleamkaing.

Comment:

USEPA issued a 'straw proposal' in late 2001 that detailed what reductions would need to occur in order to actually comply with the requirements of the CAA. In short, what reductions would be needed to get all areas in compliance with the NAAQS. For sulfur dioxide this would be a nationwide cap of 2 million caps by 2012. For nitrogen oxides, this was a cap on the order of 1.25 million tons by 2010.

What is being proposed in the transport rule is far less reduction of harmful emissions, and cuts proposed are also delayed by several years. Emissions caps will be 223 percent higher for SO_2 and 168 percent higher for NOx, and even when fully implemented in 2015 these figures will be 150 percent and 136 percent higher. More pollution for a longer period of time will only prolong human suffering and increase medical expenses EPA's own analyses show that the emission cuts - mainly from power plants that have enjoyed decades of subsidies through avoiding modern pollution controls - can be made much faster and deeper at minimal additional cost. We call on EPA to require reductions of nitrogen oxides and sulfur dioxide so that states can actually meet the law's clean up deadlines. [[p.1]]

Response:

EPA believes that the commenter is referring to a proposal that the Agency developed as part of interagency discussions on developing multi-pollutant legislation. Further analysis suggested that this proposal was overly ambitious and that boiler-maker labor needed to install all of the necessary controls was not available. Since more than 3 years have elapsed since the development of the straw proposal, this is even more true today. Section IV of the preamble details the control levels that EPA believes are both highly cost effective and feasible to install.

Comment:

In the proposal, EPA points out that ozone levels have been relatively constant during the most recent 30 years, reflecting little if any air quality improvement. EPA acknowledges that ozone remains a significant public health concern and that wide geographic areas, including most of the nation's population centers, will continue to experience ozone concentrations exceeding the 8-hour standard for the foreseeable future, even as existing regulatory requirements reduce over time the number of nonattainment areas. (69 F.R. 4572) Yet EPA then goes on to acknowledge that this proposal will not result in 'sizable emission reductions' until 2010 and that the reductions in transported ozone will be minimal, resulting in only 3 counties achieving attainment. This is an insignificant and insufficient contribution to ozone attainment. [[(1172, p.3)]]

We believe that this rule can and should require greater reductions of NOx and SO2 and that the reductions should be made sooner than EPA has proposed. DEP supports the January 27,2004 Multi-Pollutant Strategy Position of the Ozone Transport Commission, which calls for more stringent caps and earlier reductions. The Ozone Transport Commission proposal is a cost-effective approach that will provide needed public health protection quickly and provide greater assurance that downwind states will be able to meet their attainment deadlines. [[(1171, p.2)]]

DEP strongly believes that the proposal must be more stringent with respect to timing and cap levels. [[(1172, p.3)]]

DEP strongly urges EPA to adopt NOx and SO2 cap levels and reduction timeframes in the ranges that have been proposed by the Ozone Transport Commission in its January 27,2004 Multi-Pollutant Strategy Position of the Ozone Transport Commission, and by the State and Territorial Air Pollution Program Administrators/Association of Local Air Pollution Program Officials' (STAPPA/ALAPCO's) May 7,2002 Principles for a Multi-Pollutant Strategy for Power Plants and March 15,2004 analysis of those principles'. [[(1172, p.3)]]

Response:

See response on OTC Multi-pollutant strategy. See response on STAPPA/ALAPCO propsoal.

Comment:

Michigan supports preservation of the authority of states, localities, and regional groups to adopt and/or implement more stringent limits. [[(1181, p.1)]]

Michigan believes that the IAQR must preserve the authority of states and other local and regional groups to adopt more stringent limits than those contained in the IAQR. States are ultimately responsible for attaining the NAAQS for their own state and therefore must have all

the tools available to do so. It is possible that more NOx, and SO_2 reductions than provided in the final IAQR will be needed for attainment of the $PM_{2.5}$ standard or the regional haze rule. The most cost-effective control approach Michigan can find to achieve attainment may be further control of large combustion units. To the extent Michigan needs additional controls to do so, tighter utility controls must be an option not prohibited in the IAQR. [[(1181, p.5)]]

Response:

EPA agrees with this commenter. The CAIR rule allows for state and local authorities to adopt more stringent limits than those established in the CAIR rule.

Comment:

Why were the caps set so high? This rule does nothing for summertime NOx. Ozone is a problem only in summer, and its design values hardly change with this rule. This rule is supposed to take care of air pollution transport, and, in its own analysis, EPA shows no significant ozone benefits. EPA appears to be suggesting that summertime ozone is no longer transported. [[(p.4)]]

A more reasonable way to set the cap, if costs are to be taken into account is where the marginal cost of the power plant measures meets the marginal cost of the new measures to control NOx and SO2 that the east coast would have to put in to compensate for the lack of action on transport. The very fact that no significant NOx reductions are expected to take place ahead of time indicates that the cap was set too high. If the cap were set lower, utilities would have a stronger incentive to scrub more of their emissions ahead of time, possibly giving Maryland benefits before the 2010 and 2015 deadlines suggested in this rule. [[(p.4)]]

Response:

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment. As described above in section VI in the RTC, and in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements.

The CAIR emission reduction levels were determined to be feasible and highly cost-effective for the 2010 and 2015 compliance dates. See section IV in the CAIR NFR preamble for a detailed discussion of EPA's cost effectiveness determination, as well as a detailed discussion of the feasibility evaluation. The CAIR will result in significant emission reductions in air emissions. See section X for a description of the benefits of CAIR. Under a cap-and-trade program, some units will install controls while others will purchase emission allowances.

Comment:

Calpine's previous comments, dated March 30,2004 are attached. [[see docket number 1818, pp. 15-22 for attachment]]

Reduce the cap levels for both pollutants during both periods. Greater reductions can be reasonably achieved and will result in even greater air quality and health benefits from this proposed program. [[p. 3]]

Response:

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment. As described above in section VI in the RTC, and in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements.

The CAIR emission reduction levels were determined to be feasible and highly cost-effective for the 2010 and 2015 compliance dates. See section IV in the CAIR NFR preamble for a detailed discussion of EPA's cost effectiveness determination, as well as a detailed discussion of the feasibility evaluation. The CAIR will result in significant emission reductions in air emissions. See section X for a description of the benefits of CAIR. Under a cap-and-trade program, some units will install controls while others will purchase emission allowances.

Comment:

Finally EPA seeks comment on the level of second-phase caps and the resulting division of responsibility between local and interstate transport sources. As the Agency has correctly observed, many downwind states are themselves in turn contributing to the air quality attainment problems of other states. The Adirondack Council strongly encourages the EPA to lower the emission caps in the second-phase. We believe that the EPA can give even more help to states through regional controls that achieve greater reductions and benefits, while remaining cost effective. [[p.8]]

Response:

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment. As described above in section VI in the RTC, and in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements.

The CAIR emission reduction levels were determined to be feasible and highly cost-effective for the 2010 and 2015 compliance dates. See section IV in the CAIR NFR preamble for a detailed discussion of EPA's cost effectiveness determination, as well as a detailed discussion of the feasibility evaluation. The CAIR will result in significant emission reductions in air emissions. See section X for a description of the benefits of CAIR. Under a cap-and-trade program, some units will install controls while others will purchase emission allowances.

Comment:

Page 4623, Column 1, Line 25 - 'Additionally, EPA seeks comment on the level of the second phase caps and the resulting division of responsibility between local and interstate transport sources.'

For ozone, the level of cost for additional local tons reduced can be quite high for certain areas. The decision regarding cost of control for local vs. transport reductions should always factor the effectiveness of that control. One situation could be 100 tons of NOx/ozone season reduced in a nonattainment area has an impact 0.1 ppb and costs $10,000 per ton and 100 tons of NOx/ozone season reduced in an upwind state has an impact of 0.01 ppb and costs $1,000 ton. The obvious choice would be the local control for its total benefit versus cost. The downwind

benefits of control can carry over from one area to another. Therefore, the total downwind benefit should be considered when calculating costs per impact. [[(p.8)]]

Response:

Each of the CAIR State's $PM_{2.5}$ emissions have a sufficient impact downwind to conclude that those amounts are significant contributions and that $PM_{2.5}$ emissions from all upwind sources collectively contribute significantly nonattainment downwind. Differentiating the contributions of individual upwind States on multiple downwind nonattainment areas is a highly complex task. Accordingly it would be extremely complex to develop a budget for each State that would reflect the different impacts of its sources' emission on different downwind States. The EPA believes a reasonable strategey is to apply the highly cost effective control strategies uniformly in contributing States in order to eliminate the combined significant contribution from these multiple States.

Comment:

The IAQR Must Support Reliable and Cost Efficient Electric Generation [[(p.4)]]

The IAQR should encourage and provide incentives for companies to convert existing EGUs or to invest in newer technologies to allow for newer, more diversified and more efficient processes for electric generation. [[(p.4)]]

The final IAQR must support a reliable and cost efficient electric power generation system, including all fuel types, and options for on-site power generation such as CHP. Coal and natural gas must be maintained and expanded as viable energy sources to provide fuel diversity and economic competitiveness for the United States. In addition, to prevent natural gas from becoming increasingly more expensive and less readily available for homeowners, manufacturers and electric generators, the final IAQR should promote the use of natural gas for power generation in new technology that uses the resource efficiently, such as CHP. The more predictable and efficient use of natural gas will reduce the natural gas pricing volatility seen in recent years. We recommend the final rule be modified accordingly to be consistent with this economic and energy imperative. [[(p.4)]]

Response:

EPA believes the CAIR rule supports reliable, cost effective electric generation. The CAIR emission reduction levels were determined to be feasible and highly cost-effective for the 2010 and 2015 compliance dates. See section IV in the CAIR NFR preamble for a detailed discussion of EPA's cost effectiveness determination, as well as a detailed discussion of the feasibility evaluation. The CAIR will result in significant reductions in air emissions. See section X for a description of the benefits of CAIR.

EPA believes cap-and-trade programs inherently provide incentive for more efficient electric generation, such as CHP. CAIR does promote CHP by providing an exemption, see CAIR NFR preamble for a more detailed discussion.

EPA analyzed these factors in determining cost effective controls, the emission caps, and the timing of the emission caps. See the Regulatory Impact Analysis (RIA) for EPA's analyses of

the projected impacts of CAIR on allowance prices, fuel use, electricity prices, coal prices, and retirements.

Comment:

Reduce the cap levels for both pollutants during both periods. Greater reductions can be reasonably achieved and will result in even greater air quality and health benefits from this proposed program. [[p. 3]] [[See pp. 8-9 for further discussion.]]

Response:

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment. As described above in section VI in the RTC, and in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements.

The CAIR emission reduction levels were determined to be feasible and highly cost-effective for the 2010 and 2015 compliance dates. See section IV in the CAIR NFR preamble for a detailed discussion of EPA's cost effectiveness determination, as well as a detailed discussion of the feasibility evaluation. The CAIR will result in significant emission reductions in air emissions. See section X for a description of the benefits of CAIR. Under a cap-and-trade program, some units will install controls while others will purchase emission allowances.

Comment:

As noted in our March 30, 2004 comments, Environmental Defense views EPA's proposed Clean Air Interstate rule (CAIR) as a necessary and long-awaited step forward in lowering dangerous air pollutants and protecting public health. To realize the full potential of public health and environmental benefits, however, the CAIR must be strengthened with deeper reductions in both nitrogen and sulfur oxides emissions from electricity generating units (EGUs). The benefits of deeper reductions in sulfur oxides were addressed in our March 30, 2004 comments. Those comments also established the need to extend NOx reduction requirements to the western United States. Here, we expand on our recommendation that EPA quickly finalize the CAIR requirements for year-round reductions in NOx emissions and require faster, deeper cuts in these emissions. [[(p.4)]]

Nitrogen Oxides Emissions Reductions are Needed to Protect Public Health in Nonattainment Areas [[see pp.5-6, section 2.1, for detailed discussion of this issue]]

Nitrogen Oxides Emissions Reductions are Needed to Protect Ecosystems [[see pp.7-9, section 2.2, for detailed discussion of this issue]]

As recognized in the CAIR, reductions in nitrogen oxides emissions are needed to address ozone and $PM_{2.5}$ nonattainment problems along with ecosystem impacts of reactive nitrogen across the eastern United States. EPA should move swiftly to finalize the CAIR. In doing so, it should strengthen the program by imposing a stricter cap on year-round NOx emissions and a faster pace for achieving reductions. EPA should also modify the proposed rule to guarantee that summertime NOx emissions are reduced adequately. This could be accomplished by tightening the year-round cap to provide insurance against disproportionate EGU utilization during the

summer, or by imposing a separate cap on summertime emissions along side the year-round cap. [[(p.9)]]

Strengthen the clean up standards for power plants to help millions in the heartland breathe easier. Stringent limits for SO_2 pollution are common features of several bipartisan power plant pollution control bills in Congress, including the Clean Air Planning Act co-sponsored by Senators Carper, Chafee, Gregg and Alexander. Independent assessments and the technical analysis supporting these legislative initiatives make a compelling case for a 2.0 million ton cap for the 28-state region affected by EPA's proposed clean up standards. But EPA disregards this body of analysis and instead uses its lax cost-effectiveness test as the primary tool for establishing its proposed SO_2 pollution cap of 2.7 million tons for the 28-state region. A modest cost-effectiveness threshold of $1,500 per ton, far less than the investments being asked of other economic sectors to lower SO_2, would lead to a regional limit for SO_2 of 1.6 million tons per year. [[(p.21)]]

Environmental Defense recommends EPA adopt tougher pollution limits to protect human health: The SO_2 from eastern power plants in the 28 states should be limited to 1.6 2.0 million tons annually for SO_2. NOx emissions should be capped at 1.0 million tons annually for the region, based on a similarly strengthened cost effectiveness test that will better protect the communities hard hit by ozone smog. If EPA fails to strengthen these critical pollution limits, its own analysis shows that the millions of Americans in the Heartland hardest hit by power plant pollution will suffer the most. [[(p.22)]]

Response:

EPA has moved the nitrogen oxide deadline up a year from a proposed deadline of 2010 to a deadline of 2009.

ED suggests that EPA use a cost benefit analysis to set emission reduction targets. EPA has instead based its cost effectiveness test on a comparison to existing rules. This is consistent with the approach taken in the NOx SIP Call. EPA believes that it is prudent to base its cost effectiveness test on criteria that have already been upheld by the court. While EPA believes cost/benefit is a very useful tool, for purposes of determining a States significant contribution, EPA believes it is appropriate to use a cost effectiveness approach. In this way the most cost effective regional controls, can be combined with local controls to achieve attainment of the NAAQS.

Comment:

Michigan supports preservation of the authority of states, localities, and regional groups to adopt and/or implement more stringent limits. [[(1181, p.1)]]

Michigan believes that the IAQR must preserve the authority of states and other local and regional groups to adopt more stringent limits than those contained in the IAQR. States are ultimately responsible for attaining the NAAQS for their own state and therefore must have all the tools available to do so. It is possible that more NOx, and SO_2 reductions than provided in the final IAQR will be needed for attainment of the $PM_{2.5}$ standard or the regional haze rule. The most cost-effective control approach Michigan can find to achieve attainment may be further

control of large combustion units. To the extent Michigan needs additional controls to do so, tighter utility controls must be an option not prohibited in the IAQR. [[(1181, p.5)]]

Response:

Nothing in CAIR prohibits states from imposing additional controls on utilities as necessary to achieve attainment with the NAAQS.

Comment:

On page 32693, footnote 5, EPA states that its 2010 emission projections did not account for Reasonably Available Control Measures (RACM), Reasonably Available Control Technology (RACT), or Inspection and Maintenance requirements in any new 8-hour ozone or $PM_{2.5}$ nonattainment areas. Nevertheless, EPA does not believe that this 'distorts' its proposed findings 'because the aggregate reduction in [nitrogen oxide] (NOx) and [sulfur dioxide] (SO_2) emissions from these measures would be at most a small percentage of overall emissions.' EPA admits that emission reductions from local measures in 2010 are so negligible that including them would not affect its modeling results. This underscores the need for more stringent national reductions so states can attain the 8-hour ozone and $PM_{2.5}$ standards. [[(p.3)]]

Response:

See section III.C of the CAIR NFR as well as RTC section XI.A. for a discussion of baseline issues. See Section IV of the CAIR NFR preamble well as section VI of the RTC for a discussion of control levels.

Comment:

In the supplemental June 10 proposal, EPA states that its 2010 emission projections did not account for Reasonably Available Control Measures (RACM), Reasonably Available Control Technology (RACT), or Inspection and Maintenance requirements in any new eight-hour ozone or $PM_{2.5}$ nonattainment areas. (69 FR 32693, Footnote 5) Nevertheless, EPA does not believe that this 'distorts' its proposed findings 'because the aggregate reduction in [nitrogen oxide](NOx) and [sulfur dioxide] (SO_2) emissions from these measures would be at most a small percentage of overall emissions.' EPA admits that emission reductions from local measures in 2010 are so negligible that including them would not affect its modeling results. This underscores the need for more stringent national reductions so that states can attain the health-based 8-hour ozone and $PM_{2.5}$ National Ambient Air Quality standards (NAAQS). [[(p.2)]]

The Commonwealth's comments on EPA's January 30, 2004 proposed Interstate Air Quality Rule published at 69 FR 4566 supported national emission caps and phase in schedules for EGUs that provide for achievement of more significant emission reductions than those in the current EPA proposal and suggested earlier deadlines for those reductions. Achievement of these additional reductions by earlier deadlines is essential in order for Pennsylvania and other states with nonattainment areas to meet the eight-hour ozone and $PM_{2.5}$ attainment deadlines and provide protection of the public health. Pennsylvania continues to endorse a program that will result in stringent national emission reductions from EGUs by earlier deadlines. [[(p.3)]]

The Department supports the following multi- pollutant position adopted by the Ozone Transport Commission in January 2004 for the EGU sector. [[(p.3)]] [[(See table on p. 3 for National Emission Caps proposed by Ozone Transport Commission)]]

Response:

See section III.C of the CAIR NFR as well as RTC section XI.A. for a discussion of baseline issues. See Section IV of the CAIR NFR preamble well as sections VI and VII A..B. of the RTC for a detailed discussion of the factors affecting timing and control levels.

Comment:

The Department is troubled by EPA's failure to conduct an analysis that demonstrates that the IAQR would sufficiently reduce the impacts of interstate transport. EPA's own analysis shows many areas along the I-95 corridor remain in nonattainment after full implementation of the IAQR. See Enclosure 2 which displays EPA's modeling outputs that were used in support of the proposed Clear Skies Act 2003 and the IAQR Preamble. [[(p.3)]] [[(See docket number 0747, p.20, for Enclosure 2)]]

The Department notes that EPA has failed to develop federal ozone measures as it was required to do under Clean Air Act (CAA) section 183. Because of this, many cost effective ozone controls measures have not yet been implemented across the United States. Among other things, EPA has failed to both perform periodic updates of control techniques guidelines used to develop reasonably available control technology measures and promulgate regulations to control volatile organic compound emissions from categories of stationary sources and consumer or commercial products. Even though EPA has not done these things, many states in the OTC have adopted additional ozone control rules which the Department believes would guide EPA in meeting its obligations under CAA section 183. If EPA were to fully comply with its CAA section 183 obligations in conjunction with a reformed and more aggressive IAQR, greater reductions in ozone would be achieved. [[(p.4)]]

Response:

See Section IV of the CAIR NFR preamble well as sections VI and VII A..B. of the RTC for a detailed discussion of the factors affecting timing and control levels. With respect to Section 183 issues, CAIR is not the proper forum to address such issues and whether additional reductions can be achieved under 183 does not effect our conclusion that the reductions required by CAIR are appropriate. In any event, EPA has considered emissions decreases under Section 183 in its analysis.

Comment:

As stated in previous comments submitted pursuant to the January 30,2004 NPR, West Virginia generally supports the proposed rule's approach to address regional interstate transport of fine particulate matter and ozone. However, DAQ has serious concerns regarding the efficacy of EPA's proposed program in helping states and local communities achieve attainment status in a timely manner under the National Ambient Air Quality Standards (NAAQS), with CAIR emission reductions scheduled after NAAQS attainment dates. [[(p.2)]] Because of the complexity and scope of the CAIR, DAQ notes that it is difficult for individual states to analyze nationwide modeling performed for the related cap and trade programs. It is unclear whether caps have been set at appropriate levels. However, it is essential for EPA to ensure that NOx and SO2 caps are sufficiently stringent so that most states can achieve attainment status for ozone and $PM_{2.5}$ under the CAIR. [[(p.4)]]

Response:

To determine the CAIR emission reduction requirements, EPA generally followed the statutory interpretation and approach under CAA section 110(a)(2)(D) that was developed in the NOx SIP Call rulemaking. That is, EPA identified the emissions in each upwind State that contribute significantly to nonattainment as being those emissions that can be eliminated through highly cost-effective controls. The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

The CAIR will bring many nonattainment areas further along towards attainment, greatly reducing the amount that remains to be done. Alternatively, if EPA had tried to bring every area into attainment through the CAIR, it is likely that some over-control would have occurred that would not have been cost-effective. The EPA endeavored to strike the right balance with CAIR, especially on $PM_{2.5}$ given only 14 areas out of attainment after 2015, and we believe we have done a good job at striking that balance.

The CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the initial step of finalizing CAIR, we are requiring a very substantial reduction in interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

Next, against a backdrop of Federal actions that lower air emissions and some substantial State programs, States will develop plans designed to achieve the standards in their local nonattainment areas. EPA has not yet promulgated rules interpreting the Act's requirements for State implementation plans for $PM_{2.5}$ and ozone nonattainment areas, nor have States developed plans to demonstrate attainment. (EPA did promulgate phase I of the ozone implementation rule in April 2004 (69 FR 23951; April 30, 2004) but has not issued phase II of the rule, which will interpret CAA requirements relating to local controls (e.g., RACT, RACM, RFP). As a result, there are significant uncertainties regarding potential reductions and control costs associated with State plans. We believe that some areas are likely to attain the standards in the near term through early CAIR reductions and local controls that have costs per ton similar to the levels we have determined to be highly cost-effective. We expect that other areas with higher $PM_{2.5}$ or ozone levels will determine through the attainment planning process that they need greater emissions reductions, at higher costs per ton, to reach attainment within the Act's time frames. For those areas, States will need to assess targeted measures for achieving local attainment in a cost-effective (but not necessarily highly cost-effective) manner, in combination with CAIR's significant reductions. Given the uncertainties that exist at this early stage of the implementation process, EPA believes this rule is a rational approach to determining the highly cost-effective reductions in $PM_{2.5}$ and ozone precursors that should be required for interstate transport purposes.

Information about EPA's IPM modeling is available for review and analysis. Various State and regional outputs, as well as the individual emission constraints that EPA applied, are in the IPM output files that are in the CAIR docket as well as on EPA's website. The Regulatory Impact Analysis (RIA) includes State and regional modeling outputs. And, EPA is preparing State summaries.

Comment:

While the IAQR proposes sizeable reductions in NOx and SO2 emissions, it does not yet go far enough in terms of the magnitude and timing of these reductions to resolve regional transport concerns for, nor allow for attainment of the health-based timeframes mandated under the Clean Air Act. [[(p.6)]]

Over the past 8 years, OTC states have succeeded in reducing our own NOx emissions by approximately 70 percent, while the rest of the country has reduced its emissions by only about 10 percent. Yet in 2010, (attainment deadline for most of the ozone transport region (OTR)), approximately 106 counties will not meet the 8-hour ozone standard, 47 of which are beyond marginal non-attainment. The IAQR, like the Clear Skies Act before it, would improve this situation by only 3 counties. EPA's and OTC's modeling alike show that, even with draconian measures applied locally, large areas will still not meet the health standards for air quality. [[(p.6)]]

Response:

To determine the CAIR emission reduction requirements, EPA generally followed the statutory interpretation and approach under CAA section 110(a)(2)(D) that was developed in the NOx SIP Call rulemaking. That is, EPA identified the emissions in each upwind State that contribute significantly to nonattainment as being those emissions that can be eliminated through highly cost-effective controls. The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

The CAIR will bring many nonattainment areas further along towards attainment, greatly reducing the amount that remains to be done. Alternatively, if EPA had tried to bring every area into attainment through the CAIR, it is likely that some over-control would have occurred that would not have been cost-effective. The EPA endeavored to strike the right balance with CAIR, especially on $PM_{2.5}$ given only 14 areas out of attainment after 2015, and we believe we have done a good job at striking that balance.

The CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the initial step of finalizing CAIR, we are requiring a very substantial reduction in interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

Next, against a backdrop of Federal actions that lower air emissions and some substantial State programs, States will develop plans designed to achieve the standards in their local nonattainment areas. EPA has not yet promulgated rules interpreting the Act's requirements for State implementation plans for $PM_{2.5}$ and ozone nonattainment areas, nor have States developed plans to demonstrate attainment. (EPA did promulgate phase I of the ozone implementation rule in April 2004 (69 FR 23951; April 30, 2004) but has not issued phase II of the rule, which will interpret CAA requirements relating to local controls (e.g., RACT, RACM, RFP). As a result, there are significant uncertainties regarding potential reductions and control costs associated with State plans. We believe that some areas are likely to attain the standards in the near term through

early CAIR reductions and local controls that have costs per ton similar to the levels we have determined to be highly cost-effective. We expect that other areas with higher $PM_{2.5}$ or ozone levels will determine through the attainment planning process that they need greater emissions reductions, at higher costs per ton, to reach attainment within the Act's time frames. For those areas, States will need to assess targeted measures for achieving local attainment in a cost-effective (but not necessarily highly cost-effective) manner, in combination with CAIR's significant reductions. Given the uncertainties that exist at this early stage of the implementation process, EPA believes this rule is a rational approach to determining the highly cost-effective reductions in $PM_{2.5}$ and ozone precursors that should be required for interstate transport purposes.

Comment:

We are concerned that the proposed rule will not reduce transported emissions quickly enough, nor in the amounts needed, to ensure that Massachusetts and other states in the Northeast will achieve healthful air quality in a reasonable timeframe. Massachusetts has and will continue to adopt stringent state air regulations demonstrating our commitment to achieving air quality improvements. Additionally, Massachusetts has implemented compliance and enforcement efforts with the assistance of EPA New England. [[(1171, p.1)]]

Transport is a significant factor in Massachusetts' ozone non-attainment and also significantly contributes to our fine particle concentrations. While Massachusetts does not currently violate the national fine particle standards, we barely meet the annual fine particle standard and cannot be certain of meeting this standard over the long-term.[[(1171, p.1)]]

Response:

See above response.

Comment:

The economics of EPA's proposal is also questionable. For example, without even questioning the validity of EPA's estimates of the health-related benefits, EPA does not identify the 'highly cost-effective' controls threshold it has apparently established for EGUs. [[(p.2)]]

Each of the economic factors are compounded by the reality that EPA's data are of questionable credibility, leaving the ultimate significant-contribution conclusions in serious doubt - that is, EPA may be imposing these substantial burdens unnecessarily. [[(p.2)]]

Response:

The EPA need not identify a bright-line cutoff for highly cost-effective controls, but only need justify its conclusion that the level of control selected is highly cost-effective. Moreover, the Agency's approach of evaluating the cost effectiveness of CAIR emission reductions in relation to the range of costs of other programs does not necessitate such line drawing. See section IV in the final CAIR preamble for a detailed discussion of EPA's cost effectiveness evaluation. See section X in the CAIR NFR preamble for a discussion of the CAIR benefits. Although the commenter is not explicit about which data they question the credibility, information on EPA's data sources for the inventory of EGUs used in the Agency's IPM modeling (the NEEDS database) is in the IPM documentation ("Documentation Summary for

EPA Base Case 2004 (V.2.1.9) Using the Integrated Planning Model," EPA 430/R-04-008, October 2004). Information on EPA's data sources and modeling are in sections XI and XII in this RTC document.

Comment:

EPA's IAQR proposal would require substantial reductions in emissions of sulfur dioxide and nitrogen oxides from power plants throughout the eastern United States. Those emissions are responsible for substantial public health and environment damage, and can be transported substantial distances downwind. The Clean Air Act requires state implementation plans to include measures that adequately address transported pollution, and EPA has a duty to enforce these requirements.

EPA's proposed IAQR, however, does not fulfill that duty. In order to protect public health adequately, and to allow many areas around the country that will be in violation of the ozone and fine particulate National Ambient Air Quality Standards to attain those standards, EPA must tighten the emission caps and make them effective several years earlier than proposed. Tighter and earlier emission caps are feasible and highly cost effective, and are therefore required under the Act and governing regulatory precedent and policy. [[P. 2]]

Although both the stringency and timing of the NOx and SO2 emission reductions are inadequate and unlawful, we do support the basic structure of the IAQR. We agree with EPA that the control of both regional and local reductions is a more cost-effective, balanced, and reasonable approach to addressing nonattainment than relying on local reductions alone. Actually, neither local controls or regional controls alone will do the job both are needed for areas to achieve attainment pursuant to the requirements of the Clean Air Act. [[p. 4]]

In conclusion, EPAs proposal is not sufficiently stringent or timely to adequately protect public health or to provide timely and adequate emission reductions to allow nonattainment areas to achieve attainment of the PM and ozone NAAQS as expeditiously as practicable. EPA must end the long delay in adequately cleaning up power plant emissions by finalizing a stronger rule as soon as possible. Specifically, we urge the Agency to issue a rule by October 31, 2004 that includes that following adjustments to EPAs January 30, 2004 proposal:

‘ reduces the annual control region SO_2 cap to about 1.84 million tons (approximately equivalent to a 2 million ton nationwide cap);

‘ makes the reductions effective in one phase, by 2009;

‘ reduces the annual control region NOx cap in two phases to about 1.04 million tons (approximately equivalent to a 1.25 million ton nationwide cap);

‘ accelerates the second phase of the reductions to 2012;

‘ follows the approach in the NOx SIP Call, and include reductions of NOx and SO2 from large stationary sources in calculating the IAQR state budgets;

Response:

To determine the CAIR emission reduction requirements, EPA generally followed the statutory interpretation and approach under CAA section 110(a)(2)(D) that was developed in the NOx SIP Call rulemaking. That is, EPA identified the emissions in each upwind State that contribute significantly to nonattainment as being those emissions that can be eliminated through highly cost-effective controls. The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

The CAIR will bring many nonattainment areas further along towards attainment, greatly reducing the amount that remains to be done. Alternatively, if EPA had tried to bring every area into attainment through the CAIR, it is likely that some over-control would have occurred that would not have been cost-effective. The EPA endeavored to strike the right balance with CAIR, especially on $PM_{2.5}$ given only 14 areas out of attainment after 2015, and we believe we have done a good job at striking that balance.

The CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the initial step of finalizing CAIR, we are requiring a very substantial reduction in interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

Next, against a backdrop of Federal actions that lower air emissions and some substantial State programs, States will develop plans designed to achieve the standards in their local nonattainment areas. EPA has not yet promulgated rules interpreting the Act's requirements for State implementation plans for $PM_{2.5}$ and ozone nonattainment areas, nor have States developed plans to demonstrate attainment. (EPA did promulgate phase I of the ozone implementation rule in April 2004 (69 FR 23951; April 30, 2004) but has not issued phase II of the rule, which will interpret CAA requirements relating to local controls (e.g., RACT, RACM, RFP). As a result, there are significant uncertainties regarding potential reductions and control costs associated with State plans. We believe that some areas are likely to attain the standards in the near term through early CAIR reductions and local controls that have costs per ton similar to the levels we have determined to be highly cost-effective. We expect that other areas with higher $PM_{2.5}$ or ozone levels will determine through the attainment planning process that they need greater emissions reductions, at higher costs per ton, to reach attainment within the Act's time frames. For those areas, States will need to assess targeted measures for achieving local attainment in a cost-effective (but not necessarily highly cost-effective) manner, in combination with CAIR's significant reductions. Given the uncertainties that exist at this early stage of the implementation process, EPA believes this rule is a rational approach to determining the highly cost-effective reductions in $PM_{2.5}$ and ozone precursors that should be required for interstate transport purposes.

As explained in section IV in the CAIR NFR preamble, the timing of the initial compliance phase is limited by the feasibility of installing necessary pollution control retrofits within the available time frame. EPA did move-up the $_{\text{initial NOx}}$ compliance phase from 2010 to 2009 after the CAIR proposal, however it is not feasible to accelerate the compliance schedule any further. See also a TSD entitled "Boilermaker Labor and Installation Timing Analysis" in the docket, and section VII in this RTC.

See section IV.B in the CAIR NFR preamble as well as section IV in this RTC for discussion of non-EGU emission sources.

The EPA has worked as quickly as possible to finalize CAIR to help States with attainment of the $PM_{2.5}$ and 8-hour ozone standards.

Comment:

Unfortunately, the proposed IAQR falls far short of the strong federal action needed to reduce those upwind emissions enough to enable New Jersey and other states to bring their air quality into attainment with the ozone and fine particulate standards. The IAQR's caps on power plant NOx and SO2 emissions are too loose, and come too late, to be of any use for attainment. [[(0927, p.1)]]

As currently proposed, the rule provisions are not adequate to address the significant transport contribution issue and thus enable New Jersey, even with substantial local controls, to meet the fine particle and 8-hour ozone standards by their respective attainment dates. [[(0928, p.5)]]

Response:

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

The CAIR will bring many nonattainment areas further along towards attainment, greatly reducing the amount that remains to be done. Alternatively, if EPA had tried to bring every area into attainment through the CAIR, it is likely that some over-control would have occurred that would not have been cost-effective. The EPA endeavored to strike the right balance with CAIR, especially on $PM_{2.5}$ given only 14 areas out of attainment after 2015, and we believe we have done a good job at striking that balance.

The CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the initial step of finalizing CAIR, we are requiring a very substantial reduction in interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

Comment:

However, the proposed rule falls short of the reductions needed to address the transport of pollutants by the attainment date specified in the Clean Air Act in two respects. [[(p.1)]]

Response:

See above response.

Comment:

Experience strongly suggests that an effective IAQR could serve as a means to make significant progress toward the goal of clean air from electric utilities and large industrial sources.

However, the rule falls short in a number of areas, particularly in utilizing available resources and control technologies to achieve much needed and cost-effective emission reductions. [[0771, p. 1]]

Focus on Goal of Maximizing Protection of Public Health: The goal of satisfying the National Ambient Air Quality Standards (NAAQS) through the implementation of emission reduction strategies needs to be the primary focus of the IAQR. The IAQR would make useful progress towards addressing the NAAQS, as well as other pollutant issues including mercury reductions, addressing visibility degradation, and ecosystem acidification. However, as proposed, the IAQR predicts progress, but significantly misses both the deadlines and stringency of reductions needed for States to attain the NAAQS for 8-hour averaged ground-level ozone and fine particulate (PM-2.5). From the perspective of the air pollution control and monitoring industry, the types of control technologies anticipated by the IAQR are among the most proven in the U.S. and abroad, the most widely available, provide public health benefits that far outweigh the cost of emission reductions, and are significantly underutilized in the proposed IAQR. Falling short of ensuring adequate reductions to achieve air quality goals would create regulatory uncertainty for affected industry, and necessitate returning to that industry to satisfy the goals we are assured of today. [[0771, p. 2]]

Response:

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

The CAIR will bring many nonattainment areas further along towards attainment, greatly reducing the amount that remains to be done. Alternatively, if EPA had tried to bring every area into attainment through the CAIR, it is likely that some over-control would have occurred that would not have been cost-effective. The EPA endeavored to strike the right balance with CAIR, especially on $PM_{2.5}$ given only 14 areas out of attainment after 2015, and we believe we have done a good job at striking that balance.

The CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the initial step of finalizing CAIR, we are requiring a very substantial reduction in interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

See the IPM documentation ("Documentation Summary for EPA Base Case 2004 (V.2.1.9) Using the Integrated Planning Model," EPA 430/R-04-008, October 2004) for a description of EPA's assumptions regarding performance of control technologies. See CAIR NFR preamble section IV, a TSD in the docket entitled "Boilermaker Labor and Installation Timing Analysis," and section VII in this RTC for further discussion on the factors affecting feasibility of installing the necessary pollution control retrofits.

Comment:

While the Commonwealth applauds EPA's recognition of the need to address the interstate transport of ozone precursors and fine particulate emissions and the anticipated public health benefits and air quality improvements, the Commonwealth cannot support the EPA proposal published on January 30 because the emission standards will not adequately protect public health and the environment. [[(0949, p.1)]]

EPA's promulgation of a strong interstate air quality rule is critical to protection of public health. However, this proposal leaves significant, cost-effective controls on the table now and for the foreseeable future. EPA's failure to assure necessary emission reductions will result in continued public exposure to unhealthful levels of ozone and fine particulate. The health impacts of this rulemaking are so significant that EPA cannot responsibly leave these highly cost-effective emission reductions behind. [[(0949, p.2)]]

The Ozone Transport Commission (OTC) has developed a position that clearly defines an overall attainment strategy that meets the objective of protecting public health while providing a more consistent, equitable and level playing field. We believe the adopted OTC position represents a fiscally and technically sound effort to protect public health, in a cost effective manner and on a realistic, achievable, timetable. The Commonwealth urges EPA to revise the proposed IAQR to incorporate the OTC platform. [[(0949, p.2)]] [[(See Docket Number 0950 for OTC position paper)]]

Response:

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

The CAIR will bring many nonattainment areas further along towards attainment, greatly reducing the amount that remains to be done. Alternatively, if EPA had tried to bring every area into attainment through the CAIR, it is likely that some over-control would have occurred that would not have been cost-effective. The EPA endeavored to strike the right balance with CAIR, especially on $PM_{2.5}$ given only 14 areas out of attainment after 2015, and we believe we have done a good job at striking that balance.

The CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the initial step of finalizing CAIR, we are requiring a very substantial reduction in interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule. Also see response on OTC multi-pollutant proposal.

Comment:

The approach EPA has set forth in the Interstate Air Quality Transport Rule (IAQR) has the potential to go a long way toward meeting the goals of addressing these emissions comprehensively and we applaud EPA for its efforts. If adopted with too weak caps, however, it can have the opposite effect - condemning states to continued nonattainment and the industry to increasing uncertainty. [[(p.3)]]

The Interstate Air Quality Rule is the perhaps the most important step EPA can now take to improve air quality and public health. It is critical, however, that this action provides substantial environmental, health and welfare benefits through reductions that go as far as necessary to ensure our region is able to achieve the national ambient air quality standards for ozone and fine particulates in the timeframes mandated in the Clean Air Act (CAA). [[(p.4)]]

OTC has long acknowledged that the severity and complexity of its regional ground-level ozone problem does not allow for a 'silver bullet' approach to attainment. Thus, no one regulation of any one sector will achieve the level of reductions needed to solve the region's complex ozone problem. Reductions sought from any one sector must be considered as a component of the total reductions needed for an attainment strategy for the region. EPA is considering the EGU sector in this rule, and we are willing to support such an approach as long as the reductions are in the context of and contributory to an overall attainment strategy. [[(p.4)]]

It is unacceptable, not only for health reasons, but also for economic equity, that such a large portion of the standard would be consumed by upwind sources. Under the IAQR as presently proposed, our region will continue to suffer from substandard air quality AND be placing increasingly expensive controls on our local sources AND be paying higher prices for energy AND be paying economic sanctions for non- attainment. We can and must do better. [[(p.6)]]

The Ozone Transport Commission has invested much time and expense to develop and explain its comprehensive alternative to the IAQR. We have done this because, quite simply, the IAQR is not adequate to address the needs of the region with regard to transport of precursors to ozone and fine particulate pollutants. [[(p.22)]]

Response:

See also section VI.D regarding the balance between local and regional controls. In addition, EPA notes that nothing in CAIR prohibits states from imposing additional controls on utilities as necessary to achieve attainment with the NAAQS. Also see response on OTC multi-pollutant propsoal.

Comment:

However, we believe that EPA has still not gone far enough, nor completely fulfilled its obligation under Section 110(a)(2)(d) of the Clean Air Act to address air pollutant transport issues. Our fear is that once in place, the benefits of this proposal will be too little and too late to allow states to meet their legal obligation to protect the public from air pollution through approvable SIP strategies to attain and to maintain the ozone and fine particulate matter standards. [[(0714, p.1)]]

Response:

See above response.

Comment:

In sum, while we support EPA's proposal as an integral element of any plan to attain the NAAQS for ozone and PM, we believe that EPA's proposal would violate the Clean Air Act to

the extent that it would permit upwind States to continue to contribute significantly to downwind nonattainment even after the deadlines for attainment in downwind States. [[(p.1)]]

Response:

See above response.

Comment:

The transport of polluted air into the Metropolitan Washington area poses serious health and welfare problems for our residents. Almost half of our pollution is transported from sources in the Midwest, Ohio Valley and Pennsylvania. In addition, our region must meet the Federal health standards for ozone by 2005. Although the proposed rule is a step in the right direction, it is far from adequate and will do nothing to reduce this inflow of pollution in the immediate future. Instead, we urge you to adopt the more rigorous proposals offered by the Ozone Transport Commission (OTC) in January 2004. These proposals would provide real benefits to our region in a much shorter time frame – we would begin to see benefits as early as 2008, to be fully implemented by 2012, rather than 2018 as promised under the IAQR. Pollution from ozone and fine particles is already hampering public health and economic activities in our region, as well as our collective efforts to protect the Chesapeake Bay. The measures included in the proposed State Implementation Plan are some of the most stringent in the Eastern United States. In addition, Prince George's County has taken a number of independent measures to reduce pollution and inform its residents about the health effects of ozone. Yet, most of the air pollution in the County is not locally generated, nor can it be controlled by local measures. Federal solutions must reach across regions not just the nonattainment areas. I strongly urge EPA to strengthen the IAQR to reflect the OTC position. We need strong Federal action to reduce air pollution transport that will allow for more livable communities. We are committed to working with you and the State of Maryland in reaching these goals. [[(p.1)]]

Response:

See above response.

Comment:

The Council applauds the Agency for proposing a comprehensive strategy to address the transport of these pollutants in the proposed IAQR. The Council has some reservations regarding whether the IAQR, as proposed, will bring about relief from transported NOx and SO2 at levels and in time to assist the region, not only in meeting the next round of attainment deadlines and regulatory requirements but also generally in achieving cleaner air in the region. [[(1175, p.3)]]

Response:

As explained in Section IV, EPA believes that the timing and required emission reductions in today's rulemaking are appropriate.

Comment:

The Chesapeake Bay Foundation opposes the Interstate Air Quality Rule and the Utility Mercury Reductions Rule. These proposals fall short of the pollutant reductions necessary to improve air and water quality in the Chesapeake Bay region. [[p.1]]

Response:

EPA believes that a carefully designed mutipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. Also see section VI.E in this RTC regarding coordination of control levels in CAIR and the mercury rule. As explained in Section IV of the preamble, EPA believes that the emission reduction requirements in today's rule are appropriate. While improvements in water quality will be an ancillary benefit of today's rulemakig, EPA's authority to issue the rulemaking is to reduce transported pollution that contributes to nonattainment, not to improve water quality.

Comment:

Although the TLC believes that multi-pollutant, market-based approaches such as the IAQR and the Clear Skies Initiative are conceptually preferable to other regulatory schemes, the proposed IAQR could impose an untenable burden on the Texas Gulf Coast Lignite industry. The IAQR as proposed, without significant changes to key aspects, has the potential to compromise the future use of lignite. Simply put, the costs resulting from the IAQR, as proposed, would price Gulf Coast Lignite out of the power generation market, and effectively preclude the development of new lignite mines and lignite-fired power plants in Texas. [[(1037, p.3)]]

In designing any regulatory program, especially a program that relies upon controversial predictive modeling as its justification, it is important that adequate consideration be given to the economic impacts of the rule. [[(1037, p.3)]]

Response:

EPA evaluated the impacts of CAIR on projected coal production using the Integrated Planning Model (IPM). Comparing projected gulf coast lignite production under base case conditions and with CAIR, our modeling predicts no change in gulf coast lignite in the 2010 or 2015 model run years. Our modeling predicts a slight decrease (one percent) in gulf coast lignite in the 2020 model run year. EPA's IPM model data files are in the CAIR docket and on EPA's website. See the regulatory impact analysis (RIA) for further discussion of the economic impacts of CAIR.

Comment:

DEP appreciates EPA's efforts to move forward this long awaited rule. Unfortunately, as currently constructed the IAQR is neither stringent nor timely enough to address the health-based air quality requirements of our State. [[(p.1)]]

As Connecticut has successfully demonstrated in our section 126 petition, we are unable to meet the 1-hour ozone National Ambient Air Quality Standard (NAAQS) without significant and timely upwind emission reductions. The transport of emissions from upwind states overwhelms the positive affect of our local control measures. This position is further solidified by the increased stringency of the 8-hour ozone standard. Put quite simply, Connecticut will not be able to meet the 8-hour ozone NAAQS unless upwind reductions occur sooner and deeper than proposed by EPA in the IAQR. As a result of Connecticut's long-term nonattainment of the ozone NAAQS, the public health of millions of Connecticuts residents will be placed in continued jeopardy. The IAQR is therefore an insufficient public policy response to this public health problem. EPA should adopt the OTC recommendations, which phase in more stringent emissions caps sooner than EPAs current proposal. We would also support a reassessment of the effectiveness of the program after the first phase of its implementation. [[(p.1)]]

Response:

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

The CAIR will bring many nonattainment areas further along towards attainment, greatly reducing the amount that remains to be done. Alternatively, if EPA had tried to bring every area into attainment through the CAIR, it is likely that some over-control would have occurred that would not have been cost-effective. The EPA endeavored to strike the right balance with CAIR, especially on $PM_{2.5}$ given only 14 areas out of attainment after 2015, and we believe we have done a good job at striking that balance.

The CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the initial step of finalizing CAIR, we are requiring a very substantial reduction in interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

Also see response to OTC Multi-pollutant propsosal.

Comment:

Unfortunately, EPA has proposed an interstate transport program that does not provide the Lake Michigan areas sufficient regional reductions to show attainment by either 2010 or 2013 at the critical ozone monitors for the region. The lack of an effective regional point source control program significantly constrains Wisconsin from crafting viable attainment plans. This is a fatal flaw for this proposal, the intent of which should be to minimize to the extent feasible the entire residual regional component of the regional ambient air problems that can be addressed in a cost-effective manner. [[(0960, p.1)]]

I would like to remain hopeful that EPA will still actively direct a substantial improvement to this program so that States like Wisconsin, who are so strongly impacted by regionally-generated pollutants, are in a position to wholeheartedly endorse rather than nay-say this effort to create a major point source emission reduction target for all or most of the continental US. [[(0960, p.2)]]

In addition, I hope that as you refine this program that will so impact the core Air Management program and the ambient air quality of every state in the continental U.S., that you make an effort to fully involve the state air regulators in the process and the core program design. After all, the states and their citizens will be left with all the residual emission problems from these large point sources that such an inadequate program will produce. [[(0960, p.2)]]

If refined to a form that achieves more certain and rapid reductions than the current iteration, such a regional effort will be extremely important to the Lake Michigan states. However, as proposed, this regulatory program is more likely to hamper, or even directly impede, our ability to meet our regional attainment deadlines for the 8-hour ozone and annual PM-2.5

ambient air standards by setting in place inadequate emission reduction targets for the major source sectors so key to our AQ attainment success. [[(0961, p.1)]]

Response:

See above response.

In addition, EPA notes that nothing in CAIR prohibits states from imposing additional controls on utilities as necessary to achieve attainment with the NAAQS.

Comment:

We are concerned that EPA may consider this program a panacea for transport - now and into the future - as well as a substitute for other regulatory and statutory programs. We strongly believe that EPA must consider this program as another brick in the foundation of attaining the national ambient air quality standards (NAAQS), and that EPA must continue to develop better and more appropriate analytical and regulatory tools from which transport can be better assessed and mitigated. In April 2002, through the Ozone Transport Commission (OTC), we submitted a series of recommended mechanisms that EPA could put in place to continue to assess the effects of transport and address it in a timely manner. We urge EPA to again reconsider those recommendations. [[(0941, p.2)]]

Response:

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

The CAIR will bring many nonattainment areas further along towards attainment, greatly reducing the amount that remains to be done. Alternatively, if EPA had tried to bring every area into attainment through the CAIR, it is likely that some over-control would have occurred that would not have been cost-effective. The EPA endeavored to strike the right balance with CAIR, especially on $PM_{2.5}$ given only 14 areas out of attainment after 2015, and we believe we have done a good job at striking that balance.

The CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the initial step of finalizing CAIR, we are requiring a very substantial reduction in interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

Nothing in CAIR prohibits states from imposing additional controls on utilities as necessary to achieve attainment with the NAAQS.

Also see response to OTC multi-pollutant proposal.

Comment:

Seventy-two commenters stated that they wanted EPA to adhere to the timeline in the proposed regulations. They also urge EPA not to weaken the proposed cuts. Thirty-six commenters stated that they wanted EPA to adhere to the timeline in the proposed regulations.

Response:

EPA did move-up the $_{\text{initial NOx}}$ compliance phase from 2010 to 2009 after the CAIR proposal, but otherwise adhered to the proposed timeline.

Comment:

MWAQC strongly supports additional controls on transported air pollution. The proposed IAQR Rule is only a first step towards implementing additional controls. [[(p.1)]]

Response:

The CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the initial step of finalizing CAIR, we are requiring a very substantial reduction in interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

Comment:

Although a transportation agency such as TxDOT will not be directly impacted by this rule making, we do have one comment. Any additional controls placed on EGUs in Arkansas and Louisiana will help Texas' nonattainment and near nonattainment areas and improve their chances of reaching attainment sooner. [[(p.1)]]

Response:

EPA agrees.

Comment:

DEP is committed to improving Massachusetts' air quality and that of our downwind neighbors. I urge EPA to strengthen the final rule to insure that it creates a level playing field for our businesses and provides timely, needed protection for our citizens and the environment. [[(1808, p.3)]]

Response:

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

The CAIR will bring many nonattainment areas further along towards attainment, greatly reducing the amount that remains to be done. Alternatively, if EPA had tried to bring every area into attainment through the CAIR, it is likely that some over-control would have occurred that

would not have been cost-effective. The EPA endeavored to strike the right balance with CAIR, especially on $PM_{2.5}$ given only 14 areas out of attainment after 2015, and we believe we have done a good job at striking that balance.

The CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the initial step of finalizing CAIR, we are requiring a very substantial reduction in interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

See section IV in the CAIR NFR preamble for a discussion of EPA's determination of the CAIR control levels and timing.

Nothing in CAIR prohibits states from imposing additional controls on utilities as necessary to achieve attainment with the NAAQS.

Comment:

While the Interstate Air Quality Rule is a step in the right direction, it is not enough to remedy the air pollution problems plaguing many communities or our national parks. We urge you to strengthen this rule by reducing the amount of sulfur dioxide and nitrogen dioxides that power plants can emit. We also ask that you not leave the western states behind.

Response:

As explained in Section IV, EPA believes that the control levels finalized in today's rulemaking are appropriate. This rule only focuses on States that EPA has determined contribute to another States nonattainment problem for $PM_{2.5}$ or ozone. In today's rulemaking, EPA has not determined that any western States significantly contribute to nonattainment of the $PM_{2.5}$ and Ozone standards. See preamble for further discussion.

Comment:

Please strengthen the proposed Interstate Air Quality Rule (IAQR) and finalize it this year.

While the Interstate Air Quality Rule is a step in the right direction, it is NOT ENOUGH to remedy the air pollution problems plaguing many communities or our national parks. I urge you to strengthen this rule by reducing the amount of sulfur dioxide and nitrogen dioxides that power plants can emit. I also ask that you not leave the western states behind.

Response:

The EPA has worked as quickly as possible to finalize CAIR to help States with attainment of the $PM_{2.5}$ and 8-hour ozone standards.

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

The CAIR will bring many nonattainment areas further along towards attainment, greatly reducing the amount that remains to be done. Alternatively, if EPA had tried to bring every area into attainment through the CAIR, it is likely that some over-control would have occurred that would not have been cost-effective. The EPA endeavored to strike the right balance with CAIR, especially on $PM_{2.5}$ given only 14 areas out of attainment after 2015, and we believe we have done a good job at striking that balance.

The CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the initial step of finalizing CAIR, we are requiring a very substantial reduction in interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

See above response.

Comment:

Although EPA is heading in the right direction with a multi-pollutant approach aimed at addressing downwind NAAQS attainment, this proposal will result in insufficient emission reductions and unreasonable delay in implementing those reductions. At least for the EGU sector, what's needed is a national rule requiring BACT for NOx and SO2. [[(p.2)]]

Response:

See above response.

In addition, see the CAIR NFR preamble for a response regarding the use of BACT in setting control levels.

Comment:

RAPCA is pleased that EPA has proposed a fine particulate matter ($PM_{2.5}$) and ozone rule to control NOx and SO2 from the utility industry. Reducing interstate transport of air pollution is essential if States and local jurisdictions are to meet the new, and more stringent, 8-hour ozone and $PM_{2.5}$ National Ambient Air Quality Standards (NAAQS). However, RAPCA staff recommend that the controls need to be more stringent and timelier than what is proposed in EPA's rule. RAPCA personnel strongly feel the levels of control for NOx and SO2 should reflect BACT (Best Available Control Technology) equivalents. [[(p.1)]]

The interstate air quality rule, coupled with the utility MACT rule, will impact the utility industry and impose air pollution control limits that will govern utilities for decades. EPA stands poised to make decisions that will impact the health and welfare of millions of people, including many not yet born. EPA has before it the opportunity to save thousands of lives and to improve the environment in a significant manner. The Regional Air Pollution Control Agency on behalf of the citizens we serve, urge EPA to do its best to assure these rules are as protective of public health and the environment as possible. We consider this rule to be an important tool in our mission to provide healthy air quality for our citizens. [[(p.3)]]

Response:

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

The CAIR will bring many nonattainment areas further along towards attainment, greatly reducing the amount that remains to be done. Alternatively, if EPA had tried to bring every area into attainment through the CAIR, it is likely that some over-control would have occurred that would not have been cost-effective. The EPA endeavored to strike the right balance with CAIR, especially on $PM_{2.5}$ given only 14 areas out of attainment after 2015, and we believe we have done a good job at striking that balance.

The CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the initial step of finalizing CAIR, we are requiring a very substantial reduction in interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

The CAIR emission reduction levels were determined to be feasible and highly cost-effective for the 2010 and 2015 compliance dates. See section IV in the CAIR NFR preamble for a detailed discussion of EPA's cost effectiveness determination, as well as a detailed discussion of the feasibility evaluation. The CAIR will result in significant emission reductions in air emissions. In addition, see the CAIR NFR preamble for a response regarding the use of BACT in setting control levels.

Comment:

Delaware is monitoring statewide nonattainment of the health-based 8-hour ozone national ambient air quality standard (NAAQS), and has one county monitoring nonattainment of the health-based $PM_{2.5}$ NAAQS. Delaware will be required to comply with the IAQR. Modeling and monitoring has shown that Delaware's nonattainment problems are significantly impacted by regional transport of pollutants. Therefore, the Delaware Department of Natural Resources and Environmental Control (DNREC) supports the general goal of the EPA to promulgate a multipollutant Interstate Air Quality Rule (IAQR). However, the Ozone Transport Commission (OTC), of which Delaware is a member, formally adopted multi-pollutant principles on January 27, 2004. The OTC multi-pollutant principles contain more stringent reduction requirements on a tighter timeframe than the IAQR. Delaware participated in the drafting of the OTC principles, and Delaware believes that they are more consistent with the NAAQS attainment schedule and with the level of reductions in regional transport necessary to qualify as part of Delaware's attainment strategy. [[p. 1]]

Response:

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment. See further discussion above. See response regarding OTC's multi-pollutant proposal.

Commenter, Comment:

Severty commenters stated that urge EPA not to weaken the proposed cuts but to consider even deeper cuts in NOx and SO2.

Response:

See section IV in the CAIR NFR preamble for EPA's determination regarding the final control levels and timing. The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment. See further discussion above.

Commenter:

366 Comment Letters from Citizens and Anonymous Commenters across the U.S.

Comment:

187 commenters stated that they wanted EPA to adhere to the timeline in the proposed regulations. They also urge EPA not to weaken the proposed cuts but to consider even deeper cuts in $_{NOx\ and\ SO2}$.

Response:

See section IV in the CAIR NFR preamble for EPA's determination regarding the final control levels and timing. The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment. See further discussion above.

Comment:

The MDEQ supports meaningful improvements in the EPAs administration of the federal Clean Air Act, including measures that (1) are protective of human health and the environment; (2) are comprehensive and responsive to a specific air quality concern; and (3) include effective measures to ensure real, timely progress in attaining federal and state air quality goals and objectives. [[(1180, p.1)]]

The MDEQ supports the EPA's efforts to provide for regional reduction in emissions of sulfur dioxide and nitrogen oxides through the IAQR. Regional reductions of these pollutants are likely needed in Michigan's effort to attain the 8-hour ozone and particulate matter equal to or less than 2.5 micrometers in diameter ($PM_{2.5}$)standards. [[(1180, p.1)]]

If the IAQR is to be effective to this end, emission reductions must be implemented prior to the likely attainment years in the 2009/2010 time frame. In addition, emission reductions must be large enough to aid in bringing Michigan's nonattainment areas into attainment, which will require controls on all sources that can reasonably be controlled. [[(1180, p.1)]]

Response:

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

The CAIR will bring many nonattainment areas further along towards attainment, greatly reducing the amount that remains to be done. Alternatively, if EPA had tried to bring every area into attainment through the CAIR, it is likely that some over-control would have occurred that would not have been cost-effective. The EPA endeavored to strike the right balance with CAIR, especially on $PM_{2.5}$ given only 14 areas out of attainment after 2015, and we believe we have done a good job at striking that balance.

The CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the initial step of finalizing CAIR, we are requiring a very substantial reduction in interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

The CAIR emission reduction levels were determined to be feasible and highly cost-effective for the 2010 and 2015 compliance dates. See section IV in the CAIR NFR preamble for a detailed discussion of EPA's cost effectiveness determination, as well as a detailed discussion of the feasibility evaluation. As explained in section IV in the preamble, the timing of the initial compliance phase is limited by the feasibility of installing necessary pollution control retrofits within the available time-frame. EPA did move-up the $_{\text{initial NOx}}$ compliance phase from 2010 to 2009 after the CAIR proposal, however it is not feasible to accelerate the compliance schedule any further. See section a TSD in the docket entitled "Boilermaker Labor and Installation Timing Analysis" as well as section VII in this RTC for further discussion regarding timing.

Comment:

The OEC also urges the USEPA to strengthen its proposed rule to reduce sulfur dioxide and nitrogen oxide emissions from power plants. This fine particulate pollution hits Ohio hard, with an estimated 1900 premature deaths each year, according to estimates by Abt Associates - your agency's health benefits analysis firm. [[p.3]]

Response:

See above response.

Comment:

EPA should be applauded for recognizing the critical need to address transport and for moving the ball in the right direction with the proposed IAQR. [[p. 2]]

Unfortunately, for Maryland to attain the new 8-hour ozone and fine particulate standards, we will need tougher and quicker reductions from upwind power plants than those proposed in the IAQR and new federal rules to compel reductions from mobile and area sources in regions upwind of Maryland. Simply stated, we want to see the air pollution control playing field leveled across a large part of the eastern U.S.

The recent science developed by Maryland and other air pollution researchers indicates that this large, regional level playing field is the only way that Maryland and some of our other Mid-Atlantic neighbors will ever meet the new standards. [[p. 2]]

We need serious help from EPA and our neighbors to solve our air pollution problems. [[p. 4]]

A strengthened IAQR would clearly be a step in the right direction. In the broadest sense, EPA views the IAQR as the final piece in a package of national rules that will - once and for all - address transport. This is just not true. A strengthened IAQR and the current national rules for mobile and area sources will still not be enough. [[p. 6]]

Response:

To determine the CAIR emission reduction requirements, EPA generally followed the statutory interpretation and approach under CAA section 110(a)(2)(D) that was developed in the NOx SIP Call rulemaking. That is, EPA identified the emissions in each upwind State that contribute significantly to nonattainment as being those emissions that can be eliminated through highly cost-effective controls. The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

The CAIR will bring many nonattainment areas further along towards attainment, greatly reducing the amount that remains to be done. Alternatively, if EPA had tried to bring every area into attainment through the CAIR, it is likely that some over-control would have occurred that would not have been cost-effective. The EPA endeavored to strike the right balance with CAIR, especially on $PM_{2.5}$ given only 14 areas out of attainment after 2015, and we believe we have done a good job at striking that balance.

The CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the initial step of finalizing CAIR, we are requiring a very substantial reduction in interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

Next, against a backdrop of Federal actions that lower air emissions and some substantial State programs, States will develop plans designed to achieve the standards in their local nonattainment areas. EPA has not yet promulgated rules interpreting the Act's requirements for State implementation plans for $PM_{2.5}$ and ozone nonattainment areas, nor have States developed plans to demonstrate attainment. (EPA did promulgate phase I of the ozone implementation rule in April 2004 (69 FR 23951; April 30, 2004) but has not issued phase II of the rule, which will interpret CAA requirements relating to local controls (e.g., RACT, RACM, RFP). As a result, there are significant uncertainties regarding potential reductions and control costs associated with State plans. We believe that some areas are likely to attain the standards in the near term through early CAIR reductions and local controls that have costs per ton similar to the levels we have determined to be highly cost-effective. We expect that other areas with higher $PM_{2.5}$ or ozone levels will determine through the attainment planning process that they need greater emissions reductions, at higher costs per ton, to reach attainment within the Act's time frames. For those areas, States will need to assess targeted measures for achieving local attainment in a cost-effective (but not necessarily highly cost-effective) manner, in combination with CAIR's significant reductions. Given the uncertainties that exist at this early stage of the implementation

process, EPA believes this rule is a rational approach to determining the highly cost-effective reductions in $PM_{2.5}$ and ozone precursors that should be required for interstate transport purposes.

As explained in section IV in the CAIR NFR preamble, the timing of the initial compliance phase is limited by the feasibility of installing necessary pollution control retrofits within the available time frame. EPA did move-up the $_{\text{initial NOx}}$ compliance phase from 2010 to 2009 after the CAIR proposal, however it is not feasible to accelerate the compliance schedule any further.

Comment:

The reductions proposed in this rule are considerably less than the reductions specified in the Claen Air Act, and fall short of the reductions that would be sufficiently protective of public health.

Although emissions trading is an ideological favorite of the Bush Administration, it's current status as a regulatory fad should not interfere with the EPA's duty to protect human health and the environment Although this trading program may have worked for sulfur dioxide, and it's contribution to acid rain, it clearly is not appropriate for pollutants that contribute to human mortality and asthma attacks, [[comment on mercury]]. The only entity that is adequately served by these proposed rules are the electricity utilities and the energy industry who helped draft the rules. Rather than cave in to these special interests, we are asking the EPA to meet a basic threshold of integrity and accountability, and 1) [[comment on mercury]], 2) develop appropriate, emissions-based approach to reducing power plant pollution, 3)discard the immoral notion of creating an emissions trading program scheme for mercury and nitrogen oxides and 4) create and enforce emission standards that are based on health considerations. [[p.6]]

Response:

See above response. Comments regarding emissions trading for mecury are beyond the scope of this rulemaking. Emissions trading has been used in a number of instances to address the health based ozone standard including the $_{\text{OTC NOx}}$ Trading Program, the NOx SIP Call, RECLAIM and NOx trading rules in the State of Texas. This rule will create significant widespread reductions in both NOx and SO2 resulting in significant health benefits. See preamble for further discussion.

Comment:

We commend the EPA for taking steps to significantly reduce emissions of nitrogen oxides (NOx) and sulfur dioxides (SO_2) through the proposed IAQR. We believe the reductions proposed in the IAQR are essential to mitigate the adverse impacts on our natural resources and to our health from coal-fired power plant emissions. We support the basic structure and approach in EPA's IAQR rule. We agree with EPA that the control of both regional and local reductions is a more cost-effective, balanced, and reasonable approach to addressing nonattainment than relying on local reductions alone. We also agree that the IAQR will produce important public health and environmental benefits and is enormously cost-effective. We support EPA's stated use in the IAQR of the basic two-step approach to determining an appropriate transport remedy used in EPA's 1998 NO, SIP Call. [[p.1]]

Although we also generally support EPA's proposal to give the states the option of implementing the rule through a cap and trade program applied to power plant emissions, we differ with EPA on the stringency and timing of those caps. [[p.2]]

It is important to recognize that the adverse effects of power plant pollution go beyond public health impacts. Acid deposition, watershed eutrophication and nitrification, visibility impairment and regional haze are impacts of great concern to the League. EPA adequately summarizes the public welfare impacts in the IAQR and CATF has also done so. [[p.2]]

See 69 Fed. Reg. At 4571-72,4642-43, and 4645-47. See also, CATFI Clear the Air, Unfinished Business: Why the Acid Rain Problem is not Solved, Oct. 2001. [[Reference provided in comment text.]]

Response:

As explained in Section IV, EPA believes that the emission reductions required in today's rulemaking are appropriate to address States downwind contribution to nonattainment. While the emission reductions resulting from today's rulemaking will have significant benefit with regards to acid deposition, watershed eutrophication and nitrification, visibility impairment and regional haze, EPA's authority to issue today's rulemaking requires it to focus on reducing emissions that contribute significantly to down-wind nonattainment.

Comment:

I believe that the sooner NOx and SO2 is reduced from contaminating the Northeastern States, the sooner acid destruction of open bodies of water in the region can be reversed. This is not an area where further scientific study is necessary to establish the root cause of the problem. Economic considerations should not be the major determining factor given how long the problem has been identified. Power companies in the midwest have more than sufficient time to correct the problem. [[(p.1)]]

Response:

See above response.

Comment:

The effect of this rule is paramount to the OTC because of the significant ozone nonattainment problem in the Northeast and Mid-Atlantic States. The potential impact of this rulemaking, be it positive or negative, on our states' abilities to protect the public health of their citizens and achieve attainment within the federally mandated timeframes makes it possibly the most important federal action on this issue since the Clean Air Act Amendments of 1990. [[(p.1)]]

To be clear, attainment of the federal, health based eight-hour ozone standard on time is of critical concern to the OTC member states. Continued nonattainment of this standard would prolong exposure of some 25 millions citizens to unhealthy air quality levels and exacerbate economic inequities as well, including the imposition of sanctions. EPA should strive to address both the ozone and fine particulate pollutants, with equal priority, so that the affected sectors are addressed comprehensively to achieve the standards as soon as practicable but not later than the statutorily prescribed attainment dates. [[(p.1)]]

Response:

EPA believes that it is addressing both pollutants with equal priority. It should be noted that with the NOx SIP Call rulemaking , EPA has already taken significant steps to address down-wind nonattainment of ozone.

Comment:

EPA's proposed transport rule is a necessary and long-awaited step forward in lowering dangerous air pollutants and protecting public health. But to realize the full potential of public health and environmental benefits, it must be strengthened. [[(p.4)]]

Response:

As explained in Section IV, EPA believes that the emission reduction requirements finalized in today's rulemaking are appropriate to addresss up-wind States significant contribution to down-wind nonattainment.

Comment:

In general, the Department believes that EPA can provide steeper reductions in air pollution, and can provide them sooner than proposed in the IAQR preamble. There are no technological barriers to these reductions, which would have substantial benefits for the environment and public health. We call on EPA in developing a proposed rule to protect the health of our citizens and the environment through deeper, faster reductions. The multi-pollutant proposal developed by the OTC should serve as a model for final regulatory development. [[(pp.1-2)]] [[(See docket number 0747, pp. 15-18, for OTC's multi-pollutant proposal)]]

The Department strongly encourages EPA to develop a comprehensive, multi-pollutant regulation that aids the states in meeting our attainment goals, providing cleaner air and a healthier environment for all our citizens. [[(p.14)]]

Response:

See response to OTC's multi-pollutant proposal.

Comment:

Particulate matter and ozone are a national priority in Canada, because they have been identified as contributing factors in thousands of premature deaths across the country each year, as well as increased hospital visits, doctor visits, and hundreds of thousands of lost days at work and school. The science demonstrating the negative health effects of air pollution has been reconfirmed with the recent publication of studies demonstrating increased risks of lung cancer and heart disease from air pollution. [[(p.2)]]

Environment Canada welcomes proposed action to further reduce emissions of NOx and SO2 from electric generating units in the 29 eastern and midwestern States and the District of Columbia, because of the resulting health and environmental benefits on both sides of the border. [[(p.2)]]

Environment Canada wishes to support the EPA for finding that 29 States and the District of Columbia contribute significantly to nonattainment or interfere with the maintenance of the

National Ambient Air Quality Standards for $PM_{2.5}$ and/or ozone in downwind States. Furthermore, Environment Canada supports the EPA for proposing to require upwind States to revise their State implementation Plans (SIPs)to include control measures to reduce emissions of NOx and/or SO2 [[(p.2)]]

Environment Canada believes that the Interstate Air Quality Rule is a positive step toward further reducing acid deposition, and will be helpful in improving air quality in some regions of Canada. [[(p.2)]]

At the same time, Environment Canada encourages the EPA to finalize the caps with targets and timetables that are as aggressive as possible, and are implemented as early as possible. In 2000, Canada put in place the Canada-wide Standards, which set out ambient levels for $PM_{2.5}$ and ozone to be achieved by 2010. [[(p.2)]]

Even with full implementation of the proposed Interstate Air Quality Rule, our watersheds and forests in eastern Canada will continue to be damaged by acid rain. Reducing emissions further and at a faster rate will slow the acidification of Canadian soils and prevent the continued acidification of Canadian watersheds. [[(p.3)]]

With respect to PM, ozone and acidification, and the effects of NOx and SO2 emissions on ambient air quality, human health, watersheds and forests in eastern Canada, analysis makes the case that, for Canada, the targets and timetables being proposed are a good step in the process of reducing these key pollutants, but more accelerated action would be beneficial. [[(pp.4-5)]]

Many studies in the US. And Canada indicate that there are no apparent thresholds for the harmful effects to human health caused by fine particulate matter ($PM_{2.5}$) and ground-level ozone. Therefore, it is critical to not only lower $PM_{2.5}$ and ozone levels as much as possible, but also as fast as possible. [[(p.6)]]

Response:

While EPA believes that the emission reductions required in today's rulemaking will provide significant benefit for Canada, the legal authority for today's rulemaking is to address upwind States contribution to nonattainment in downwind States within the U.S.

Comment:

The Maine Department of Environmental Protection (DEP) believes that the proposed rulemaking is a positive step towards particulate matter and ozone transport in Maine and other eastern states. [[(p.1)]]

Maine DEP believes that the EPA Interstate Air Quality Rule (IAQR) will provide additional air quality benefits over and above the Section 110 NOx SIP Call. At the same time, we harbor concerns over a number of its technical findings and implementation strategies. With further attention to the following areas, EPA can provide a more effective and equitable ozone and PM fine transport reduction strategy. [[(p.2)]]

With further attention to issues such as timing, emission caps and trading, the IAQR may go far towards providing the level of emission reductions that are so necessary to protect public health and the environment, while proving regulatory certainty to the affected sources. [[(p.12)]]

Response:

EPA agrees that today's rulemaking is a positive step toward reducing particulate mater and ozone transport in Maine and other eastern States. With regards to control levels and timing, see Section IV of the preamble. With regards tot he trading program, see Section VIII of the preamble.

Comment:

STAPPA and ALAPCO are pleased that EPA has taken a first step toward addressing interstate transport of air pollution in order to assist states and local jurisdictions in attaining and maintaining the new 8-hour ozone and fine particulate matter ($PM_{2.5}$) National Ambient Air Quality Standards (NAAQS). As EPA is aware, states and localities throughout the country face a daunting challenge in developing strategies to clean up their air to achieve these health-based standards. According to EPA, as many as 175 metropolitan areas currently violate the 8-hour ozone and/or $PM_{2.5}$ standards, exposing almost 160 million people to unhealthful levels of air pollution. What is becoming increasingly clear is that it will take a significant regional effort to ameliorate the health and environmental impacts from sources of pollution contributing to these problems. A multi-state and multi-pollutant approach also comports with the recommendations in a recent study by the National Academies of Science, which notes that ozone, $PM_{2.5}$ and regional haze 'share common precursor emissions and common pathways for the generation of these pollutants and are all to greater or lesser extents affected by long-range transport. For these reasons, it is critically important that pollution control strategies targeted for mitigation of ozone, $PM_{2.5}$, and regional haze be developed in tandem and on a multistate basis.' [[(pp.1-2)]]

While EPA has taken an important first step to address transport, we are still concerned that the agency has not done enough. We believe the compliance deadlines are too long, the emissions caps are too weak, and an insufficient number of sources are covered. [[(p.2)]]

Response:

See Section IV

Comment:

Sierra Legal Defense Fund is writing to urge you to reconsider the proposed Interstate Air Quality Rule for particulate matter and ozone and to develop a far more stringent rule. [[p. 1]]

Pollutants that migrate from the U.S. into Canada adversely affect both the quality of Canada's natural environment and the health of Canadians. Reports from international agencies have documented the transboundary migration of ozone and PM from the U.S. to Canada. Canadians therefore have a clear interest in seeing a much stronger IAQR. [[p. 1]]

[[Environment Canada]] The EC also made the following important comments on air pollution, which we believe buttresses our call for a stronger IAQR:

- Multiple studies show that there is no threshold below which $PM_{2.5}$ and ozone are safe therefore the EPA should acknowledge this and lower $PM_{2.5}$ and ozone levels as much and as fast as possible.

- Particulate matter and ozone are linked to chronic bronchitis, asthma, and premature deaths. Recent scientific studies also reconfirm that air pollution causes increased risk of lung cancer and heart disease.

- Particulate matter and ozone also cause reduced visibility, crop damage, and increased vulnerability to disease in some trees. [[p. 5]]

Response:
See response above to Environment Canada. As explained in Section IV, EPA believes that the emission reduction requirements finalized in today's rule are appropriate for addressing down-wind nonattainment.

Comment:
On the technical side, DES applauds EPA in proposing this important program to rigorously address interstate pollution transport. Such a program is badly needed in order for downwind states like New Hampshire to finally achieve healthy air quality. While not specifically stated in the rule documentation, we believe that the goal of the rule is to reduce nitrogen oxides (NOx) and sulfur oxides (SOx) related interstate air pollution transport to a level that will enable downwind states to reach attainment by their federally mandated attainment dates by implementing a realistic level of local controls. New Hampshire looks forward to working with EPA to achieve this goal. [[(p.2)]]

EPA has recently developed an unfortunate trend of failing to seek and seriously consider meaningful state input. In addition, EPA has waned in sharing details of its new and ongoing modeling and inventory work, leaving potential reviewers scrambling to catch up. Since only the older files are made available for review, comments made by technical reviewers are often criticized by EPA as being obsolete and no longer pertinent. [[(p.2)]]

During the formation of the SO_2/NOx Transport Rule (subsequently renamed the Interstate Air Quality Rule and then again to the current Clean Air Interstate Rule), EPA worked with interested states and stakeholders in developing the science, inventories, and modeling procedures. Using this forum, there were no surprises for EPA or its reviewers. Unfortunately, this has been discontinued over the past few years in favor of rapid fire, constantly changing, and often secretive work. DES very strongly encourages EPA to return to working in an open fashion with interested scientists in order to develop the best possible science and to return to the open relations with interested parties that they had in previous years while in the process of developing major rules and legislation. [[(p.2)]]

DES urges EPA to strengthen the rule by providing deeper and more timely emission cuts into both EGU and non-EGU sectors than CAIR currently proposes, in order for the rule to produce critical improvements in time to assist states in meeting federally mandated attainment dates. For each year states fail to meet these goals, they incur costs in excess of billions of dollars, hundreds of lives, countless health complications, and lost business opportunities. The benefits of

strengthening the rule far outweigh the implementation costs according to EPA's own analyses, and those of others. [[(p.6)]]

Response:

EPA agrees that the goal of today's rulemaking is to reduce States significant contribution to down-wind nonattainment making it easier for States with nonattainment areas to attain the NAAQS.

EPA agrees that it is important to work with interested States and stakeholders and believes it has done so in developing both the tools used in today's rulemaking and the rulemaking itself.

With respect to the timing and control levels in today's rulemaking, see Section IV.

Comment:

The IAQR, while directionally positive, is insufficient to protect public health from the dangers of air pollution. It also relies exclusively upon pollution trading, a mechanism which the Sierra Club believes is inappropriate for protecting public health. The EPA should instead adopt a measure that would reduce pollution in communities across the country. [[(p.1)]]

The IAQR, according to EPA modeling done in support of the 'Clear Skies' initiative which shares similar pollution control levels, will not be sufficient to bring all communities into attainment of the ozone or fine particle NAAQS. A more vigorous rule, with deeper reduction targets, such as those proposed by EPA in September 2001 in its 'straw proposal' to the Edison Electric Institute, would provide greater protection for public health and the environment, while remaining cost effective. [[(p.1)]]

Sierra Club opposes pollution trading. We are concerned that pollution trading does not provide sufficient certainty that all communities will see necessary improvements to air quality, and that the structure of pollution trading markets encourages gamesmanship,leading to 'paper' reductions that are not reflected in real world results. [[(pp.1-2)]]

Sierra Club prefers a pollution control modernization strategy. We believe that the reductions sought under the IAQR can be achieved in every community by requiring facilities to install modern pollution controls after they have been in operation for a number of years. The National Academy of Public Administration suggested a similar program in their analysis of EPA's New Source Review program. [[(p.2)]]

Response:

While EPA believes that using an emissions trading program to reduce emissions of NOx and SO2 from power plants is the most cost effective way to meet the requirements of today's rule, States have the flexibility to attain the reductions any way they choose. As explained elsewhere in this rulemaking, EPA believes that the timing and cap levels set forth in the straw proposal were not feasible because of boiler-maker constraints. It should also be noted that while the commenter suggests that trading is inappropriate, the straw proposal which the commenter supports was itself based on emissions trading. It should also be noted that the purpose of today's rulemaking is not to bring all counties into nonattainment, it is to address States significant contribution to down-wind nonattainment.

Comment:

OTC wants EPA to be successful with this rulemaking, but to be so, the rule must address our serious, demonstrated concerns about EGU sector upwind transport of pollutants, and achieve very significant reductions from this sector - adequate enough to enable us to achieve attainment of the ozone standard through aggressive, but feasible, local controls. Unfortunately, the proposed pollution reductions and timing of them fall short of our demonstrated need for reductions, and so the rule must be changed if it is to be acceptable. This is not just a numbers exercise to change map colors and check off a box. This attainment goal is to achieve a health-based standard that is well founded and long overdue. For the OTC, this means the difference between 50 million people breathing clean air or not. Our states represent 25 percent of the country's population. We have executed a cap and trade program within the OTR, successfully reducing our NOx emissions from EGUs by over 70 percent. [[(p.1)]]

We know what is achievable and we know what is necessary from this sector to be able to meet the health-based standard. We are counting on EPA to implement a rule that achieves these reductions, and does so on time. This rule is significant because of both its positive ability to achieve strong national reductions, and its negative potential to hamstring states' pursuit of air quality improvements to protect the public health of their citizens. As previously expressed, our member states simply cannot achieve attainment of the eight-hour ozone standard through local reductions alone; local and regional reductions must come in addition to, not in lieu of, very significant upwind reductions. States must also retain the right to pursue additional reductions to protect the health of their citizens availing themselves as warranted of all the tools provided under the Clean Air Act. Even with these capabilities in tact, some states will actually be prevented from seeking additional reductions because of limitations on their ability to impose requirements more stringent than federal regulations. For this reason, and because interstate transport of pollutants is a national problem, EPA must act and must do so with a strong rule. [[(p.2)]]

Response:

If States choose to meet the requirements of today's rulemaking by utilizing a cap and trade program to address ozone season nitrogen oxide emissions, this will result in a tighter cap on EGU emissions than has currently been implemented by States in the Ozone Transport Region.

Comment:

The Interstate Air Quality Rule (IAQR) being proposed the EPA by is not strong enough to clean up the dirty air in Texas. It is so weak that, if implemented as currently written, it will doom another generation of children to damaged lungs and asthma and cause thousands of elders to die unnecessarily early. [[(p.1)]]

Please protect Texans, and all communities in the U.S., from the dangers of ozone smog and fine particle pollution by finalizing steep, nationwide emissions reductions of nitrogen oxides (NOx) and sulfur dioxide (502) at fossil-fuel power plants and large industrial facilities. The pollution cuts need to be made deeper and faster than proposed. The reductions are too small to bring all areas into attainment and come too late to meet Clean Air Act deadlines. [[(p.1)]]

The evidence is clear, both from the EPA's own data and analyses, as well that by other experts, that additional and deeper reductions must be made from power plants than those proposed in these rules. EPA's own data shows that the proposed rule won't clear Texas' air until

2015-2018. Faithful implementation of the current Clean Air Act would clean millions more tons of air pollutants than the proposed rules. The EPA can and must do better. [[(p.1)]]

Texans don't have to take this pollution for another generation when the EPA has the tools now to help us clean up much sooner and better. EPA's own analysis shows that making much steeper reductions in sulfur dioxides and nitrogen oxides by 2009 would be cost effective and greatly improve public health. [[(p.1)]]

It's critical that EPA make steep cuts and require pollution reductions from power plant smokestacks nationwide by 2009. [[(p.1)]]

EPA's own charts show the proposed Interstate Air Quality Rule is too little too late for the Dallas-Fort Worth area, which fails to get needed NOx reductions by 2010, when that area will be required to meet tough new air pollution rules. [[(p.1)]]

Lives are at stake. Ozone smog and fine particle pollution have been associated with serious health effects including asthma attacks, respiratory hospitalizations, heart attacks, and even tens of thousands of premature deaths in the U-S, each year. With effective pollution solutions at hand, achievable with technology available today, we have a responsibility to act as soon as possible to clean the air across the country. [[(p.1)]]

Please protect public health by greatly reducing harmful nitrogen oxide emissions and sulfur dioxide in a final Air Quality Transport Rule that protects people from these health problems by: -reducing harmful pollution from power plants, nationwide, not just in the East, protecting citizens across the U.S. from the associated health and environmental problems; -limiting nitrogen oxide emissions to 1.25 million tons a year by 2009 and sulfur dioxide emissions nationwide to the equivalent of a national cap of 2 million tons; -requiring states to clean up further and set caps for nitrogen oxide emissions and sulfur dioxide on high-polluting industrial boilers and other large industrial sources, as well as power plants, that would be consistent with the 2009 national caps, if individual states opt to impose individual state specific pollution caps; -adopting a rule with these emission limits and deadlines as a final binding regulation by September 2004. [[(pp.1-2)]]

I am depending on you to finalize and implement a strong Interstate Air Quality Rule to protect ALL Americans from harmful levels of ozone smog fine and particulate pollution from power plants and industrial boilers. [[(p.2)]]

Response:

As explained in Section IV of the preamble, EPA believes that today's rulemaking requires emission reductions to be made as expeditiously as practicable.

Comment:

EPA must act to reduce the power plant pollution transported across state borders. Although the IAQR is a good first step, it fails to adequately protect citizens in downwind states. Even with the rule fully implemented, a number of eastern counties will continue to violate federal health standards for fine particle and ozone pollution, long after their respective attainment dates have passed. [[p.2]]

Response:

The purpose of today's rulemaking is not to bring all States into attainment of the NAAQS, it is to address upwind States significant contribution to down-wind nonattainment. While the rule will bring many areas into attainment and will help many other areas come closer to attainment, reaching attainment in some areas will require a mix of regional and local controls.

Comment:

Pennsylvania continues to have significant problems meeting its legal deadlines for ozone attainment, while at the same time we have new legal requirements to clean up $PM_{2.5}$. The IAQR has significant implications for Pennsylvania, since it is the regulation which has been devised to provide some measure of assistance to states needing to achieve new particulate matter ($PM_{2.5}$) requirements. Pennsylvania DEP has expressed valid concern that EPA's proposed IAQR will not be sufficient by itself '... for all nonattainment areas of the Commonwealth to achieve the $PM_{2.5}$ standard within the time frames prescribed by the Clean Air Act.' Pennsylvania expects to establish additional local controls. [[p.2]]

Response:

See response above.

Comment:

CEG believes even stricter NOx and SO2 caps and an earlier implementation timeframe could be justified from an air quality standpoint than what is proposed in IAQR. However, CEG recognizes that there is no guarantee that Congress will move forward in enacting such legislation. On this basis, we applaud and support the Administration's efforts to promulgate new regulations requiring additional NOx and SO2 emissions reductions from electric generating units in states contributing to downwind nonattainment of the new eight-hour ozone and $PM_{2.5}$ NAAQS. CEG believes that the proposed IAQR, when fully implemented, will go a long way towards improving air quality in the eastern part of the U.S. while, at the same time, reducing investment uncertainty in the electric generating sector. [[(p.1)]]

CEG believes that air quality considerations support the NOx and SO2 caps and compliance schedule proposed in the IAQR. [[(p.2)]]

Similar to the case with the NOx SIP Call and the one-hour ozone NAAQS, the analyses provided by EPA as part of the proposed IAQR demonstrates the need for a substantial reduction in transported emissions of NOx and SO2 in order for downwind eight-hour ozone and $PM_{2.5}$ nonattainment areas to achieve compliance with the NAAQS. EPA's modeling indicates that from 22 to 96 percent of the ozone problem in the eastern U.S. is due to transport. CEG believes that this evidence provides more than adequate justification for the NOx and SO2 reductions from sources in states covered under the proposed rule. [[(p.2)]]

According to the results of the modeling analyses performed by EPA in support of the IAQR, even after the proposed IAQR is fully implemented in 2015, 26 counties will remain in nonattainment with the eight-hour ozone standard and 13 counties will remain in nonattainment with the $PM_{2.5}$ NAAQS. [[(p.2)]]

Depending on how EPA resolves the issue (raised by the U.S. Supreme Court in the NOx SIP Call litigation) surrounding the interaction between Subpart 1 and Subpart 2 of Part D of the Clean Air Act in its final rule implementing the eight- hour ozone standard, compliance with the standard could be required as early as 2009 (for all nonattainment areas treated under Subpart 1 and for serious nonattainment areas if treated under Subpart 2) to as late as 2016 (for areas granted the maximum seven years extension under Subpart 1 treatment) or 2015/2017 (the deadline for severe nonattainment areas to come into attainment under Subpart 2 treatment). [[(p.2)]]

With respect to $PM_{2.5}$, nonattainment areas will have up to 5 years from the time they are designated to come into attainment. The attainment designation process for $PM_{2.5}$ is expected to be completed by early 2005 so nonattainment areas will have until early 2010 to achieve compliance with the standards (or as late as 2017 if the maximum extension of seven years is obtained). [[(p.2)]]

While CEG continues to support comprehensive, integrated multipollutant legislation for the electric generating sector over the traditional piece-meal regulatory approach, CEG supports what EPA is attempting to accomplish under the proposed IAQR and believes that implementation of the rule will go a long way towards achieving compliance with the new eight-hour ozone and $PM_{2.5}$ standards. It will also go a long way towards reducing the amount of uncertainty surrounding the planning of capital investments in the electric generating sector. [[(p.7)]]

Response:

As explained in Section IV of the preamble, EPA believes that the emission reduction targets and the deadlines set forth in today's rulemaking are appropriate for addressing regional transport of pollutants that lead to down-wind nonattainment of the $PM_{2.5}$ and ozone NAAQS.

Comment:

Maryland truly appreciates the efforts that the U.S. Environmental Protection Agency (EPA) has made in beginning to address transported air pollution (transport). Transport plays a dominant role in Maryland's air quality problems. On our worst days, well over half and up to 90 percent of Maryland's air pollution originates in upwind states. The development of a strong Clean Air Interstate Rule (CAIR) represents an important first step in bringing the complex concepts of transported pollution to the forefront of air quality policy. Maryland offers to work with EPA to strengthen the rule in a manner that serves both Maryland, the other states in our region and the nation as a whole. [[(1745, p.1)]]

Maryland is essentially overwhelmed by transport. Unfortunately, with the controls proposed in the CAIR, Maryland will not attain the ozone and fine particulate matter standards even if local emissions are eliminated. During the past few years Maryland has consistently presented the EPA with its concerns and research related to transport. The science tells us that transport is the single most critical component of our air quality problem. Without better regional controls that drastically reduce transport, Maryland will continue to experience severe air quality problems. Maryland continues to develop and implement tougher and tougher local control programs. These local efforts alone will not solve Maryland's air quality problem. [[(1745, p.1)]]

Effectively reducing transport is not only important to protect the health of Maryland's citizens but it is also directly linked to Maryland's business climate and our ability to spur

continued economic development through new infrastructure investment. Continuing to penalize Maryland economically because of transported air pollution is simply not fair. [[(1745, p.1)]]

The proposed rule should better incorporate, or at least acknowledge, what we have learned over the past 10 years about the different types of transport that affect air quality on the East Coast. Air pollution on the East Coast, especially along the Mid-Atlantic, is a regional problem that can only be solved with regional solutions. EPA needs to acknowledge that the proposed rule only addresses a part of the transport problem and that other regional or national programs will need to be implemented to fully address transport. [[(1745, p.3)]]

EPA's basic approach to clean air assumes that a combination of national rules to address transport and local rules in metropolitan (nonattainment) areas to address local contribution will solve the problem. The science no longer supports this basic EPA policy, at least for the Mid-Atlantic states. Common sense control programs that are currently being implemented in just the large cities need to be spread over a much larger 'areas of influence' that affect the different nonattainment areas along the East Coast. Our research, and the research of most other air quality scientists firmly support this conclusion. (1745, p.3)

Examples of local programs that are already being implemented in Maryland that need to be expanded across a much larger region include the most recent OTC model rules for paints, consumer products, gas cans, autobody shops and small degreasing operations, and expansion of the RACT requirements that have already been successfully implemented in Maryland and many other states. The area of influence for these types of sources that affect Maryland stretches along the East Coast to as far south as the Carolinas. [[(1745, p.3)]]

The CAIR will not provide sufficient reductions to allow Maryland to have a reasonable chance of attaining the new standards. Maryland consistently measures some of the worst air pollution in the nation. On the worst days, our research aircraft measure 'incoming' ozone levels that are already above the new 8-hour ozone standard. This poor air quality resulted in Maryland having multiple nonattainment areas for both ozone and fine particulate matter. The Clean Air Act (CAA) has already required Maryland to strictly regulate local emission sources. Failure to adequately address transport will force Maryland to try and require even more aggressive controls on these already regulated sources. [[(1745, p.3)]]

The CAA requirements for nonattainment areas have made economic development difficult, have forced transportation planners to sometimes curtail important projects and have made Maryland unattractive to new businesses looking to expand or develop in the region. The time had come for upwind states to significantly reduce their contribution to Maryland's air quality problems to alleviate the inequitable pressure on Maryland's sources. [[(1745, p.3)]]

[[Please see docket number 1746, sections I (p.5) and VII (pp.29-30), for a more detailed discussion of how the CAIR does not adequately address the issue of transport.]]

Response:

Many of the control measures that the commenter is suggesting are related to VOCs. As explained in the preamble, EPA believes that with respect to interstate transport contributing to ozone nonattainment, NOx controls are most important.

Comment:

I appreciate the EPA's acknowledgment that emissions originating in one upwind state contribute to high levels of fine particulates and ozone in many states a considerable distance away. I also appreciate the EPA's recognition that emissions of NOx and SO2 from coal-fired power plants are the most important source of this transported air pollution. Chemical reactions in the atmosphere create ozone from those NOx emissions, and convert both NOx and SO2 emissions from those sources into fine particulates. [[(p.2)]]

Unfortunately, the proposed IAQR falls far short of the strong federal action needed to reduce those upwind emissions enough to enable New Jersey and other states to bring their air quality into attainment with the ozone and fine particulate standards. The IAQR's caps on power plant NOx and SO2 emissions are too loose, and come too late, to be of any use for attainment. [[(p.2)]]

One key objection to the proposed IAQR is that it would take the nation off of that most cost- effective path, by leaving some of the least expensive opportunities to improve air quality untapped. Our second major objection is that the proposed IAQR would fail to eliminate the significant contributions of upwind emissions to nonattainment downwind in time to be of any value in helping the downwind areas attain the air quality standards. [[(p.5)]]

Response:

See discussion in preamble

Comment:

This is a good step toward bringing the Nation into compliance. As discussed below, however, the counties (and associated CMSAs) that remain in nonattainment after full implementation of the IAQR will likely have a very difficult time attaining the standard. In addition, API believes that EPA may be predicting exaggerated benefits for this rule by using a model that has not been revised to correct a well-known and documented programming error, which overestimates the decrease in mortality resulting from decreases in air pollutants by almost 50 percent, and hospitalizations by 10 percent. Nonetheless, EPA's proposal, which focuses on producing 'highly cost-effective' emission reductions, is an important step toward achieving cleaner air for much of the Nation. [[1829, p. 9]]

API's Analysis Confirms That More Than The IAQR Will Be Needed To Achieve Attainment: EPA projects that without its proposal, 61 counties in the targeted area will be designated nonattainment for $PM_{2.5}$ in 2010 and 41 by 2015. Id. At 4,595. Similarly, EPA predicts that 47 areas will be in nonattainment for Ozone in 2010 and 34 in 2015. Id. At 4,593. This analysis is borne out by work submitted by API. In June 2003, API presented the results of an 8-hour attainability analysis to EPA. This study concluded that if the 8-hour ozone standard is to be attained in the eastern part of the country:

- All anthropogenic NOx emissions must be reduced 50-75 percent of 1996 'typical' base case values; and

- All anthropogenic NOx emissions must be reduced 75-85 percent of the 1996 base case values under the conditions that yielded the highest 8-hour ozone concentrations.

See, Steve Reynolds, Charles Blanchard, 'Understanding The Effectiveness of Precursor Reductions In Lowering 8-Hour Ozone Concentrations In The Eastern United States.' June 9, 2003. (Attached as Exhibit 1; the study from which this presentation was derived has been accepted and is pending publication in the Journal of the Air and Waste Management Association). Consequently, EPA will need to carefully monitor the progress toward attainment, despite making deep emission reductions through the IAQR. [[1829, pp. 9-10]]

Response:

EPA believes that additional controls will be needed to bring some areas into attainment.

Comment:

As we have noted, a strong national program aimed at achieving rapid reductions in emissions from power plants will be extremely important to our regional effort to craft viable air quality attainment strategies for those areas that have been designated nonattainment for the 8-hour ozone or will soon be designated nonattainment for the annual PM-2.5 ambient air standard. [[(1866, p.1)]]

Through this technical supplement, EPA continues to define and evaluate a program insufficient to provide the Lake Michigan areas regional emission reductions enabling viable air quality attainment plans in the foreseeable future. [[(1866, p.1)]]

The lack of a fully-effective regional point source control program significantly constrain Wisconsin from crafting a viable attainment plan for its designated ozone nonattainment areas. This is a fatal flaw for the current program outline, no matter the minor changes in the details of current technical support materials. [[(1866, p.1)]]

As you move forward, I hope and ask again that you make a more concerted effort to directly involve the states in the design of the core program improvements that can address regional attainment needs since states are liable for the attainment demonstrations. A complete set of technical support materials could facilitate that process. [[(1866, p.1)]]

Response:

EPA believes that the emission reductions finalized in today's rulemaking represent a strong regional program aimed at achieving rapid reductions in emissions and that EPA has provided a mechanism that will allow States to cost effectively reduce these emissions from the power sector. EPA believes that these reductions will provide States with nonattainment problems significant assistance in addressing those problems.

Comment:

CAIR Is Intended To Address The Transport Component of Ozone and $PM_{2.5}$ Nonattainment:

Like the NOx SIP Call, the proposed CAIR is intended to address the transport component of ozone and $PM_{2.5}$ nonattainment. EPA has received many comments expressing concern that neither the NOx SIP Call nor CAIR may resolve those nonattainment issues. Should the implementation of CAIR resolve any nonattainment problems, fine. However, Consumers Energy reminds EPA that once the significant contributions from transport are resolved, any remaining

nonattainment issues should be addressed through local planning and controls for resolution. [[pp. 3-4]]

Response:

EPA agrees that the purpose of today's rulemaking is not to eliminate all nonattainment, but rather to eliminate States significant contribution to down-wind nonattainment.

Comment:

Ohio EPA supports the rule and the reductions required under it. Attaining the revised particulate standard is a major goal of our agency. The reduction of this regional component of $PM_{2.5}$ will result in attainment of the standard at many monitors in Ohio not currently attaining the standard. In spite of this potential improvement, there will remain a significant amount of analysis and modeling to be completed to identify the remaining components of $PM_{2.5}$. Ohio, along with other states, will then need to develop control strategies to demonstrate attainment of this standard in the urban/industrial core of the largest and most industrialized metropolitan areas. [[(p.2)]]

Response:

EPA agrees.

Comment:

Michigan supports preservation of the authority of states, localities, and regional groups to adopt and/or implement more stringent limits. [[(1181, p.1)]]

Michigan believes that the IAQR must preserve the authority of states and other local and regional groups to adopt more stringent limits than those contained in the IAQR. States are ultimately responsible for attaining the NAAQS for their own state and therefore must have all the tools available to do so. It is possible that more NOx and SO_2 reductions than provided in the final IAQR will be needed for attainment of the $PM_{2.5}$ standard or the regional haze rule. The most cost-effective control approach Michigan can find to achieve attainment may be further control of large combustion units. To the extent Michigan needs additional controls to do so, tighter utility controls must be an option not prohibited in the IAQR. [[(1181, p.5)]]

Response:

Nothing in CAIR prohibits states from imposing additional controls on utilities as necessary to achieve attainment with the NAAQS.

Comment:

The Mid-Atlantic and Northeast states have spent the last several months crafting and adopting a position to clearly define what we need in reductions of nitrogen oxides as part of an overall attainment strategy. We believe the adopted OTC position represents a fiscally and technically sound effort to protect public health - in a cost effective manner and on a realistic, achievable, timetable. We urge EPA to modify its IAQR to incorporate the OTC platform. [[(p.2)]]

Control levels, be they performance standards or allowance caps, should be set to ensure national annual emissions consistent with maximum control technology available within a

timeframe consistent with attainment and other regulatory deadlines, and in manner that will ensure maximum effectiveness in nonattainment areas and regional haze Class I areas. [[(p.2)]]

Our approach is straightforward. Our analysis demonstrates that we need significant reductions from the power sector and other large stationary NOx sources in addition to other national, regional, and local mobile and area source measures, to have any hope of achieving attainment. Our modeling further demonstrates that even with the Interstate Air Quality Rule (IAQR), there remains significant air pollution being transported - and cost effective emission reduction opportunities within the remaining upwind inventory - to warrant significantly greater reductions within this rule. [[(p.2)]]

The levels of emission reductions from the power sector as outlined in the current proposal do not provide an opportunity for attainment - and in many ways would hinder states from seeking the additional reductions needed as part of an overall attainment strategy. Furthermore, the unnecessarily weak reductions over long timeframes juxtaposed to the standards of the CAA actually increase uncertainty for the sectors regulated - the opposite effect EPA is trying to achieve with a multi-pollutant rule. [[(p.5)]]

EPA's own analysis of current implementation of CAA requirements - or 'business as usual' - presented to the Edison Electric Institute (EEI) September 18, 2001 [[(see pp. 34-58 of Docket Number 0757 for EEI presentation)] acknowledges that not only will implementation of current programs not achieve sufficient reductions of $_{SO2, NOx}$, or Mercury from the power sector, but that they would come at a much higher cost because states would be forced to seek additional reductions to meet SIP obligations. [[(p.5)]]

EPA has expressed that the two objectives of its program were to not 1) cause significant fuel switching from coal to natural gas, or 2) significantly increase the costs of electricity. As discussed below, OTC took this into account in designing its program. However, the base assumptions of the model are critical to look at, because they can significantly affect the choices made about retrofitting a plant or constructing a new one, continuing to use coal, or switching to natural gas. [[(p.11)]]

The price of natural gas has risen dramatically over the past several years, and appears to be stabilizing at a relatively high level compared to past predictions and EPA assumptions in its model runs. A low natural gas price has the effect of encouraging early fuel switching as soon as a small amount of investment pressure is imposed on another fuel source - be it oil, coal or another fuel source. New facilities brought on line will also tend to be natural gas under a low-gas-price assumption. [[(p.11)]]

Maintaining a diversity of generation capacity is important to stabilize prices, and we believe reflecting a higher gas price now and in the model is more realistic. The Cambridge Energy Research Associates (CERA) and the Energy Information Administration (EIA) both predict higher natural gas prices from here on out, and these should be adjusted in EPA's model. [[(p.11)]]

This will have the effect of encouraging more EGU owners to retrofit non-gas fuel units with proper pollution controls, and to build a mix of new units, rather than rely solely on natural

gas to meet future demand. This will also tend to encourage continued advancements technically and economically on pollution controls for the other fuel sources, notably coal. [[(p.11)]]

Even without the higher EIA assumptions, OTC's proposal does not cause significant fuel generation mix change from the IAQR, resulting in approximately 1 percent less coal and 1 percent more combined cycle gas from the IAQR estimates. Accounting for the increased prices the pressure to switch would be even less. [[(p.17)]]

Our analysis demonstrates that we must achieve significant emission reductions from the power sector - comparable to that proposed in EPA's straw proposal - in addition to stringent local and regional emission controls, to make meaningful progress toward attainment in the mandated 2010-2013 timeframe. Anything less than this would force states to seek additional reductions this and other sectors - adding costs and uncertainty to industry - the alternative EPA has already acknowledged will be the logical outcome. [[(p.5)]]

Our CALGRID screening modeling shows we cannot achieve 8-hour ozone attainment under the 'business as usual' approach, or under the Clear Skies Act or IAQR as currently proposed. [[(p.5)]] [[(See section 'Ozone', p.5, of Docket Number 0757 for discussion of OTC's modeling in relation to achieving 8-hour ozone attainment)]]

We dispute any contention that emissions remaining after full implementation of the IAQR are exclusively local. Our modeling demonstrates that even in the extreme example of zero anthropogenic emissions within the OTR, 145 of 146 monitors show a significant (>25 percent) increment of the 8-hour standard taken up by transport from outside the OTR. [[(p.5)]]

The OTC proposal still requires substantial local controls in order to achieve attainment, but the level of reductions required from the EGU (and industrial boiler) sector are more equitable and cost-effective for all sources than what would be required under the IAQR. [[(p.6)]]

While we believe many of the type of assumptions EPA makes about labor are applicable, we do not believe the consequences are as severe a limiting factor nor will the rate of installation be affected as significantly as EPA predicts (FR Vol. 69 No. 20 pg. 4622). For example, approximately 111 SCR units were installed from 2001-2003. This is considerable more than had been installed, on average, in the previous decade. This is also significantly more than the number of installations expected under either EPA or OTC's proposal. This demonstrates an ability to be flexible in meeting short term regulatory demands - and experience gained by this labor force, as the Institute for Clean Air Companies as indicated in its March 2004 labor analysis. [[(p.9)]] [[(See section 'Availability of Labor', pp.9-10, of Docket Number 0757 for discussion on the the availability of labor)]]

One of the constraints imposed on the analysis, is that industry will not begin installation until after the SIP process (and all associated litigation) is complete. While we cannot do anything about the litigation of a rulemaking, we do note that an injunction implementing an EPA rule is very unlikely, and a strong schedule within the upcoming business cycle would go a long way to providing certainty that action is needed by EGU owners and operators. [[(p.10)]]

States have a precedent of expediting engineering review and permitting requirements for installation of control equipment as in the case of the NOx SIP Call or $_{OTC\ NOx}$ Budget Program. There is an opportunity for OTC States to move forward as a region to address industry concerns related to timing of SIP development and permitting timelines. Additionally, there are opportunities to assist states by developing model rules and other tools to expedite the timeframe for rule promulgation. [[(p.11)]]

We fully expect our states to expedite both SIP development and submission and retrofit of pollution control equipment on existing facilities. All states within the NOx SIP Call region should be positioned to do the same. A SIP submitted under this rule should take no more than 12 months. [[(p.11)]]

With respect to the appropriate mix of reductions or timing (FR Vol. 69 No. 20 pg. 4623), we stress that attainment should be the goal for concurrent NOx and SO2 reductions. Both pollutants have well documented health effects and economic consequences. The IAQR region faces significant nonattainment of the standard for both pollutants. Furthermore, the basis for a multi-pollutant trading program is to achieve reductions based on the decisions sources make on the economics of level and timing of pollution control. [[(p.16)]]

The goals of reducing either pollutant should be based on attainment needs and achievability. Again, we suggest that the appropriate level of NOx and SO2 emissions from power plants are 1.87 million and 3.0 million tons respectively by 2008, and 1.28 million and 2.0 million tons by 2012. [[(p.16)]]

If this proposal is intended to address the transport of NOx and SO2 - as it name purports, and if the goal of this proposal is to address transported emissions that preclude downwind states from achieving attainment - as it should - then it is difficult to advocate emission reductions from the affected sectors of one pollutant over another or one which fails to achieve adequate reductions to eliminate the transport problem. The Ozone Transport Commission wants a program that will achieve significant reduction of upwind ozone precursors so as to provide the region with a mechanism to achieve attainment within the context of a comprehensive strategy. [[(p.16)]]

OTC's proposal, assuming the increased energy costs and growth rates, would achieve a 58 percent reduction in SO_2 and a 67 percent reduction in SO_2 in 2010 from the EPA base case scenario, approaching twice as much improvement as the IAQR (IAQR yields 36 percent and 38 percent reductions for NOx and SO2 respectively in the 2010 timeframe). [[(p.16)]]

Overall, we expect the costs of OTC's program to be achievable for less than $2,000 per ton for the NOx and SO2 reductions through 2020 [[(See Appendix C, pp.59-99, of Docket Number 0757),] the total cost to be on the order of about $7.6 Billion in 2010 and $11.1 Billion in 2020, with a monetized benefit of about $80 Billion and $140 Billion in those years respectively. The cost for compliance will be fractions of a cent per KWh, and a reasonable percentage of the total system operating costs for EGU units (approximately 10 percent). Compared to the IAQR, we expect the program to cost less than 4 percent more, for a 44-47 percent reduction from IAQR NOx and SO2. [[(pp.16-17)]]

Response:

To determine the CAIR emission reduction requirements, EPA generally followed the statutory interpretation and approach under CAA section 110(a)(2)(D) that was developed in the NOx SIP Call rulemaking. That is, EPA identified the emissions in each upwind State that contribute significantly to nonattainment as being those emissions that can be eliminated through highly cost-effective controls. The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

The CAIR will bring many nonattainment areas further along towards attainment, greatly reducing the amount that remains to be done. Alternatively, if EPA had tried to bring every area into attainment through the CAIR, it is likely that some over-control would have occurred that would not have been cost-effective. The EPA endeavored to strike the right balance with CAIR, especially on $PM_{2.5}$ given only 14 areas out of attainment after 2015, and we believe we have done a good job at striking that balance.

The CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the initial step of finalizing CAIR, we are requiring a very substantial reduction in interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

Next, against a backdrop of Federal actions that lower air emissions and some substantial State programs, States will develop plans designed to achieve the standards in their local nonattainment areas. EPA has not yet promulgated rules interpreting the Act's requirements for State implementation plans for $PM_{2.5}$ and ozone nonattainment areas, nor have States developed plans to demonstrate attainment. (EPA did promulgate phase I of the ozone implementation rule in April 2004 (69 FR 23951; April 30, 2004) but has not issued phase II of the rule, which will interpret CAA requirements relating to local controls (e.g., RACT, RACM, RFP). As a result, there are significant uncertainties regarding potential reductions and control costs associated with State plans. We believe that some areas are likely to attain the standards in the near term through early CAIR reductions and local controls that have costs per ton similar to the levels we have determined to be highly cost-effective. We expect that other areas with higher $PM_{2.5}$ or ozone levels will determine through the attainment planning process that they need greater emissions reductions, at higher costs per ton, to reach attainment within the Act's time frames. For those areas, States will need to assess targeted measures for achieving local attainment in a cost-effective (but not necessarily highly cost-effective) manner, in combination with CAIR's significant reductions. Given the uncertainties that exist at this early stage of the implementation process, EPA believes this rule is a rational approach to determining the highly cost-effective reductions in $PM_{2.5}$ and ozone precursors that should be required for interstate transport purposes.

As explained in section IV in the CAIR NFR preamble, the timing of the initial compliance phase is limited by the feasibility of installing necessary pollution control retrofits within the available time frame. EPA did move-up the $_{\text{initial NOx}}$ compliance phase from 2010 to 2009 after the CAIR proposal, however it is not feasible to accelerate the compliance schedule any further.

See response regarding OTC's proposal in section VI.F., below.

See section XI.B in this RTC, as well as the IPM documentation ("Documentation Summary for EPA Base Case 2004 (V.2.1.9) Using the Integrated Planning Model," EPA 430/R-04-008, October 2004), for discussion regarding EPA's IPM modeling of the electric power sector. For CAIR, EPA conducted modeling sensitivities examining the impacts of higher natural gas price and electric growth assumptions. See section IV in the CAIR NFR preamble as well as a TSD in the docket entitled "Modeling of Control Costs, Emissions, and Control Retrofits for Cost Effectiveness and Feasibility Analyses" for discussion EPA's sensitivity analyses.

Comment:

Cinergy Supports EPA's Proposed Phase II Cap for NOx Emissions Although the Marginal Costs of Additional Reductions Will Be Greater Than EPA Estimates. Analyses being submitted with these comments demonstrate that EPA has substantially underestimated the marginal costs to utilities of meeting Phase II goals. Cinergy's analyses show that the marginal cost-per-ton of Phase II NOx reductions is on the brink of diminished returns, such that any further reductions from the power sector would not be cost effective. [[p. 5]] [[See docket number 0762, pp. 20-22 for further discussion of this issue.]]

Cinergy generally supports the proposed Phase I and II NOx and SO2 caps, as well as the Phase I and II deadlines. EPA's proposed rule will achieve the significant air quality benefits needed to help downwind states approach attainment of ozone and fine particulate NAAQS. [[pp. 57-58]]

Response:

Cinergy could accept the levels and timing of the emissions caps for NOx and SO2 that EPA proposed for CAIR, but expressed some concerns over their aggressiveness especially the timing of the first phase caps. They made it clear that they did not support moving any of the emissions caps forward. In the final rule, EPA has moved the first NOx cap forward by a year to 2009. This provides more support to States that are developing plans to provide attainment for the ozone standard at that time. Analysis of the Agency explained in section IV of the preamble shows that if there are sufficient labor resources available in 2010 to comply with the initial CAIR NOx and SO2 caps in 2010 that a simple ordering of the work that is needed that queues installation of the SCRs first leads to their completion in 2009 and the completion of scrubber installations by 2010. There is sufficient time available for States to adopt CAIR and power plants to then install SCRs by 2009. As a hedge on this situation, the EPA has also provided in the final CAIR rule a Compliance Supplement Pool for NOx allowances that States can use to help power plants installing SCRs, if problems arise.

Comment:

Public Citizen had an analysis done in February 2004, by expert David Schoengold of MSB Energy Associates to determine how the area would fare under the EPAs new eight-hour standard Information available, which related levels of East Texas NOx emissions to the ozone level in the Dallas-Fort Worth area, was examined in order to try to determine what the impact on Dallas-Fort Worth ozone would be of reductions in East Texas NOx. [[Discussion of the study can be found in the comment letter.]] [[p.1]]

Based on this modeling, it is estimated that emissions of NOx will need to be reduced below 96,000 tons in order to reduce ozone to the attainment level in all of the Dallas-Fort Worth

area. This is a reduction of more than 27 percent below estimated 2003 levels, and about 66 percent below 1997 levels.

However the EPA's proposed rules will reduce NOx in the East Texas area by 'too little-too late' EPA's own charts confirm that your proposed Interstate Air Quality Rule is too little too late for the Dallas-Fort Worth area, which will fail to get needed NOx reductions by 2010, when that area will be required to meet tough new air pollution rules. We would urge you to adopt tougher NOx limits for ozone in the ERCOT grid region of Eastern Texas (North of I-37 and East of 35) of 96,000 tons from power plants. [[p.2]]

Response:

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

The CAIR will bring many nonattainment areas further along towards attainment, greatly reducing the amount that remains to be done. Alternatively, if EPA had tried to bring every area into attainment through the CAIR, it is likely that some over-control would have occurred that would not have been cost-effective. The EPA endeavored to strike the right balance with CAIR, especially on $PM_{2.5}$ given only 14 areas out of attainment after 2015, and we believe we have done a good job at striking that balance.

The CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the initial step of finalizing CAIR, we are requiring a very substantial reduction in interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule. See further discussion above.

Comment:

[[The proposal]] delivers benefits too late to assist many eight-hour nonattainment areas. The first phase of reductions does not occur until 2010, the attainment year for moderate areas, while the second phase occurs in 2015, two years after serious areas are required to attain. Secondly, the caps are too high to help the Washington region meet its attainment goal. MWAQC strongly urges EPA to adopt a rule that requires more stringent emission caps implemented sooner than under the draft IAQR proposal. [[(p.1)]]

MWAQC believes a transport rule similar to that advanced by the Ozone Transport Commission (OTC) is necessary to enable the Washington region to attain the eight-hour ozone standard. In contrast to the current IAQR proposal, the OTC proposal would achieve emission levels that are consistent with attainment of the 8-hour standard. The reductions would also be achieved substantially earlier. MWAQC advocates implementing step-down emission caps at least two years before the attainment dates for moderate and serious areas in order to assist these areas in achieving the 8-hour standard by the statutory deadline. [[(p.1)]]

Additionally, EPA modeling projects that the 2015 caps would be insufficient to enable many areas, including the Washington region, to attain the eight-hour standard. MWAQC asks

EPA to adopt more stringent controls that would enable the Washington region to attain the eight-hour standard, and that would address fine particulates, which is another concern in protecting the health of our residents. [[(p.2)]]

Response:

See above response.

In addition, see response regarding OTC's proposal in section VI.F., below.

Comment:

On page 4579, the USEPA states that 'at full implementation of today's proposal SO_2 emissions would be reduced about 71 percent. On the same basis, NOx emissions would be reduced 65 percent.' USEPA needs to define 'full implementation' by giving a specific year. [[(0932, p.2)]]

The rule proposal does not provide, even assuming a reasonable level of local control, sufficiently stringent sulfur dioxide emission caps, start dates and restrictions on banked allowances for states to attain the fine particle standard. For New Jersey and other nearby states, the USEPA Technical Support document predicts achieving only moderate reductions in fine particle concentrations needed to attain the standard, and given the sizeable banks of sulfur dioxide allowances, even these predictions may not materialize. The USEPA cannot assume, on the basis of an early study of new local controls, which, once scrutinized, may be impractical or more costly than upwind controls, that a state can simply make up the difference. Further, there appear to be a number of optimistic assumptions being made for the 'base case' emission projections, i.e. before application of the new emission caps and new local controls, that exacerbates this situation further. [[(0928, pp.2-3)]]

Scaling back the OTC nationwide recommendations to the 25 state and DC geographic scope of this proposal for NOx, the interim NOx cap should be reduced to 1.1 million tons and advanced to 2008, to precede the attainment date for moderate ozone areas. The final NOx cap should be reduced to 0.8 million tons beginning in 2012, to precede the attainment date for serious areas. As currently proposed, the interim NOx cap would provide virtually no additional ozone benefit to New Jersey since it is based on the same level of facility emission control (0.15 lbs per million BTU) already put in place by the OTC in 2003, and by the USEPA under the recent NOx SIP Call for implementation during 2004. With the removal of the Western Region, which was not included in the NOx SIP Call, from this proposal, it is not at all clear why 18 states, included in both the NOx SIP Call and the IAQR proposal, must wait 6 years (from 2004 to 2010) for a cap level that will be effective this year. [[(0928, p.3)]]

The USEPA should impose more direct, transparent measures that will provide certainty to the impacted areas, as well as to the regulated community. Failure to do so places additional burden on the states to seek additional emission reductions from the same or other sources and creates uncertainty in private sector planning. First, the USEPA should apply the first sulfur dioxide emission cap earlier, at least by 2008, and eliminate the use of banked sulfur dioxide allowances from the Title IV trading program by 2010, so that actual emission levels must be close to or below achievable cap levels. Second, the USEPA should set stricter interim and final sulfur dioxide caps. [[(0928, p.3)]]

The Ozone Transport Commission (OTC) recently assessed these issues and adopted a Position Paper presenting more ambitious, but achievable emission cap limits. Scaling back these numbers from the national perspective under which they were developed to the 28 state and District of Columbia (DC) geographic scope of this rule for sulfur dioxide, the interim sulfur dioxide emission cap should be reduced to 2.7 million tons, with a final cap of 1.6 million tons. [[(0928, p.3)]] [[(See Docket Number 0929 for OTC Position Paper)]]

The approach of limiting regional measures to relatively less expensive controls for power plants does not cost effectively achieve the level of reductions needed to solve regional transport concerns, rather, we should cost effectively control power plants now with the best technology available today, so that we do not need to revisit the level of controls for the conceivable future, thereby providing certainty to the sector. [[(0928, p.5)]]

Response:

EPA considered a variety of factors in evaluating the source categories from which highly cost-effective reductions may be available and the level of reduction assumed from that sector. Factors evaluated include the availability of information, the identification of source categories emitting relatively large amounts of the relevant emissions, the performance and applicability of control measures, the cost effectiveness of control measures, and engineering and financial factors that affect the availability of control measures. Considering all of these factors, EPA determined that the final CAIR emissions caps and timing will achieve the greatest amount of highly cost-effective reductions on as early a schedule as is feasible. See Section IV of the CAIR NFR preamble for a detailed discussion of the engineering factors affecting timing of control retrofits, as well as a discussion of EPA's determinating regarding highly cost-effective controls.

The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

The CAIR will bring many nonattainment areas further along towards attainment, greatly reducing the amount that remains to be done. Alternatively, if EPA had tried to bring every area into attainment through the CAIR, it is likely that some over-control would have occurred that would not have been cost-effective. The EPA endeavored to strike the right balance with CAIR, especially on $PM_{2.5}$ given only 14 areas out of attainment after 2015, and we believe we have done a good job at striking that balance.

The CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the initial step of finalizing CAIR, we are requiring a very substantial reduction in interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

Next, against a backdrop of Federal actions that lower air emissions and some substantial State programs, States will develop plans designed to achieve the standards in their local nonattainment areas. EPA has not yet promulgated rules interpreting the Act's requirements for State implementation plans for $PM_{2.5}$ and ozone nonattainment areas, nor have States developed

plans to demonstrate attainment. (EPA did promulgate phase I of the ozone implementation rule in April 2004 (69 FR 23951; April 30, 2004) but has not issued phase II of the rule, which will interpret CAA requirements relating to local controls (e.g., RACT, RACM, RFP). As a result, there are significant uncertainties regarding potential reductions and control costs associated with State plans. We believe that some areas are likely to attain the standards in the near term through early CAIR reductions and local controls that have costs per ton similar to the levels we have determined to be highly cost-effective. We expect that other areas with higher $PM_{2.5}$ or ozone levels will determine through the attainment planning process that they need greater emissions reductions, at higher costs per ton, to reach attainment within the Act's time frames. For those areas, States will need to assess targeted measures for achieving local attainment in a cost-effective (but not necessarily highly cost-effective) manner, in combination with CAIR's significant reductions. Given the uncertainties that exist at this early stage of the implementation process, EPA believes this rule is a rational approach to determining the highly cost-effective reductions in $PM_{2.5}$ and ozone precursors that should be required for interstate transport purposes.

In making its determination of highly cost-effective controls, EPA modeled controls on EGUs using the IPM. The EPA based its IPM modeling on the best information that we could obtain about the state of emission control technologies. See the IPM documentation for a description of EPA's assumptions regarding performance of emission control technologies ("Documentation Summary for EPA Base Case 2004 (v.2.1.9) Using the Integrated Planning Model, October 2004" is available in the CAIR rulemaking docket and on EPA's website).

See response regarding OTC's proposal in section VI.F., below.

The EPA defined the emission reduction targets that must be met for the years 2010 and 2015.

Comment:

We believe that EPA can and must set caps that require deeper and faster emission reductions. Deeper reductions achieved on a faster timeframe would result in benefits that outpace any additional costs. We believe that EPA's proposed deadlines of 2010 and 2015 sacrifice extensive health benefits in deference to savings on compliance costs that are a fraction of EPA's estimates of the monetized benefits. [[(0941, pp.1-2)]]

We believe that EPA's proposed caps do not comply with the 'as expeditiously as practicable' requirement of the Clean Air Act. [[(0941, 03)]]

With respect to SO_2, all sources in all 29 jurisdictions are already subject to the Acid Rain Program. In addition, many Northeast states, as well as other states, are currently implementing SO_2 controls to comply with levels more stringent than the IAQR, and anticipate that affected sources will have installed SO_2 control technologies many years before the proposed 2010 deadline. These accelerated state programs - which also include more stringent SO_2 requirements - were not considered in EPA's equipment needs assessment. [[(0941, p.3)]]

We do not see why both phases of both proposed caps cannot be more stringent. The NESCAUM states cannot stress the importance of setting appropriately stringent emission caps that can act as a regulatory driver for encouraging wide-scale innovation in and commercial

application of control technologies with dramatically lower implementation costs. We have seen this dynamic occur during implementation of the NOx SIP Call, whereby costs of reductions are considerably lower than initially anticipated. The IAQR should not ignore this technology-driving dynamic. [[(0941, p.4)]]

We urge EPA to reconsider its metric for 'highly cost effective,' which is currently at the same levels as the 1997 NOx SIP Call, to take into account the impacts of inflation and technology advances. [[0941, p. 4]]

We do not agree with EPA in its approach to assess the adequacy of the IAQR reductions within the context of as-yet undeveloped or unimplemented regulations. We believe that this approach is not appropriate, as schedules, deadlines, and actual substance and language of planned regulatory actions are always subject to change - sometimes to a significant extent. We note, for example, the more than one-year delay in implementing the NOx SIP Call. [[(0941, pp.4-5)]]

We are disappointed that EPA has not proposed any contingent provisions for further ratcheting down reductions in the event further reductions are needed to address transport and meet NAAQS attainment and maintenance needs for ozone and PM-fine standards. We believe such provisions, such as the backstop approach The Western Regional Air Partnership (WRAP) adopted in its visibility program (i.e.,if states demonstrate after full implementation of the IAQR that remaining transport is preventing attainment, an automatic backstop takes effect, lowering the caps to a predetermined level), should be included in the final regulation, together with provisions aimed at ensuring that attainment can be maintained into the future. [[(0941, p.5)]]

Given the multi-pollutant programs many Northeast states have already adopted, the documented importance of caps that are set at levels stringent enough to stimulate technology innovation, and the need for ozone reductions greater than 2 ppb in order for many northeast stares to achieve the 8-hour ozone standard, we see no reason why EPA cannot require more stringent and more rapid reductions than proposed. [[(0941, p.5)]]

In order for a cap-and-trade program to be successful, the caps must be set at levels protective enough to merit environmental goals. At a minimum, the NESCAUM states urge the adoption of national caps as proposed by the Ozone Transport Commission in its Multi-Pollutant Strategy Position of the Ozone Transport Commissions, of January 27,2004. For SO_2, the interim annual cap in 2008 is 3.0 million tons (MT) and in 2012 the annual cap is 2.0 MT; for NOx, the interim annual cap in 2008 is 1.87 MT and in 2012 the annual cap is 1.28 MT. For mercury,the interim annual cap in 2008 is 15 tons, in 2012 the interim annual cap is 10 tons maximum, and in 2015 the annual cap is approximately 5 tons. [[(0941, p.8)]]

With respect to ozone, EPA's proposed NOx reductions under the IAQR essentially annualize the ozone season requirements of the NOx SIP Call. EPA has indicated that the same NOx control technologies are being relied upon for the NOx SIP Call and IAQR programs. However, the NOx SIP Call deadline for 19 of the 29 IAQR jurisdictions is May 31,2004. EPA should not need to allow an additional 3 years past attainment deadlines to allow for NOx hardware installations in just 10 states. [[(0941, p.3)]]

Based on preliminary analyses to date, the NESCAUM states believe that the proposed levels of the NOx cap levels are not stringent enough to adequately assist us in attaining the ozone standards. We refer you to the testimony and comments from the OTC to address this issue in greater detail. [[(0941, p.5)]]

Response:

To determine the CAIR emission reduction requirements, EPA generally followed the statutory interpretation and approach under CAA section 110(a)(2)(D) that was developed in the NOx SIP Call rulemaking. That is, EPA identified the emissions in each upwind State that contribute significantly to nonattainment as being those emissions that can be eliminated through highly cost-effective controls. The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

The CAIR will bring many nonattainment areas further along towards attainment, greatly reducing the amount that remains to be done. Alternatively, if EPA had tried to bring every area into attainment through the CAIR, it is likely that some over-control would have occurred that would not have been cost-effective. The EPA endeavored to strike the right balance with CAIR, especially on $PM_{2.5}$ given only 14 areas out of attainment after 2015, and we believe we have done a good job at striking that balance.

The CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the initial step of finalizing CAIR, we are requiring a very substantial reduction in interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

Next, against a backdrop of Federal actions that lower air emissions and some substantial State programs, States will develop plans designed to achieve the standards in their local nonattainment areas. EPA has not yet promulgated rules interpreting the Act's requirements for State implementation plans for $PM_{2.5}$ and ozone nonattainment areas, nor have States developed plans to demonstrate attainment. (EPA did promulgate phase I of the ozone implementation rule in April 2004 (69 FR 23951; April 30, 2004) but has not issued phase II of the rule, which will interpret CAA requirements relating to local controls (e.g., RACT, RACM, RFP). As a result, there are significant uncertainties regarding potential reductions and control costs associated with State plans. We believe that some areas are likely to attain the standards in the near term through early CAIR reductions and local controls that have costs per ton similar to the levels we have determined to be highly cost-effective. We expect that other areas with higher $PM_{2.5}$ or ozone levels will determine through the attainment planning process that they need greater emissions reductions, at higher costs per ton, to reach attainment within the Act's time frames. For those areas, States will need to assess targeted measures for achieving local attainment in a cost-effective (but not necessarily highly cost-effective) manner, in combination with CAIR's significant reductions. Given the uncertainties that exist at this early stage of the implementation process, EPA believes this rule is a rational approach to determining the highly cost-effective reductions in $PM_{2.5}$ and ozone precursors that should be required for interstate transport purposes.

Nothing in CAIR prohibits states from imposing additional controls on utilities as necessary to achieve attainment with the NAAQS.

The commenter is inaccurate in characterizing the CAIR 2009 implementation deadlines for the annual and ozone-season NOx programs as "3 years past the attainment deadlines." The ozone NAAQS attainment deadline is in 2010 and the $PM_{2.5}$ NAAQS attainment deadline is 2011. EPA analysis has shown that NOx emission reductions would take place quickly enough to assist States in achieving attainment. Additionally, EPA analysis has shown that the CAIR implementation timeline achieves these reductions as quickly as the markets for NOx emission control installation will allow. For additional discussion, see the CAIR NFR preamble and other sections of this response to comment document.

In the NOx SIP Call, EPA presented control costs in 1990 dollars (1990$). In the CAIR NPR, SNPR, and NFR, EPA presents costs in 1999$. The EPA presents EGU control costs for CAIR in 1999$ and also presents control costs for the range of costs of other programs that are referenced in CAIR in 1999$ (the Agency evaluated the cost effectiveness of CAIR emission reductions in relation to the range of costs of other programs). When EPA presents control costs from the NOx SIP Call within the CAIR, EPA presents these costs adjusted to 1999$. Thus, EPA has taken into account inflation.

The EPA uses IPM to model cost and emission impacts on the electric power sector. For the CAIR NFR, the EPA used the 2004 update of IPM. The EPA based its IPM modeling on the best information that we could obtain about the state of emission control technologies and generation technologies. See the IPM documentation for a description of EPA's assumptions regarding emission control technologies and generation technologies, "Documentation Summary for EPA Base Case 2004 (v.2.1.9) Using the Integrated Planning Model, October 2004," available in the CAIR rulemaking docket and on EPA's website. (For the CAIR NPR, the EPA used its 2003 update of IPM, which was based on the best available information that we could obtain at that time that update was developed.) In contrast, EPA modeled the NOx SIP Call using the version of IPM that was current during the development of the NOx SIP Call. Thus, in comparison to the IPM modeling that EPA did for the NOx SIP Call, EPA has taken into account technology advances.

As explained in section IV in the CAIR NFR preamble, the timing of the initial compliance phase is limited by the feasibility of installing necessary pollution control retrofits within the available time frame. EPA did move-up the $_{\text{initial NOx}}$ compliance phase from 2010 to 2009 after the CAIR proposal, however it is not feasible to accelerate the compliance schedule any further. See section IV in the NFR preamble, section VII in this RTC, and a TSD in the docket entitled "Boilermaker Labor and Installation Timing Analysis" for further discussion of the factors affecting timing of controls.

See response regarding the OTC alternative multi-pollutant control program recommendation in section VI.F., below.

The EPA modeled CAIR, assuming controls on EGUs, using the IPM. The EPA endeavored to obtain the best information available on existing State emission reduction regulations, and incorporated that information into its 2004 IPM update. See the IPM

documentation for a description of the State requirements that are included in EPA's base case modeling. ("Documentation Summary for EPA Base Case 2004 (v.2.1.9) Using the Integrated Planning Model, October 2004" is available in the CAIR rulemaking docket and on EPA's website.)

See section XV.B in this RTC document for discussion regarding the availability of the CAIR regulatory text.

The CAIR is designed to assist States in reaching attainment and will work with any States that need to take additional measures to address persistent nonattainment. At this time, it is not possible to anticipate what additional local control measures will be taken by States and localities and what their potential impact on emissions, both local and transported, would be. It would not be possible to establish "predetermined" backstop caps at this time. Should States continue to have be impacted by the interstate transport of NOx and SO2, EPA would consider further action at that time.

Comment:

The NOx and SO2 control levels and achieved emission reductions are woefully inadequate - perhaps by as much as a factor of 2 for NOx and 2.5 for SOx based on available 'highly cost effective' controls. [[(0961, p.1)]]

The electric utility units covered by the rule never become subject on a unit-by-unit basis to any additional minimum performance standard or discrete emission limits for NOx and SO2 into the future beyond their current permit levels, which are already shown inadequate in regard to regional air quality. [[(0961, p.2)]]

As a consequence, the rule is most likely to impede the regional attainment planning process by effectively blocking more realistic control agreements that would include the utility sector. Based on statutory constraints, we are very concerned that it will become very difficult for Wisconsin, or even impossible under this rule, to ensure the minimum level of emission reduction from the existing power plants in the state and region, that will be necessary to make up the attainment budget shortfall created by this inadequate program. It is unfortunate, and a detriment to the public health, that the proposal presents a stronger likelihood of regulatory and regional air quality planning failure than success. [[(0961, p.2)]]

Now that sufficient regional capacity is planned and/or installed to address prior power system reliability concerns in the near-term, EPA should investigate the adoption of budget allocation schemes for this rule that will more strongly expedite the retirement and removal of older, more polluting and less efficient capacity from the regional power system. [[(0961, p.3)]]

A major concern, beyond the projected system emission levels for NOx and SO2 contained in the proposal for the Lake Michigan region, is a relatively high level of residual direct PM-2.5 emissions from the sector projected through 2015. In addition, the proposal does not focus on the demonstrated non-mercury hazardous air pollutant concerns raised in the various sector investigations. By requiring that all power system air emissions (both HAPS and ambient pollutants) are optimally (maximally) addressed during a facility's redesign and retrofit for NOx

and SO2, utilities and the public will be provided the best and most efficient technology from this major retrofit investment. [[(0961, p.7)]]

It is in the setting of facility-specific performance standards in tandem with strong system emission limits or reduction targets expressed in emission tonnage caps that EPA has the capability to provide incentive for a multi- pollutant control posture. A multi- pollutant 'option' typically means a facility achieves an optimum level of environmental performance for all its emissions within a single redesign and retrofit effort. Performance standards can and should vary slightly based on the optimal technology fix for various fuel characteristics and the various boiler and control technology combinations. We anticipate that early year system targets (2008) should focus retrofit effort on 40-50 percent of the installed capacity (biggest units), with minimum performance standards being met by something on the order of 90 percent of the total installed capacity by the second target (2013). Units not meeting these minimum standards at that point should be scheduled for comprehensive repowering with state-of-the-art equipment by 2015 or be retired from the electrical system by a certain deadline (probably no later than 2017 - this is the second year after the 2015 final attainment demonstration deadline for PM-2.5). [[(0961, p.7)]]

A much more aggressive (maximized) Phase 2 reduction is necessary to ensure that all areas in the U.S. are able to build SIPs to attain and maintain the 8-hour ozone and PM-2.5 standards. A 2013 target (at the very latest) ensures that a 10-year PM-2.5 attainment date and a 9-year ozone attainment date (for the very worst eastern areas) can be met. [[(0961, p.9)]]

Based on an assessment of emission control need for ambient air quality and hazardous pollutant reduction needs, retrofit technology capability, prior reliability investigations and basic market factors, STAPPA/ALAPCO has crafted a set of principles for a focused multi-pollutant control effort addressing the electric power sector. Ambient air quality attainment planning needs combined with an early year target to address mercury MACT led the country's Air Management program directors to recommend a two phase strategy with an early target in 2008 and a later target in 2013. Both phases are recommended to be effective two years earlier than EPA's proposal. Wisconsin supports these timeframes because we anticipate the need to craft ozone attainment demonstrations to achieve the 8-hour ozone standard by 2010 at the latest and by 2007 at the earliest. Only a rapid effort is sufficient to support that objective. [[(0961, pp.13-14)]]

The scope of EPA's NOx and SO2 control targets fall far short of addressing the ambient air quality improvement need in the Lake Michigan region. [[(0961, p.8)]]

Assessment of the regional power system suggest that the earlier target will indeed be met most easily and efficiently with a more flexible approach that still ensures strong regional reductions before the attainment year [attainment air quality is based on a design value that is sensitive to the ambient concentrations of the 2 years preceding the attainment season]. A short-term market mechanism is one way to enable that flexibility, but there are other means to ensure similar flexibility and system control efficiency. [[(0961, p.9)]]

To ensure that emission reductions actually occur as needed for the regional and local efforts, Phase 2 targets should be less, not more, flexible. [[(0961, p.9)]]

STAPPA has set only broad ranges for NOx and SO2 as an interim 2008 milestone. Their 2013 second phase numbers are also range-based, effectively reflecting the divergent opinions from around the country of feasible and achievable targets. The important point is that these ranges as a whole fall well below EPA's proposal, in both Phases and further suggest the retrofit effort can be accomplished on a much faster schedule. [[(0961, p.11)]] [[(See docket number 0961, pp. 12-13, for a detailed discussion of Wisconsin's own assessment of NOx and SO2 emission reductions)]]

Response:

See above responses regarding the CAIR control levels and timing. Also see above responses regarding the relationship between CAIR and the ozone and $PM_{2.5}$ attainment dates.

While the commenter is correct that the failure of states to impose emission limits on EGUs in the past has contributed to regional transport issues it is not the case that source specific emission limits are needed to reduce emissions from EGUs. While CAIR does not impose a direct emission limit on units, the effect of CAIR will be to restrict emissions from EGUs. Moreover, EPA has not prohibited states from imposing individual unit enforceable emission limits on individual sources. While EPA has provided states with the option of participating in its trading program to fulfill their obligations under CAIR, and has provided one model for allocating allowances to individual units, states remain free to adopt an alternative allocation method or opt to not participate in EPA's trading program. For the reasons discussed in section VIII in the CAIR NFR preamble and in section XIII in this RTC, EPA believes that its model allocation system is appropriate. However, due to federalism concerns it is inappropriate for EPA to mandate a source by source allocation system. Such decisions are properly left to the States.

With respect to the commenter's suggestion that state statutory constraints may provide an impediment to obtaining additional reductions from EGUs to meet nonattainment obligations, EPA is aware of no such restrictions. CAIR is only intended to address a State's 110(a)(2)(d) obligations and does not address a State's obligations to bring nonattainment areas in the State into attainment. If a State needs additional controls from EGUs to meet its nonattainment obligations nothing in CAIR prohibits the state from obtaining such reductions from EGUs. While individual states must interpret their State laws to determine what additional obligations they can impose on sources, CAIR does not create the type of regulatory system that should generally trigger state prohibitions on "more stringent regulation." First, CAIR does not set specific regulatory obligations for EGUs and, indeed, States are free to obtain CAIR reductions from non-EGUs. Second, nothing in CAIR relieves a State of its other obligations under that CAA and States must make appropriate changes to state law to meet such obligations.

EPA believes that the CAIR reductions will provide States with nonattainment problems significant assistance in addressing those problems.

Comment:

While we do applaud any effort to reduce emissions of harmful pollutants, these reductions are not deep enough to bring all areas into attainment, and they come too late to meet existing Clean Air Act deadlines. Full-attainment could be better reached through the faithful implementation and enforcement of the existing Clean Air Act, which would allow an SO_2 cap of

2 million tons by 2012 and a NOx cap of 1.25 million tons by 2010. Emissions from power plants should be reduced to levels no less stringent than these national caps. This is particularly true for SO_2, in that SO_2 reductions cost less than half as much as those for NOx. Thus, we urge you to strengthen the emissions caps under the proposed rule and require these reductions at an earlier date than is currently proposed. This will allow states a reasonable chance to attain the $PM_{2.5}$ and ozone NAAQS on schedule. [[p.2]]We believe that the EPA should be providing a stronger program that will allow states to attain both the ozone and fine particle health standards expeditiously as designed under the existing Clean Air Act. Again, we urge you to strengthen the emissions caps and shorten the timelines for both nitrogen oxides and sulfur dioxide in the proposed rule. [[p.3]]

The Adirondack Mountain Club and the New York-New Jersey Trail Conference urge you to finalize and begin implementation of the IAQR (transport rule) with the changes that we have discussed herein by September of 2004. There is no reason to delay the finalization of the IAQR beyond September of 2004. [[p.5]]

Response:

See above responses regarding CAIR control levels and timing. Also see above responses regarding the relationship between CAIR and air quality attainment dates. The EPA has worked as quickly as possible to finalize CAIR to help States with attainment of the $PM_{2.5}$ and 8-hour ozone standards.

Comment:

Assuming that the emission caps are implemented in a timely fashion, the level of control in the proposed CAIR is the second issue of critical concern to the MDEQ. The EPA modeling of the CAIR indicates all 8-hour ozone nonattainment areas in Michigan will attain the standard by 2010 without CalR controls in place, by virtue of implementation of the NOx SIP Call rules, Tier II requirements, and other upcoming federal rules. However, similar 'base case' modeling done by Lake Michigan Air Directors Consortium (LADCO) indicates that existing federal control programs will not completely solve the ozone problem in Michigan. LADCO's modeling also indicates that the level of control-proposed in the CalR will not completely remedy Michigan's ozone nonattainment by 2010. Modeling of $PM_{2.5}$ by both the EPA and LADCO indicates that at the current levels of controls in the proposed CAIR, Michigan will not reach attainment with the National Ambient Air Quality Standards (NAAQS). If such regional controls are to be effective, they should achieve reductions, in concert with appropriate local controls, to achieve attainment of the ozone and $PM_{2.5}$ standards. [[(p.4)]]

The MDEQ believes that the levels of emission reductions in the proposed CalR should be increased to provide for more assurance of attaining the 8-hour ozone and $PM_{2.5}$ standards when combined with local or in-state reductions. [[(p.4)]]

Response:

See above responses regarding CAIR control levels and timing. Also see above responses regarding the relationship between CAIR and air quality attainment dates.

Comment:

Cap Stringency: Delaware is not convinced that the IAQR caps are stringent enough to resolve regional transport to the point of enabling jurisdictions to achieve attainment with local controls. Delaware supports the national cap levels that result through the application of the OTC multi-pollutant principles. [[See docket number 1886, p. 3 for table showing OTC National Cap Numbers.]] [[p. 3]]

Mix of NOx and SO2 Reductions: EPA is seeking comment on what mix of Phase I NOx and SO2 reductions represents the proper balance between the goals of reducing $PM_{2.5}$ transport and ozone transport in the near term. Delaware feels that this is difficult to answer based on the information presented because EPA utilized different models for ozone and $PM_{2.5}$, and because the meteorological episodes are completely different. A consistent modeling approach between the two pollutants would be needed to determine the answer. In any case, both NOx and SO2 reductions must mitigate the impacts of transport in the timeframe of the $PM_{2.5}$ and Ozone attainment dates as indicated in comments under 'Regulatory Timeframe' above. [[See docket number 1886, p. 2 for comments on 'Regulatory Timeframe'.]] [[p. 5]]

Response:

See above responses regarding CAIR control levels and timing. See above responses regarding the relationship between CAIR and air quality attainment dates. See the CAIR NFR preamble and section XII in this RTC regarding EPA's air quality modeling.

Comment:

The Council urges EPA to return to prior analyses and reduce the Sox cap to 2 million tons and the NOx cap to 1.25 million tons by 2009. Not only will this save thousands of lives and improve life for millions, but it provides greater regulatory certainty and construction efficiencies to the power sector. [[p.2]]

The Council cannot accept the reductions contemplated in this regulation as adequate. EPA's own modeling analysis showed that after full implementation of planned reductions of NOx in 2018, the Philadelphia region will remain in nonattainment for the 8-hour ozone standard. After full implementation of the $PM_{2.5}$ reduction measures in 2018, the Pittsburgh area will remain in nonattainment of that health standard. [[p.2]]

Response:

See above responses regarding CAIR control levels and timing. See above responses regarding the relationship between CAIR and air quality attainment dates.

Comment:

EPA's own analysis of IAQR (pp. 4636-4637 and pp. 4639-4640) finds that even with full completion and compliance of the IAQR's meager requirements that there are nonattainment areas unable to achieve legal goals in time. [[p.3]]

The Bush administration/EPA IAQR appears - again - to be constructed to achieve the rollbacks measures and goals created under the proposed - and universally opposed - Clear Skies legislation. IAQR does, in fact, shortchange public health nationally. Current CAA requirements 'do it better'. IAQR delays sulfur and nitrogen oxide reductions by 5 years while allowing an increase in allowable limits of sulfur and SO_2 by 17.5 percent.

EPA could ameliorate some of the problems with this IAQR by:

- reducing the annual control region SO_2 cap to 1.8 million tons SO_2;

- reducing the NOx cap to 1.25 million tons nationwide; and

- require emissions reductions compliance in one phase only, by 2009. [[p.3]]

Response:

See above responses regarding CAIR control levels and timing. See above responses regarding the relationship between CAIR and air quality attainment dates. With respect to the contention that other existing control regimes will result in quicker reductions, EPA notes that it is not altering any other programs in the CAIR final rule.

Comment:

The rule needs to go further, quicker to reduce particulate matter pollution. EPA's proposed reductions will not get us where we need to go to improve visibility in the park or to reach attainment deadlines. The rules do not even come fully into effect until 2015, six years after the air in nonattainment areas is supposed to be cleaned up. We call on EPA to require greater reductions, so that annual sulfur dioxide emissions do not exceed 2 million tons per year and to require that these cuts be made by 2009, so that the states can meet their clean-up deadlines and fewer people will live in areas where it is unhealthy to breath. [[p.2]]

Response:

See above responses regarding CAIR control levels and timing. See above responses regarding the relationship between CAIR and air quality attainment dates. See also responses elsewhere in this RTC and in the preamble.

Other commenters include: Debra A. Jacobson; Colin High; Angus Duncan; and, Julie Crenshaw. See docket number 1248 for complete list of organizations included in this comment letter

Comment:

We recommend that EPA strongly consider the views of the Ozone Transport Commission (OTC) and many State and local officials who have advocated lower caps for NOx and sulfur dioxide emissions than the limits contained in the IAQR. For example, the Executive Director of the OTC presented testimony at EPA's public hearing on February 25, 2004 and stressed that: 'the NOx and SO2 reductions and timeline proposed in the IAQR are not deep enough to enable states to reach attainment, nor are they soon enough to meet the required deadlines.' Allowing excessive emissions of NOx and SO2 adversely affects public health and the environment and fails to internalize the societal costs of these adverse impacts on the generators that are the major sources of these emissions. [[(p.3)]]

Response:

See responses regarding OTC's comments in this RTC document.

Comment:

On page 32693, footnote 5, EPA states that its 2010 emission projections did not account for Reasonably Available Control Measures (RACM), Reasonably Available Control Technology (RACT), or Inspection and Maintenance requirements in any new 8-hour ozone or $PM_{2.5}$ nonattainment areas. Nevertheless, EPA does not believe that this 'distorts' its proposed findings 'because the aggregate reduction in [nitrogen oxide] (NOx) and [sulfur dioxide] (SO_2) emissions from these measures would be at most a small percentage of overall emissions.' EPA admits that emission reductions from local measures in 2010 are so negligible that including them would not affect its modeling results. This underscores the need for more stringent national reductions so states can attain the 8-hour ozone and $PM_{2.5}$ standards. [[(p.3)]]

Response:

See responses elsewhere in this RTC document.

Comment:

As stated in previous comments submitted pursuant to the January 30,2004 NPR, West Virginia generally supports the proposed rule's approach to address regional interstate transport of fine particulate matter and ozone. However, DAQ has serious concerns regarding the efficacy of EPA's proposed program in helping states and local communities achieve attainment status in a timely manner under the National Ambient Air Quality Standards (NAAQS), with CAIR emission reductions scheduled after NAAQS attainment dates. [[(p.2)]]

Because of the complexity and scope of the CAIR, DAQ notes that it is difficult for individual states to analyze nationwide modeling performed for the related cap and trade programs. It is unclear whether caps have been set at appropriate levels. However, it is essential for EPA to ensure that NOx and SO2 caps are sufficiently stringent so that most states can achieve attainment status for ozone and $PM_{2.5}$ under the CAIR. [[(p.4)]]

Response:

See above responses regarding CAIR control levels and timing. See above responses regarding the relationship between CAIR and air quality attainment dates.

Comment:

In the supplemental June 10 proposal, EPA states that its 2010 emission projections did not account for Reasonably Available Control Measures (RACM), Reasonably Available Control Technology (RACT), or Inspection and Maintenance requirements in any new eight-hour ozone or $PM_{2.5}$ nonattainment areas. (69 FR 32693, Footnote 5) Nevertheless, EPA does not believe that this 'distorts' its proposed findings 'because the aggregate reduction in [nitrogen oxide](NOx) and [sulfur dioxide] (SO_2) emissions from these measures would be at most a small percentage of overall emissions.' EPA admits that emission reductions from local measures in 2010 are so negligible that including them would not affect its modeling results. This underscores the need for more stringent national reductions so that states can attain the health-based 8-hour ozone and $PM_{2.5}$ National Ambient Air Quality standards (NAAQS). [[(p.2)]]

The Commonwealth's comments on EPA's January 30, 2004 proposed Interstate Air Quality Rule published at 69 FR 4566 supported national emission caps and phase in schedules for EGUs that provide for achievement of more significant emission reductions than those in the current EPA proposal and suggested earlier deadlines for those reductions. Achievement of these

additional reductions by earlier deadlines is essential in order for Pennsylvania and other states with nonattainment areas to meet the eight-hour ozone and $PM_{2.5}$ attainment deadlines and provide protection of the public health. Pennsylvania continues to endorse a program that will result in stringent national emission reductions from EGUs by earlier deadlines. [[(p.3)]]

The Department supports the following multi- pollutant position adopted by the Ozone Transport Commission in January 2004 for the EGU sector. [[(p.3)]] [[(See table on p. 3 for National Emission Caps proposed by Ozone Transport Commission)]]

Response:

See responses elsewhere in this RTC document.

Comment:

Maryland and other members of the Ozone Transport Commission (OTC) adopted a Multi-Pollutant Position on January 27, 2004. The OTC Position calls for tougher and quicker reductions than those proposed in the CAIR. The reductions called for in the OTC Position are cost-effective and achievable and provide even greater net benefits when compared to those in the CAIR. The net benefits from implementing a strengthened CAIR (using the caps in the OTC Position) would outweigh costs by a factor of more than 13. [[(1745, p.2)]]

EPA's proposed CAIR is insufficient for Maryland to attain the 8-hour ozone or $PM_{2.5}$ standards by 2010. [[(1746, p.8)]]

EPA finally recognizes in the proposed CAIR the argument that Maryland has put forth for at least ten years that interstate transport is the root cause of nonattainment in the Maryland and mid- Atlantic region and that no level of local controls, no matter how stringent, will allow Maryland's nonattainment areas to reach attainment of the 8-hour ozone or $PM_{2.5}$ standards by 2010. [[(1746, p.8)]]

Maryland's comments to the proposed CAIR must be based on working backwards from the expected attainment dates for the 8-hour ozone and $PM_{2.5}$ standards. Maryland's attainment demonstration State Implementation Plan (SIP) for the 8-hour ozone and $PM_{2.5}$ standards will be due in 2007 and 2008 absent any delays from litigation over the Rule. However, even if implemented on time, the proposed CAIR is not sufficient for Maryland to reach attainment of the 8-hour ozone and $PM_{2.5}$ standards in 2010. The highly cost effective controls on electric generating unit (EGU) sources of NOx and SO2 in the 29 states and the District of Columbia that EPA has identified that significantly contribute to Maryland's nonattainment of the 8-hour ozone and $PM_{2.5}$ standards are simply not enough to address the transport component of Maryland's air quality problems. [[(1746, p.8)]]

This sense of urgency is missing in the proposed CAIR. Maryland, therefore, supports more stringent and earlier interim SO_2 caps because SO_2 is the primary constituent of $PM_{2.5}$ in the East. Specifically, Maryland supports an interim SO_2 cap level of 3.0 million tons per year in 2008, and a final SO_2 cap of 2.0 million tons per year in 2012. Maryland also supports an interim NOx cap of 1.87 million tons per year in 2008, and a final cap of 1.28 million tons per year in 2012. These caps are consistent with the OTC's multipollutant position. All states, including Maryland, will see a substantial return, in terms of health benefits, on the investment in pollution

controls on coal-fired plants, and the sooner these emissions reductions occur, the sooner we will realize the accrual of those benefits, including the better health of its residents. [[(1746, p.8)]]

The $_{OTC\ NOx}$ caps are highly cost-effective and achievable. [[(1746, p.15)]]

Our resolution completed a final target for the NOx number of 1.28 million tons by 2012. The basis for this was a firm commitment to the attainment timelines for existing serious nonattainment areas. Our number correlates to an effective emission rate for these sources of about 0.11 to 0.13 lbs/million BTU (MMBTU) for sources over 25 MW. [[(1746, p.15)]]

Best Available Control Technology (BACT) is now approximately 0.08 lbs/MMBTU based on Selective Catalytic Reduction (SCR), and would result in a national emissions cap of about 800,000 to 1,000,000 tons annually. Further, an emission rate of 0.10 -0.12 lbs/MMBTU is being agreed to by utilities as part of suit settlements. The utility industry examined various control levels and found that below 0.15 lbs/MMBTU started to require controls and a rate of 0.12 lbs/MMBTU was technically and economically feasible, while 0.06 lbs/MMBTU required significant shutdown of older facilities and switching to natural gas. The 0.11 to 0.13 lbs/MMBTU effective rate allows ample room for trading and not installing controls on smaller units, although they will remain part of the inventory and subject to the cap. [[(1746, p.15)]]

Moderate 8-hour ozone areas need to attain by 2010. Accordingly, an interim phase is suggested. This interim cap of 1.87 MT is comparable to Carper's proposal only 1 year earlier and identical to EPA's 'Straw Proposal.' This interim cap number is based, in part, on technical and reasonable feasibility of Phase I of the Clear Skies Initiative (CSI), which represents NOx SIP Call controls, run annually, plus about half the controls necessary to get to the CSI 2018 cap. [[(1746, p.15)]]

The OTC NOx Caps are highly-cost effective, achievable and provide monetized benefits that outweigh the costs by a factor of over 13:1. Additional technical support for the OTC position was submitted by OTC as part of its comments on the CAIR/IAQR. [[(1746, p.16)]]

The OTC 3 million ton cap is the same as that in the proposed Clear Skies Initiative (CSI) legislation but is phased in much earlier (2008 versus 2018). Scrubbers on many units will be required, but will allow for the use of indigenous coal. If the SO_2 cap level is not low enough to require scrubbers, we are exacerbating the importation of low sulfur coal to meet the air targets - this also has an adverse effect on control options for Hcl and mercury emissions. The OTC 2 million ton cap in 2012 requires scrubbers on more units (Michael Bradley Associates, 1999), but not all of them. Scrubbers easily achieve a 90-95 percent reduction from uncontrolled sulfur levels in most coal. [[(1746, p.16)]]

Regardless of the sulfur content of the coal, a 0.2 lbs/MMBtu emissions rate can be achieved using scrubbers. The proposed CSI 4.5 million ton cap in 2010 translates to a 1.5 lbs/MMBtu emission rate. The OTC Phase I cap of 3 million ton would correlate to a 0.67 lbs/ MMBtu rate, while a 2 million ton cap equates to a 0.45 lbs/MMBtu rate. [[(1746, p.16)]]

The OTC Position is based upon the concept that the caps in any multi-pollutant proposal must be sufficiently aggressive to allow states like Maryland a reasonable chance to attain the new

ozone and fine particulate standards and to meet our regional haze goals. We believe the OTC Position is technically sound, achievable and cost-effective. [[(1746, p.16)]]

Maryland appreciates the ambitious emissions reduction goals in the CAIR. Although Maryland believes the goals are not sufficiently ambitious, it is important to put the CAIR goals or, for that matter, the goals of any of the multi-pollutant legislative proposals (Clear Skies, Jeffords, Carper) in perspective. The highly touted Acid Rain Program achieved a nationwide 35 percent reduction in SO_2 emissions from EGUs between 1990-2002 (15.7 million tons to 10.2 million tons). For the first phase in 2010, the CAIR is proposing a further 40 percent reduction in SO_2 emissions by 2010 (down to a 3.9 million ton cap) more in percentage terms in about half the time. (The states covered by the CAIR comprise about 87 percent of total nationwide EGU S02 emissions). Finally, for the second phase in 2015, the CAIR is proposing more reductions down to a 2.7 million ton cap. [[(1746, p.16)]]

Maryland appreciates the investment burden on the utility industry - these cap levels will require the eventual installation of flue gas desulfurization (FGD) on approximately 150,000 megawatts of coal-fired capacity in the CAIR states. But we cannot lose sight of the huge benefits to society, both in dollars and health, of the upcoming investment. For every dollar spent on FGD, society realizes about twenty dollars in benefits. [[(1746, p.16)]]

The NOx cap should be adjusted based on comparative marginal costs of reductions. [[(1746, p.17)]]

Ozone is a problem only in summer, and its design values hardly change with the implementation of this rule. This rule is supposed to take care of air pollution transport, and, in its own analysis, EPA shows no significant ozone benefits. EPA appears to be suggesting that summertime ozone is no longer transported. Since ozone remains essentially unchanged, it appears that utilities will be able to comply with this regulation merely by using what are now summertime NOx scrubbers year-round. [[(1746, p.17)]]

EPA anticipates no banking of credits prior to the implementation of the NOx cap. EPA has set the bar far too low if it results in little improvement in ozone and no incentive to bank credits. One of the motivators for a cap and trade program is supposed to be that polluters scrub early and often to bank credits ahead of the rule's implementation. If the cap were set lower, utilities would have a stronger incentive to scrub more of their emissions ahead of time, possibly giving Maryland benefits before the 2010 and 2015 deadlines suggested in this rule. [[(1746, p.17)]]A more reasonable way to set the NOx cap (and the SO_2 cap, for that matter) would be to take the desired emissions reduction, and determine the point at which the marginal cost for further NOx reductions from power plants and industrial stacks equals the marginal cost for additional 'local' reductions, keeping in mind the goal that must be met. The required reductions would be achieved by a combination of 'local' and regional reductions in NOx and SO2. Some highly cost-effective 'local' programs would then be implemented regionally, and the overall cost for all concerned would come down. The combined effects of regional implementation of what were formerly local programs and a tighter cap on NOx from point sources would produce a larger benefit to more people at a reasonable cost. This approach would also work for SO_2. [[(1746, pp.17-18)]]

Response:

See above responses regarding CAIR control levels and timing. See above comments regarding the relationship between CAIR and air quality attainment dates. See responses elsewhere in this RTC regarding banking and incentives for early reductions. See section II in the RTC regarding statutory approach. See elsewhere in this RTC, as well as the CAIR NFR preamble, for discussion of air quality modeling.

Comment:

The Ozone Transport Commission (OTC) recently assessed these issues and adopted a Position Paper (Enclosure B) presenting more ambitious, but achievable emission cap limits. Scaling back these numbers from the national perspective under which they were developed to the 28 state and District of Columbia (DC) geographic scope of this rule for sulfur dioxide, the interim sulfur dioxide emission cap should be reduced to 2.7 million tons, with a final cap of 1.6 million tons. [[(p.7)]] [[(See pp. 10-14 for OTC's Position Paper)]]

Similarly, scaling back the OTC nationwide recommendations to the 25 state and DC geographic scope of this proposal for NOx, the interim NOx cap should be reduced to 1.1 million tons and advanced to 2008, to precede the attainment date for moderate ozone areas. The final NOx cap should be reduced to 0.8 million tons beginning in 2012, to precede the attainment date for serious areas. As currently proposed, the interim NOx cap would provide virtually no additional ozone benefit to New Jersey since it is based on the same level of facility emission control (0.15 lbs. Per million BTU) already put in place by the OTC in 2003, and by the USEPA under the recent NOx SIP Call for implementation during 2004. With the removal of the Western Region, which was not included in the NOx SIP Call, from this proposal, it is not at all clear why 18 states, included in both the NOx SIP Call and the IAQR proposal, must wait 6 years (from 2004 to 2010) for a cap level that will be effective this year. [[(p.7)]]

Response:

See responses elsewhere in this RTC.

Notes:

Docket number 1799 is the cover letter. Also see docket number 1800 (Attachment). Docket 1759 is a duplicate of docket 1800.

Comment:

The final NOx and SO2 system control levels and achieved emission reductions are inadequate by a very large factor and therefore impede the development of regional attainment plans [[(1799, p.2)]]

The EGUs in the region covered by the rule, including those theoretically covered by BART, never become subject on a unit-by-unit basis to any updated minimum performance standards or absolute emission limits for NOx and SO2 into the future even though many of those units are over a half century old and still significantly impact regional air quality during the worst episodes. [[(1799, p.3)]]

The emission caps are set at 50 percent and 65 percent reduction in 2010 and 2015 respectively. However, due to a large bank of allowances, the phase II levels will not actually be

reached until several years later. Wisconsin contends the percent reduction will not be sufficient to reach attainment at face value and therefore the percent reduction for both NOx and SO2, should be higher. This reduction should be reflected in higher retirement ratios for the title IV allowances. EPA has demonstrated that available local controls will be insufficient to address attainment in combination with CAIR. [[(1800, p.1)]]

CAIR does not address the lack of incentives to retire older less efficient EGUs. We anticipate that the most frequent usage of these relatively dirtier and less efficient facilities is exactly during peak demand periods often associated with high ozone episodes. CAIR's basic structure, based on annual average rather than peak period emissions levels, significantly reduces states' capability to ensure an optimally controlled power system based on the direct air quality improvement need. As such, the structure does not blend well with regional attainment demonstration for ozone and will likely force regional limits based on shorter duration periods or specific emission rate limitations which will shortchange the rules intended flexibility. CAIR should include a provision similar to the proposed Clean Power Act of 2003, S.366, also known as the Jeffords Bill. The Jeffords Bill proposes that beginning on January 1, 2014, or 40 years after the beginning of generation at a facility (whichever date is later), the facility is subject to emissions limitations reflecting best available control technology (BACT) on a new source facility of the same generating capacity. BART is an example of the application of the BACT type assessment to older units that would slowly apply to early NSPS units as they age into the future. Alternately, the CAIR program could depend on the much more stringent average reduction levels, shown cost effective, than those proposed which were recommended in our prior comments. That approach provides for greater unit-by-unit control investment optimization, but still ensures that the mentioned best available controls are accounted for within the broader power systems. To accomplish this end, Phase II limits would have to be set between 80 percent-to-85 percent control (from 2002 baselines) for NOx and SO2 rather than the -65 percent proposed. To reach that average control level, utilities would need to invest in some level of optimized control on all or almost all units. Under that structure, a banking scheme, with appropriate flow control for older allowances, makes far more sense than under the current proposal. [[(1800, p.7)]]

Response:

See responses elsewhere in this RTC as well as in the CAIR NFR preamble. While states are free to set unit specific caps as suggested by the commenter, EPA believes that it is inappropriate to require states to set such caps or to directly regulate such units.

Comment:

[[CATF Group]] filed comments with EPA on the IAQR dated March 30, 2004 ('CATF Group IAQR Comments'). In those comments, we argued, among other things, that the Clean Air Act requires EPA to require tighter and earlier emission caps than proposed. EPA's supplemental CAIR proposal has not corrected that fundamental deficiency, and therefore continues to be unlawful and arbitrary and capricious. We therefore reaffirm the CATF Group IAQR Comments and incorporate them herein by reference. [[p. 2]]

EPA's new and 'clarified provisions do not, however, include any attempt to correct the serious shortcomings of the initial IAQR most notably, the inadequacy of the levels and timing of the emission caps. EPA must require deeper reductions than proposed, and must require them

sooner than proposed. They are technically and economically feasible, and are required under the Act and governing regulatory precedent and policy. Accordingly, we reiterate that EPA must:

- reduce the annual control region SO_2 cap to about 1.84 million tons (approximately equivalent to a 2 million ton nationwide cap);

- make the SO_2 reductions effective in one phase, by the beginning of 2010;

- reduce the annual control region NOx cap in two phases to about 1.04 million tons (approximately equivalent to a 1.25 million ton nationwide cap); and

- accelerate the second phase of the NOx reductions to 2012. [[pp. 3-4]]

[[See docket number 1762, pp. 23-36 for extensive discussion of this issue.]]

Power Plant Emissions Endanger Public Health and Welfare and Must be Substantially Reduced: In our CATF Group IAQR Comments, we described the substantial and well documented impact of power plant emissions of NOx and SO2 on public health and the environment. We will not repeat those comments here, but do wish to bring several recent developments to the Agency's attention. [[p. 20]]

[[See docket number 1762, pp. 20-22 for discussion of 'recent developments.']]

EPA's Proposed CAIR Reductions are Too Little, Too Late: In the CATF Group IAQR Comments, we argued that EPAs proposed NOx and SO2 emission caps violate the Clean Air Act and controlling regulatory precedent since greater reductions are feasible and highly cost effective, and can be obtained earlier. EPA must tighten both the stringency and the timing of the proposed caps. The Clean Air Act requires, and the record abundantly supports, earlier and more substantial NOx and SO2 reductions from the electric power sector, as these are necessary, feasible and highly cost-effective. [[p. 23]]

In conclusion, EPA's proposal is not sufficiently stringent or promt to adequately protect public health or to provide timely and adequate emission reductions to allow nonattainment areas to achieve attainment of the PM and ozone NAAQS as expeditiously as practicable. EPA must end the long delay in adequately cleaning up power plant emissions by finalizing a stronger rule as soon as possible. Specifically, we urge the Agency to issue a rule by October 31, 2004 that includes CATF's adjustments to EPA's IAQR/CAIR proposal. [[pp. 43-44]]

Responses:

See responses elsewhere in this RTC document.

Comment:

Second, we believe that EPA's proposed levels of emissions reductions, particularly with respect to nitrogen oxides (NOx), are inadequate to mitigate transported ozone and ozone precursors in the Northeast U.S. A more adequate remedy for EPA's finding of significant contribution under section 110 of the Clean Air Act would be final NOx cap levels consistent with the Multi- Pollutant Strategy of the Ozone Transport Commission of January 27, 2004 and the

State and Territorial Air Pollution Program Administrators/Association of Local Air Pollution Control Officials' (STAPPA/ALAPCO's) May 7, 2002 Principles for a Multi-Pollutant Strategy for Power Plants, as further elucidated in its March 15, 2004 analysis of those principles. [[(1733, p.1)]]

EPA's proposed cap levels, as identified in the January 30, 2004 NPR, are inadequate remedies for a section 110 (a)(2)(D) finding under the Clean Air Act for the Northeast. In order for the NESCAUM states to be able to attain and maintain the ozone NAAQS, more stringent reductions should be adopted, particularly for nitrogen oxides (NOx), According to EPA, as a result of the Transport Rule as proposed, many nonattainment areas in the Northeast will achieve air quality improvements on the order of one part per billion of ozone or less, and will not achieve attainment. We believe that greater reductions are necessary. EPA can and must set a more stringent SO_2 cap that is still highly cost effective and will achieve greater air quality benefits EPA's economic analyses indicate that the program is relatively inexpensive. Final cap levels should be consistent with the Multi-Pollutant Strategy of the Ozone Transport Commission of January 27, 2004 and the State and Territorial Air Pollution Program Administrators/Association of Local Air Pollution Control Officials' (STAPPA/ALAPCO's) May 7, 2002 Principles for a Multi-Pollutant Strategy for Power Plants, as further elucidated in its March 15, 2004 analysis of those principles. [[(1735, p.2)]]

Response:

See responses regarding CAIR control levels and timing above. Also see responses regarding the relationship between CAIR and the air quality attainment dates. See responses regarding statutory approach in this RTC. See response regarding the STAPPA/ALAPCO suggested alternative multipollutant control program in this RTC.

Comment:

The Department is troubled by EPA's failure to conduct an analysis that demonstrates that the IAQR would sufficiently reduce the impacts of interstate transport. EPA's own analysis shows many areas along the I-95 corridor remain in nonattainment after full implementation of the IAQR. See Enclosure 2 which displays EPA's modeling outputs that were used in support of the proposed Clear Skies Act 2003 and the IAQR Preamble. [[(p.3)]] [[(See docket number 0747, p.20, for Enclosure 2)]]

The Department notes that EPA has failed to develop federal ozone measures as it was required to do under Clean Air Act (CAA) section 183. Because of this, many cost effective ozone controls measures have not yet been implemented across the United States. Among other things, EPA has failed to both perform periodic updates of control techniques guidelines used to develop reasonably available control technology measures and promulgate regulations to control volatile organic compound emissions from categories of stationary sources and consumer or commercial products. Even though EPA has not done these things, many states in the OTC have adopted additional ozone control rules which the Department believes would guide EPA in meeting its obligations under CAA section 183. If EPA were to fully comply with its CAA section 183 obligations in conjunction with a reformed and more aggressive IAQR, greater reductions in ozone would be achieved. [[(p.4)]]

Response:

See responses above regarding CAIR control levels and timing.

The comment regarding CAA section 183 is not relevant to CAIR.

Comment:

The Illinois Environmental Protection Agency (Illinois EPA) appreciates this opportunity to comment on the U.S. Environmental Protection Agencys (U.S. EPAs) Supplemental Proposal for the Rule to Reduce Interstate Transport of Fine Particulate Matter and Ozone referred to herein as the Clean Air Interstate Rule. On March 30, 2004, Illinois EPA commented on U.S. EPAs proposed Interstate Air Quality Rule, as published on January 30, 2004 (69 FR 4566). In those comments, Illinois EPA fully supported U.S. EPAs efforts to reduce the levels of transported pollutants, and we urged U.S. EPA to move forward with an aggressive national control program to reduce interstate transport of ozone and fine particulate matter. We expressed concerns, however, regarding the shortcomings of the proposed Interstate Air Quality Rule, and we urged U.S. EPA to amend its proposed rules to provide greater regional reductions of nitrogen oxides (NOx) and sulfur dioxide (SO_2) in a time frame that is consistent with expected attainment deadlines for both the 8-hour ozone and fine particulate matter National Ambient Air Quality Standards (NAAQS). Unfortunately, the proposed Clean Air Interstate Rule does not address these concerns. We again urge U.S. EPA to amend its proposed rules in a manner that will provide greater regional reductions of NOx and SO2 in a more expeditious time frame. Illinois EPA considers further reduction of these emissions from fossil fuel fired power plants to be practicable, warranted, cost-effective and long overdue. [[(p.1)]]

Response:

See responses above regarding CAIR control levels and timing above. Also see responses regarding the relationship between CAIR and the air quality attainment dates. See also section III in the CAIR NFR preamble, and section I in this RTC.

Comment:

Although EPA's proposed IAQR will reduce power plant emissions, it does not go far enough or fast enough. As these comments will show (see CATF alternate analyses set forth infra in Section V hereof), more can be done to protect public health and to allow states to achieve attainment and it can be done in a feasible, cost effective manner. Therefore, EPA must:

-reduce the annual control region SO_2 cap to about 1.84 million tons (approximately equivalent to a 2 million ton nationwide cap);

-make the SO_2 reductions effective in one phase, by 2009;

-reduce the annual control region NOx cap in two phases to about 1.04 million tons (approximately equivalent to a 1.25 million ton nationwide cap);

-accelerate the second phase of the NOx reductions to 2012. [[pp. 2-3]]

EPA must tighten both the stringency and the timing of the proposed caps. The Clean Air Act requires, and the record abundantly supports, earlier and more substantial NOx and SO2 reductions from the electric power sector, as these are necessary, feasible and highly cost-

effective. EPAs selection of NOx and SO2 regional cap levels is arbitrary and capricious and fails to ensure attainment as expeditiously as practicable consistent with Section 172 (a) of the Act, even in conjunction with additional state and local control measures that are more costly, difficult and less readily achievable. Although the Agency purports to base its chosen level on the approach to cost effectiveness used in the NOx SIP Call, it does not do so. In fact, EPA does not determine any level of highly cost effective reductions for SO_2, but rather simply pre-selects a control level, and then attempts to justify it on general and ill-defined cost-effectiveness grounds. This is not the approach that EPA used in the NOx SIP Call. Rather, it appears that EPA simply designed its IAQR proposed control level to approximate those contained in the Bush administrations Clear Skies legislative proposal. Implementing the current Clean Air Act based upon, and constrained by, a not yet enacted legislative proposalrather than the requirements of the Act and sound analysis and datais the essence of arbitrary action. EPA must apply the approach to determining an appropriate control level that it actually used in the NOx SIP Call. Application of that approach leads to a determination that highly cost-effective controls are those that achieve the greatest feasible emission reductions but cost on average up to $2000 per ton of SO_2 removed and up to $2500 per ton of NOx removed. As our analysis discussed infra in Section V [[See pp. 32-37 of docket number 0742 for Section V]] will demonstrate, regional annual control caps for power plants of 1.84 million tons for SO_2 and 1.04 million tons for NOx are well within these limits for highly cost-effective controls EPA states in its IAQR proposal that it is important to address transport as early as possible. We agree completely. But EPAs proposal does not do that. EPAs proposed 5-year delay in fully implementing the SO_2 cap is particularly unsupportable. States must achieve the $PM_{2.5}$ NAAQS as expeditiously as practicable, but no later than late 2009 or early 2010. Because compliance is measured by a 3 year average value, controls should be largely in place in 2006-07, long before EPAs proposed 2015 IAQR implementation date. Such delay is not allowed by law and not justified by an implied hypothetical (though highly speculative) shortage of boilermakers or any other relevant policy considerations. Nor is it acceptable to delay full implementation of the SO_2 cap until 2015. [[pp. 5-6]]

Power Plant Emissions Endanger Public Health and Welfare and Must be Substantially Reduced:

Power plants remain a major a source of NOx and SO2 emissions, which react in the atmosphere to form other unhealthful secondary pollutants such as ground-level ozone and fine particulate matter such as sulfate and nitrate. EPA estimates that by 2010, power plants will be responsible for fully two-thirds of the SO_2 emissions and about one-fourth of the NOx emissions in the region of the eastern and midwestern US impacted by EPA proposed rulemaking. [[p. 7]] [[See docket number 0742, pp 7-9 for discussion of public health and welfare impacts of power plant emissions.]]

Response:

See elsewhere in this RTC document and in the preamble for responses regarding CAIR control levels and timing. To determine the CAIR emission reduction requirements, EPA generally followed the statutory interpretation and approach under CAA section 110(a)(2)(D) that was developed in the NOx SIP Call rulemaking. That is, EPA identified the emissions in each upwind State that contribute significantly to nonattainment as being those emissions that can be eliminated through highly cost-effective controls. The emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States

to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

The EPA need not identify a bright-line cutoff for highly cost-effective controls, but only need justify its conclusion that the level of control selected is highly cost-effective. Moreover, the Agency's approach of evaluating the cost effectiveness of CAIR emission reductions in relation to the range of costs of other programs does not necessitate such line drawing. See section IV in the final CAIR preamble for a detailed discussion of EPA's cost effectiveness evaluation.

The Clean Air Task Force recommends EPA establish within the CAIR region an SO_2 emissions cap and trade program that would begin in 2009 with a cap of 1.84 million tons (single phase) and a NOx emissions cap and trade program that implicitly begins in 2010 at 1.25 million tons and drops to an unspecified level in 2012. They advocate enlargement of the CAIR region by using a minimum threshold of .10 ug/m3, rather than .15 ug/m3 annual average for fine particles.

After review of the public comments and additional technical consideration, EPA believes that the minimum threshold for significant contribution should be at a higher level of .2, rather than /15 ug/m3. See section VI of the CAIR preamble for the rationale.

For NOx control EPA has an earlier start date of 2009 which the Agency believes is more helpful to States working on ozone attainment demonstrations than 2010 that CATF appears to advocate. Given that EPA believes there is a boilermaker labor constraint on how much pollution control can be constructed in the near term, EPA decided to limit the initial Nox cap to 1.6 million tons and allow the rest of available labor to work on the installation of scrubbers. Already in the Eastern US a lot of NOx reduction has occurred from the power sector due to the NOx SIP Call to address ozone and EPA and States are just beginning efforts to decrease fine particle levels and SO2 reductions are more cost-effective to undertake than NOx reductions. For that reason, EPA aimed for greater SO2 reductions initially.

EPA believes that industry will not begin serious efforts to install pollution control equipment until State programs are in place, which should occur by September 2006. (The CATF did not challenge this Agency assumption in its comments.) That leaves 27 months to install a large amount of scrubbers for SO_2. A technical study that EPA has done suggests that this is barely enough time to install scrubbers on one unit at a power plant whereas the level of control that CATF is considering for 2009 will lead to many plants wanting to install multiple units, which cannot be done in the time available. Not only is there a problem for the assumed pace of installing scrubbers, but recent EPA analysis of the boilermaker labor force indicates that we cannot be assured there will be enough boilermakers available at reasonable rates. EPA believes that the ambitious emissions cap called for in 2009 could not actually be implemented until 2012 at the earliest. This makes the program less helpful to States that are having to make attainment demonstrations for fine particles for 2010 or 2011.

The SO_2 emissions cap is set at about 40 percent of the level as EPA's cap at 1.84 million tons. Examining the cost-effectiveness curves for SO_2 that EPA developed with the TRUM model (see CAIR preamble section IV), in 2010 the knee of the cost-effectiveness curve occurs at a level greater than 2 million tons. This raises serious concerns on whether the reductions of SO_2 at that

level are cost effective, let alone highly cost-effective, a requirement for the cap levels under the CAIR rule.

Comment:

EPA has proposed Phase I emission reductions of similar magnitude for NOx and SO2, seeking to strike balances between public health considerations (relative urgency to reduce ambient ozone versus $PM_{2.5}$), costs and equity. EPA requests comment on acceptability of the proposed Phase I approach, as well as on the alternative of advancing SO_2 reductions and delaying NOx reductions in Phase I (to favor ambient $PM_{2.5}$ improvement ahead of ozone). The existing proposal does not meaningfully advance NAAQS attainment for either 8-hour ozone or $PM_{2.5}$ nonattainment areas. The best way to advance attainment with both standards would be promulgation of a national rule requiring both NOx and SO2 BACT in a way that maximizes emission reductions for as many EGUs as possible by 2008. If EPA insists on going forward with the current limited proposal, it should at least provide for accelerated SO_2 reductions in order to favor $PM_{2.5}$ attainment. For most ozone nonattainment areas, the existing NOx SIP Call is already providing as much benefit toward ozone attainment as would Phase I of the IAQR. Modeling conducted by VISTAS and others indicates a strong correlation between SO_2 emission reductions and ambient $PM_{2.5}$ improvement. These results suggest an urgency to apply BACT controls to the EGU sector now to minimize continued exposure of citizens to the deleterious effects of excessive levels of $PM_{2.5}$. The unacceptably high Phase I SO_2 cap, combined with an over-reliance on banking and trading of SO_2 allowances, will likely result in minimal attainment benefits until Phase II or beyond- well after statutory attainment deadlines. [[(p.7)]]

EPA seeks comment on the level of the Phase 11 caps and the resulting division of responsibility between local and interstate transport sources. Would a more stringent, or less stringent, level of transport control lower total costs of attainment, or better address equity issues? The level and timing of the Phase II caps can be summarized as ‘too little, too late.’ As indicated above, what’s needed is a national rule requiring BACT for NOx and SO2 on all EGUs. If EPA does succeed in promulgating this IAQR, it will be very difficult for states to follow with further mandated emission reductions on EGUs. Because EPA has declined to stipulate the maximum level of SO_2 reductions that are highly cost efective, states will likely have to require larger and earlier SO_2 reductions than those proposed for Phase II in order to model $PM_{2.5}$ attainment. Those reductions will be incrementally more expensive than if they had been required under the IAQR. [[(p.7)]]

Has EPA identified the appropriate levels of control as highly cost effective? No. Had EPA conducted a top-down control cost analysis of NOx and SO2 controls for EGUs, it would not need to ask this question. It would be proposing caps for both pollutants based on BACT, with compliance deadlines of 4 to 6 years. [[(p.7)]]

Should EPA increase (or decrease) the Phase II caps to leave more (or less) of the attainment burden to be resolved by local SIPs? Both NOx and SO2 emission caps need to be based on BACT for EGUs. The impact of this source sector is national in scope, therefore we need a national control regulation. This will result in the most certainty and cost effectiveness for the utility industry, and will narrow the burden of local attainment SIPs to locally correctable problems. [[(p.7)]]

Response:

See responses elsewhere in this RTC document, as well as in the CAIR NFR preamble.

Comment:

EPA indicates that it believes that '2010 would be the first year in which sizable emission reductions could confidently be expected as a result of this rulemaking' (69 FR 4581). 2010 is the first of two dates chosen by EPA for future modeling to show the changes in impacts due to the emissions reductions projected to result from the proposal. The proposal states that this forecasting year was selected for modeling analyses (along with the 2015 year) because 'they include the range of expected attainment dates for many $PM_{2.5}$ nonattainment areas' and...'the range of expected attainment dates for many 8- hour ozone nonattainment areas' and takes into account the likely schedule for adoption of the IAQR which EPA indicates they plan to finalize no later than mid-2005 (69 FR 4585). Vermont believes that the reasons EPA has stated do not support the implicit assumption that prior to 2010 sizable emissions reductions could not be attained. [[(0714, p.3)]]

On the contrary, a recently completed analysis by STAPPA/ALAPCO has shown that sizable reductions of both NOx and SO2 can be realized from the power generation sector by the year 2008. Considering that mid-2005 is still more than 1 year in the future, there is no doubt that sizable reductions from this sector could still be achieved with existing, highly cost-effective control technology applied between mid-2005 and the year 2008. Vermont requests EPA to consider setting a first phase cap of 3,000,000 tons/year for SO_2 from the National Electric Power Generating Sector by 2008. Such a cap level is at the lower end of STAPPA/ALAPCO's national interim emissions cap recommendation and it targets the pollutant which affects the largest portion of the eastern U.S. through fine particulate matter transport. A 2008 initiation date is necessary for states to develop attainment SIPs for fine particulate matter in the time frames available under law. [[(0714, pp.3-4)]] [[(See Docket Number 1096 for analysis by STAPPA/ALAPCO)]]

Similarly for NOx, Vermont requests that EPA consider a 1st phase cap level of 1,750,000 tons/year of NOx on the Electric Utility Sector by 2008. These levels are consistent with the analysis which STAPPA/ALAPCO has developed in the framework of its May 7, 2002 'Principles for a Multi-Pollutant Strategy for Power Plants'. [[(0714, p.4)]]

The cap levels for NOx and SO2 in the IAQR are not sufficiently stringent to offer the health and welfare protections that should be EPA's objective. These levels appear to have been set using a combination of modeling (which did not follow guidance for SIP submittals by states), emissions inventories used in the modeling (which did not follow guidance for attainment and maintenance inventories required of states in their SIPs), and determinations of potential 'cost-effective' control technologies which may now be several years old. The cap and trade approach previously used for Title IV has been shown to have established a much too lenient cap and to have over-estimated the cost of controls by a very large margin. Let's not do this again. Vermont believes that EPA should take an aggressive approach to setting cap levels if the expected result is to be achieved. And it must be done sooner than proposed. Vermont supports the time frames and the cap levels on a 48-state EGU cap contained in the STAPPA/ALAPCO Analysis based on its Principles for a Multi Pollutant Strategy for Power Plants, dated March 15, 2004. This requires a 2nd phase cap imposed by 2013. [[(0714, pp.11-12)]] [[(See Docket Number 1096 for STAPPA/ALAPCO analysis)]]

Response:

See responses elsewhere in this RTC document. The title IV cap and trade program has produced significant environmental benefit and the commenter's assertion that it was "too lenient" is not supported by any evidence. Sources have implemented a variety of innovative emission control solutions in the Acid Rain Program, and this has resulted the price of SO_2 allowances being less than the projected cost of compliance. It is not clear from the commenter why this is "over-estimating the cost of controls." The cost projections are based upon known compliance strategies (e.g., the installation of established control equipment). However, the capped system, by design, creates incentive for sources to reduce emissions through innovative, potentially less costly approaches.

Comment:

We believe that greater reductions in transported pollutants can and should be required, and that the reductions must occur soon enough for states to include them in their plans to attain 8-hour ozone and fine particulate matter standards by the proposed federal attainment deadlines. [[(0942, p.2)]]

Although U.S. EPA has not finalized its 8-hour ozone implementation policy guidance or issued its $PM_{2.5}$ implementation policy guidance, it appears that 2010 is the likely attainment year for areas in Illinois that are not meeting the 8-hour ozone and fine particulate matter standards. In our opinion, supported by US EPA's modeling, the Interstate Air Quality Rule does not provide sufficient emission reductions to reduce the impacts of interstate transport by 2010, especially for ozone. [[(0942, p.2)]]

Subpart 1 of the Clean Air Act provides for the possibility of extending the fine particulate matter attainment date until 2015. Illinois EPA, therefore, recommends that a second phase of NOx and SO2 emission reductions should occur by that year. Accordingly, Illinois EPA recommends that the 30-state and D.C. region annual NOx emissions cap for EGUs be reduced to a level of 1.26 million tons on an annual basis beginning in 2015, and that SO_2 emissions from EGUs be capped to a level of 2.11 million tons annually. [[(0942, p.2)]]

Response:

See responses elsewhere in this RTC document.

Responses to Specific Comments that Propose Alternative Approaches for Caps and Implementation Dates

Response to OTC 3P Proposal

The OTC has recommended an alternative multi-pollutant control program for EPA to consider that nationally lowers $_{SO2, NOx}$, and mercury emissions. Mercury control is the subject of another ongoing EPA rulemaking and will not be discussed here. Additionally, the legal premise for EPA's action to control NOx and SO2 is to address the interstate transport of ozone and fine particles from States that provide significant contributions ozone and fine particles formed from these pollutants to future nonattainment areas. EPA found it could not justify national regulation on this basis, since many States have not been found through EPA's air quality modeling to provide a significant contribution to nonattainment in other States. The Agency found 28 Eastern States that satisfied this criteria that are covered in the final CAIR rule and CAIR proposal for New Jersey and Delaware.

Looking at the remainder of the OTC option, EPA found that the OTC recommends a cap-and-trade program for NOx and SO2 with flow control on banking with earlier deadlines for compliance with phased in emissions caps (2008 and 2012) and what would amount to stricter regional caps, if they were applied to the CAIR region. A simple proportional adjustment of the emissions caps based on the amount of power sector SO_2 and NOx emissions that comes from the CAIR region indicates that the first phase emissions caps would be 2.7 million tons and 1.4 million tons, respectively. Although the objectives the OTC has laid out are admirable for addressing the problems of ozone and fine particles, EPA believes that these emissions cap levels should not be pursued for several reasons.

First, since we believe that industry will not begin serious efforts to install pollution control equipment until State programs are in place, which should occur by September 2006. (The OTC did not challenge this Agency assumption in its comments.) That leaves 15 months to install a large amount of scrubbers for SO_2 and SCRs for NOx. A recent Agency technical study indicates that it takes about 27 months to place construct and to begin to operate one scrubber at a plant and 21 months to construct and begin to operate on SCR unit at a power plant.[72] EPA forecasts many power plants will be applying multiple scrubbers and/or SCRs to meet the types emissions caps that OTC recommends.[73] Notably, given the increased stringency of the OTC approach the number of plants making multiple installations of SCR and scrubbers is likely to be much greater.

EPA looked at all of the OTC analysis but focused heavily on the one that advanced OTC's approach (Scenario 1) using EPA's electric demand and natural gas prices, because it allowed the best comparison to the Agency's own analysis. Using the conservative labor assumptions that EPA has used to be assured that the Agency would be very certain there were enough boiler makers available in 2010 for CAIR, EPA believes that an OTC-like program could not potentially

[72]U.S. Environmental Protection Agency, *Engineering and Economic Factors Affecting the Installation of Control Technologies for Multi-Pollutant Strategies*, 2002.

[73]See parsed CAIR runs in the docket.

start until 2016 when both the time to build units and the available labor supply are considered.[74] See section IV of the preamble for further details. Much more favorable assumptions on labor requirements that EPA has considered indicates that the program still could not start until after 2011.[75] This is not as helpful to States that have deadlines for getting into attainment with the ozone and fine particle standards in the near future as EPA's CAIR program that starts in 2009 for NOx and 2010 for SO_2.

Keeping the same phasing of the pollution control requirements that OTC recommends leads to the second phase NOx and SO2 programs with lower emissions caps in 2014 and 2016, respectively. This is not a substantial improvement in the timing that EPA recommends for a second phase program starting for both pollutants in 2015. Simple apportionment of the emissions like we did for phase one of the OTC recommended approach above suggests CAIR annual emissions caps of 1.8 million tons for SO_2 and 1.0 million tons for NOx. In looking at the cost-effectiveness curves from the TRUM model that EPA developed for consideration of the overall cost-effectiveness of pollution controls in 2015 (see Section IV of the CAIR preamble), the NOx emissions levels are beyond the knee of the cost-effectiveness curves. This draws into question their cost-effectiveness in general and leaves serious doubts about the NOx level being highly cost-effective, the standard EPA has applied to the control levels.

Because the OTC did not properly model its own control strategy for its SO_2 caps using EPA's assumptions for electric demand and natural gas prices, EPA can not evaluate the cost-effectiveness of the approach. OTC failed to include in this analysis the flow control of SO_2. Also, detailed information from the IPM runs that the OTC did on their recommended approach that could have aided the Agency in considering the cost-effectiveness of the approach, were not supplied to EPA to examine, e.g. the marginal costs of controls for the IPM runs was not reported to the Agency.

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[74]This scenario requires installation of 103,164 MW of FGD scrubbers and 114,147 MW of SCRs, under the 2010 results. The amounts of these controls are substantially greater than the amounts of controls required to be installed under the two phases of CAIR. Based on the available boilermaker labor, EPA performed an analysis to determine the time it would take to install and startup these controls. The various boilermaker availability factors used in this analysis were the same as those used for various EPA analyses. In addition, for the boilermaker duty rates (boilermaker-year/MW of FGD or SCR installation), the most conservative factors proposed by UARG were used (see EPA responses to comments in Section VII.C).
The above analysis shows that it would take approximately 89 months after the final SIPs are available to complete installation and startup of all controls required under OTC Scenario 1. This would result in a completion date of August 1, 2016, for these controls. The EPA believes that the earlier environmental benefits provided by Phase I of CAIR are preferable over the substantially delayed benefits associated with this proposal.

[75]Used labor rates in footnote 1.

EPA questions setting second phase caps this aggressively when it is the start of our programs for compliance with the fine particle and revised ozone standards and we are trying to gauge the right mix of national and local controls among various sources to provide a reasonable cost-effective approach overall. The OTC did not provide us proof that moving beyond where EPA is leads to substantial gains in attainment of the ozone and fine particle NAAQS. The reductions they want do lead to much higher electric generation production costs (incremental compliance cost appear to be twice CAIR's incremental costs and electricity and natural gas price increases appear to be double as well.[76] We believe that EPA's timing and level of emissions caps for NOx and SO2 for CAIR strikes a reasonable balance in lowering emissions of these pollutants for large initial air quality gains without inordinate effects because the levels of control are highly cost-effective steps to take. This is not apparent from the OTC analysis.

Finally, EPA believes that the use of flow control in this approach is overkill. It impedes and complicates the operation of the trading program (see CAIR preamble section VIII for further details on why flow control is not desirable.)

Response to Clean Air Task Force 2P Proposal

The Clean Air Task Force recommends that EPA establish within the CAIR region an SO_2 emissions cap and trade program that would begin in 2009 with a cap of 1.84 million tons (single phase) and a NOx emissions cap and trade program that implicitly begins in 2010 at 1.25 million tons and drops to an unspecified level in 2012. They advocate enlargement of the CAIR region by using a minimum threshold of .10 ug/m3, rather than .15 ug/m3 annual average for fine particles.

After review of the public comments and additional technical consideration, EPA believes that the minimum threshold for significant contribution should be at a higher level of .2, rather than /15 ug/m3. See section VI of the CAIR preamble for the rationale.

For NOx control EPA has an earlier start date of 2009 which the Agency believes is more helpful to States working on ozone attainment demonstrations than 2010 that CATF appears to advocate. Given that EPA believes there is a boilermaker labor constraint on how much pollution control can be constructed in the near term, EPA decided to limit the initial Nox cap to 1.6 million tons and allow the rest of available labor to work on the installation of scrubbers. Already in the Eastern US a lot of NOx reduction has occurred from the power sector due to the NOx SIP Call to address ozone and EPA and States are just beginning efforts to decrease fine particle levels and SO2 reductions are more cost-effective to undertake than NOx reductions. For that reason, EPA aimed for greater SO2 reductions initially.

EPA believes that industry will not begin serious efforts to install pollution control equipment until State programs are in place, which should occur by September 2006. That leaves

[76]Estimates result from examination of OTC IPM run results provided in its public comments to the Agency.

27 months to install a large amount of scrubbers for SO_2. A technical study that EPA has done suggests that this is barely enough time to install scrubbers on one unit at a power plant whereas the level of control that CATF is considering for 2009 will lead to many plants wanting to install multiple units, which cannot be done in the time available. Not only is there a problem for the assumed pace of installing scrubbers, but recent EPA analysis of the boiler maker labor force indicates that we cannot be assured there will be enough boiler makers available at reasonable rates when CATF would like to start SO_2 controls. Using the conservative labor assumptions that EPA has used to be assured that the Agency would be very certain that there were enough boiler makers available in 2010 for CAIR, EPA believes that an CATF program could not potentially start until nearly 2014 when both the time to build units and the available labor supply are considered.[77] Much more favorable assumptions on labor requirements that EPA has considered indicates that the program still could not start until after 2011.[78] This makes the program less helpful to States that are having to make attainment demonstrations for fine particles for 2010 or 2011.

Notably**,** CATF program is about 2 times as expensive as CAIR in 2015 - around $7.5 billion (when scaled back to a regional program) and the marginal cost of SO_2 control are much higher - about $2,100 in 2010, where CAIR is well under a $1,000 a ton. At this level of cost increase, EPA would want to have detailed air quality modeling that was showing substantial gains in reaching attainment more areas that CAIR does. CATF shows improvement in attainment from what CAIR does, but not off of detailed modeling; rather it uses some simple approach relating emissions reductions to air quality improvements in various areas that EPA does believe is fully sufficient to make a regulatory case for more aggressive controls in CAIR. Furthermore, as private compliance cost increases above the highly cost-effective requirements of CAIR, EPA increasingly wants to know that there are not other potential locally-based strategies that could be combined with something like the CAIR program to provide the lowest overall cost of bringing about full attainment in the East with the NAAQS. This is especially true since we

[77]This scenario requires installation of 151,928 MW of FGD scrubbers and 41,252 MW of SCRs, under the 2010 results. The amounts of these controls are substantially greater than the amounts of controls required to be installed under the two phases of CAIR. Based on the available boilermaker labor, EPA performed an analysis to determine the time it would take to install and startup these controls. The various boilermaker availability factors used in this analysis were the same as those used for various EPA analyses. In addition, for the boilermaker duty rates (boilermaker-year/MW of FGD or SCR installation), the most conservative factors proposed by UARG were used (see EPA responses to comments in Section VII.C).
The above analysis shows that it would take approximately 67 months after the final SIPs are available to complete installation and startup of all controls required under CATF-proposed scenario. This would result in a completion date of October 1, 2013, for these controls. The EPA believes that the earlier environmental benefits provided by Phase I of CAIR are preferable over the substantially delayed benefits associated with this proposal.

[78]Used labor rates in footnote 1.

are at the beginning of our efforts to bring about attainment with the fine particle and revised ozone standards. At this time, based on currently available information, EPA believes it is reasonable decision to pursue a program like CAIR that has very reasonable costs and impacts after we have conducted detailed cost and air quality analysis than push too aggressively to dramatically increase the production costs of electricity and produce potentially much higher electricity and natural gas prices and the negative economic impacts that could result from them.

Response to STAPPA/ALAPCO Proposal

STAPPA/ALAPCO recommended an alternative multi-pollutant control program for EPA to consider that nationally lowers $_{SO2, NOx}$, and mercury emissions. Mercury control is the subject of another ongoing EPA rulemaking and will not be discussed here. Additionally, the legal premise for EPA's action to control NOx and SO2 is to address the interstate transport of ozone and fine particles from States that provide a significant contribution of these pollutants to future nonattainment areas. EPA found it could not justify national regulation on this basis since many States have not been found through EPA's air quality modeling to provide a significant contribution to nonattainment in other States. The Agency found 28 Eastern States that satisfied this criteria that are covered in the final CAIR rule.

Looking at the remainder of the STAPPA/ALAPCO option, EPA found that the group recommends a cap-and-trade program for NOx and SO2 with earlier "interim" deadlines for compliance with phased in emissions caps (2008 and 2013) and what would amount to stricter regional caps if they were applied to the CAIR region. The interim caps would eventually be replaced by minimum plant performance standards by 2013 and a "birthday" provision for the installation of BACT.

Notably, STAPPA/ALAPCO advanced this alternative approach for CAIR without analysis of the costs, fuel switching, price changes for electricity and natural gas and other economic impacts. Given that the toughest multi-pollutant legislation that Congress has considered in recent years (the Jeffords Bill) does not advocate caps any where near as tough as those at the bottom end of the range for second phase interim caps, concern over the production cost impacts, electricity and natural gas price, and other impacts is warranted. Their unanalyzed approach raises serious concerns over whether it would produce overkill in an effort to bring about the laudable objective of attainment with the fine particle NAAQS. It begs the question of whether some local controls would be more effective in addressing nonattainment in certain areas. STAPPA/ALAPCO also did not offer any sense of the resulting air quality gains from their approach.

A simple proportional adjustment of the caps based on amount of power sector SO_2 and NOx emissions that comes from the CAIR region indicates that the first emission caps would be 2.7- 4.0 million tons and 1.1-1.4 million tons, respectively. Although the objectives the STAPPA/ALAPCO has laid out are admirable for addressing the problems of ozone and fine particles, EPA believes that they should not be pursued for several reasons.

First, since we believe that industry will not begin serious efforts to install pollution control equipment until State programs are in place, which should occur by September 2006. (STAPPA/ALAPCO did not challenge this Agency assumption in its comments.) That leaves 15 months to install a large amount of scrubbers for SO_2 and SCRs for NOx. A recent Agency technical study indicates that it takes about 27 months to place construct and to begin to operate one scrubber at a plant and 21 months to construct and begin to operate on SCR unit at a power plant.[79] EPA forecasts many power plants will be applying multiple scrubbers and/or SCRs to meet the types emissions caps that OTC recommends.[80] Under the STAPPA/ALAPCO option even more plants would be putting on multiple SCRs and scrubbers. EPA believes a program like they propose at the lower end of the emission caps ranges could not get started until well after 2010. The upper end of the range of the first phase caps is actually close to the CAIR levels, especially for SO_2. Considering the lower end of the emissions cap range, this is not as helpful to States that have deadlines for getting into attainment for ozone and fine particles that are earlier as EPA's program that starts in $_{2009 \text{ for NOx}}$ and 2010 for SO_2.

The second phase "interim caps" for SO_2 are .9 million tons to 1.1 million tons and for NOx are 1.0 million tons to 1.4 million tons in 2013. Examining the cost-effectiveness curves for NOx that EPA developed with the TRUM model (see CAIR preamble section IV), in 2015 the knee of the cost-effectiveness curve occurs at a level greater than 1 million tons annually. The lower end of the range for a NOx cap does not appear cost-effective and the upper of the range is the same as EPA's emissions cap that begins in 2015.

The minimum plant performance standards by 2013 and a "birthday" provision for the installation of BACT across the power industry's fossil generation fleet provide no connection between significant contribution from a State's emission sources to downwind nonattainment and pollution control levels. This is unfortunately an unwarranted return to command-and-control regulation that is likely not to be cost-effective. Additionally, it is inconsistent with the Agency's objective of working with the States and localities to cost-effectively bring about attainment with the ozone and fine particle NAAQS.

Response to Cinergy Proposal

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Cinergy could accept the levels and timing of the emissions caps for NOx and SO2 that EPA proposed for CAIR, but expressed some concerns over their aggressiveness especially the timing of the first phase caps. They made it clear that they did not support moving any of the emissions caps forward. In the final rule, EPA has moved the first NOx cap forward by a year to 2009. This provides more support to States that are developing plans to provide attainment for the ozone standard at that time. Analysis of the Agency explained in section IV of the preamble shows that if there are sufficient labor resources available in 2010 to comply with the initial CAIR NOx and SO2 caps in 2010 that a simple ordering of the work that is needed that queues

[79]U.S. Environmental Protection Agency, *Engineering and Economic Factors Affecting the Installation of Control Technologies for Multi-Pollutant Strategies*, 2002.

[80]See parsed CAIR runs in the docket.

installation of the SCRs first leads to their completion in 2009 and the completion of scrubber installations by 2010. There is sufficient time available for States to adopt CAIR and power plants to then install SCRs by 2009. As a hedge on this situation, the EPA has also provided in the final CAIR rule a Compliance Supplement Pool for NOx allowances that States can use to help power plants installing SCRs, if problems arise.

VII. Compliance Timing

VII.A. Schedule for submitting SIPs (up to 18 months)

All comments on this topic are addressed in the preamble for the final CAIR.

VII.B. Source reductions should/could be achieved sooner

VII.B.1
Comment:

Some commenters argued that EPA's estimates of the boilermaker availability during the first phase were based on excessively conservative assumptions and that concerns with shortages of any resources were overstated. One of these commenters presented a detailed analysis to show that sufficient number of boilermakers were available to support installation of all Phase 1 and 2 controls by the Phase 1 deadline of January 1, 2010. Other commenters either presented their own analyses or referred to the analysis by the first commenter and supported its results, implying that the second phase could be eliminated.

Response:

The EPA proposed a phased program with the consideration that for engineering and financial reasons, it would take a substantial amount of time to install the projected controls. This program would require the most extensive capital investment and engineering retrofit program ever undertaken in the U.S. for pollution control. The capital investment for pollution control for CAIR that would be installed by 2015 is estimated to be approximately 15 billion dollars. By 2015, close to 340 control unit retrofits will occur. This is occurring at a time when the industry also faces another major infrastructure challenge – upgrading transmission capacity to make the grid more reliable and economic to operate. This also will cost tens of billions of dollars.

The proposed program's objective was to eliminate upwind states' significant contribution to downwind nonattainment, providing air quality benefits as soon as feasible. A phased approach was also considered necessary because more of the difficult-to-retrofit and finance, smaller size units would be included in the second phase, which would allow them to complete activities necessary for implementing the required controls as well as provide them an opportunity to benefit from the lessons learned during the first phase.

In general, environmental controls resulting from legislative or regulatory actions are applied to those units first that offer superior choices from constructability and cost-effectiveness standpoints. Experience gained by the industry from these installations can then be used to develop innovative solutions for any constructability issues and to improve cost effectiveness, as

these technologies are applied to harder-to-control units. The EPA believes that this phenomenon applies to the application of the SCR and FGD technologies at coal-fired power plants.

In the last few years, SCR and FGD systems have been added to several existing coal-fired units, under the NOx SIP Call and Acid Rain Program. These were mainly large units that had features, such as spacious layouts, amenable to the retrofit of the new air pollution control equipment. The units installing controls during Phase I of CAIR would, in general, be smaller in size and would offer relatively more difficult settings to accommodate the new equipment. These units would certainly benefit from the experience the industry has gained from the installations completed in recent years.

A large portion of the units (47 percent) projected to implement controls during the second phase consists of even smaller units, less than 200 MW in size. Compared to larger units, the retrofits for these smaller units would be more difficult to plan, design, and build. Historically, smaller units have been built with less equipment redundancy, smaller capacity margins, and more congested layouts. It is likely, therefore, to be more difficult and require additional design efforts to accommodate the new equipment into the existing settings for the smaller units. Use of lessons learned by firms constructing these units from the previous installations, including those to be built during the first phase, would help streamline this process and maintain the cost effectiveness of these installations. Moving a large portion of the retrofits required for these smaller units to the second phase also provides more time to complete the required retrofit activities.

Because EPA's projections for the second phase include a large proportion of smaller units, the total number of units requiring NOx and SO2 controls exceeds that in the first phase (186 vs. 153). Requiring an acceleration of the second phase controls to be completed in the first phase would, therefore, more than double the number of retrofits required for the first phase from 153 to 339. Based on data available from EPA and other sources, the industry completed 95 SCR installations for the NOx SIP Call in 2002 and 2003. If the 2004 projections for the NOx SIP Call are added to this number, the total number of SCR retrofits over the 2002-2004 period would be 140. This is less than half the number that would be required for CAIR during a similar period, if the Phase II requirements are implemented along with the Phase I requirements. Also, the combined capacity for FGD and SCR retrofits required for Phase I would be 122.5 GW, which is approximately 57 percent greater than the installed SIP-Call SCR capacity for the 2002-2004 period. Such a change in the rule would therefore amount to imposing a requirement over the power industry that is significantly more demanding and burdensome than what the industry was required to do under the NOx SIP Call rule.

The EPA notes that critical resources other than the boilermakers are needed for the installation of SCR and FGD controls, such as construction equipment, engineering and construction staffs belonging to different trades, construction materials, and equipment manufacturers. Some commenters, based on their experience with NOx SIP Call, also pointed out that the requirement for some of these resources, especially construction equipment (e.g., large cranes used to mount SCR and scrubber vessels above ground), construction materials, equipment manufacturing shop capacities, and engineering and construction management teams overseeing

these projects, is affected directly by the number of installations. The greater the requirement is to install a large number of retrofits by 2010, the greater would be the need for all these resources, which would be limited in the short term, as demands from equipment vendors, project teams, and material suppliers ramp up. In the NOx SIP Call, this led to shortages and bottlenecks in projects in certain areas, causing increased project times and costs. The EPA wants to avoid creating a similar situation by requiring too much at once.

The EPA has also acknowledged the increase in SCR costs during the NOx SIP Call implementation period, most likely due to an increase in construction costs (resulting from increased demand for boilermaker labor) and steel prices. The EPA has revised its estimates of SCR capital costs in the IPM runs for the final rule and believes the conservatism in its FGD capital costs also accounts for this factor.

The EPA believes that moving the Phase II requirements to the Phase I period could cause near-term shortages in some of the critical resources. This would further increase compliance costs and could remove the highly cost-effective nature of these controls and lead to a greater demand for natural gas.

In addition to the above, financing a large amount of controls for Phase I may prove challenging, especially for the coal plants owned by deregulated generators. As discussed later in this section, such generators are continuing to face serious financial challenges, and many have below investment grade credit ratings. This significantly complicates the financing of costly retrofit controls. Such plants would also not have the certainty of regulatory recovery of investments in pollution control, and would have to rely on the market to recover their costs. Having a second phase cap would allow these companies additional time to strengthen their finances and improve their cash flow.

As regards to the boilermaker labor analysis provided by one commenter, EPA disagrees that adequate supply of boilermakers would be available to install all of the projected Phase I and II CAIR retrofits by the 2010 deadline, for the following reasons:

a. The total GW capacity used in the commenter's analysis for the FGD and SCR retrofits does not include the retrofits that would be installed outside of CAIR requirements. For example, the total 109 GW capacity used in commenter's analysis from the NPR proposal for both phases should have been 130.4 GW, which includes the Base Case or non-CAIR retrofits.

b. The total retrofit capacity for both FGD and SCR for the two phases, based on the revised IPM analysis for the final CAIR, is approximately 122.5 GW, which is still higher than the capacity used in the commenter's analysis.

c. The boilermaker duty rates (boilermaker-year/MW) used in the commenter's analysis are the same as those used by EPA. Other commenters have provided their own estimates of these rates that predict higher values. In addition, one commenter has argued in favor of using the natural gas prices and electricity demand rates from EIA, which are higher than the EPA-projected values for these parameters. Although we consider our assumptions to be very

reasonable, we believe that it is prudent to be cautious and consider the impact of the assumptions suggested by others on the ability of the affected sources to comply with this rule.

In the interest of being prudent in evaluating the need to phase in the program, EPA also performed an analysis to determine if the available boilermaker labor would be adequate to support installation of all Phase I and II controls in 2010. This analysis was conservatively based on using commenter-suggested boilermaker duty rates and EIA's projections for gas prices and electricity demand rates. The results show that sufficient number of boilermakers will not be available and that there will be a shortfall of approximately 25 percent in the boilermakers available to support Phase I activities for this case.

The EPA believes that the information and analyses presented above also address concerns raised by other commenters. In addition, some of these concerns are addressed by the information provided in a technical support document prepared by the EPA to analyze the issues related to boilermakers availability and installation timing for air pollution controls.[81]

Based on the above analyses, EPA believes that implementation of controls for both phases in Phase I is impractical. We also believe that it is prudent and reasonable in requiring the industry to undertake this massive retrofit program on a two-phase schedule, to be largely completed in less than a decade.

VII.B.2
Comment:

Several commenters indicated that the Phase I and II compliance deadlines fell short of meeting the ozone and fine particulate ($_{PM2.5}$) attainment dates mandated by the Clean Air Act. They argued that adequate resources and implementation time would be available to support an acceleration of the compliance deadlines for both phases by one to two years. Other commenters also advocated accelerating the Phase I NOx cap deadline only, the Phase I deadline for units with existing SCRs only, or the Phase II deadline only.

Response:

The issue pertaining to the ozone and $_{PM2.5}$ attainment dates is addressed in responses to comments provided for Section VI.F. The Agency's response to the different CAIR compliance deadline alternatives suggested by the commenters are as follows:

a. Two-Year Phase I Acceleration

With today's final action, the overall Phase I implementation period for compliance with the rule requirements would be approximately 4-3/4 years. Allowing 18 months for the final SIPs and considering that most sources would not likely commit major funds before the SIPs are available, these sources would have approximately 3-1/4 years for completing the purchase and installation of controls. If the Phase I compliance deadline is moved forward by two years, as suggested by some commenters, the installation of controls would have to be completed by January 1, 2008. Since it is recognized that sources generally would not initiate any

[81]TSD, "Boilermaker Labor Analysis and Installation Timing," (See CAIR eDocket)

implementation activities that require major funding, before the final SIPs are available, the implementation period for installing Phase I controls would reduce from 3-1/4 to 1-1/4 years.

The EPA's projections show that, for SCR installation on one unit, an average 21-month schedule is required to complete purchasing, construction, and startup activities. For the same activities for FGD, an average 27-month schedule is required. As can be seen, that the total time required for just one SCR or FGD installation exceeds the 1-1/4-year implementation period available for Phase I, if the compliance deadline is moved to January 1, 2008.

b. One-Year Phase I Acceleration for NOx and SO2 Controls

If the Phase I compliance deadline for both NOx and SO2 controls is moved up by one year, the affected facilities would have 2-1/4 years or 27 months to complete installation of these controls. As discussed in the preceding section, FGD installation on one unit requires an average 27-month schedule to complete purchasing, construction, and startup activities.

The sources installing controls on more than one unit at the same facility would likely stagger the outage-related activities, such as final hookup of the new equipment into the existing plant settings and startup, to minimize operational disruptions and avoid losing too much generating capacity at one time. The EPA projects that an average 2-month period is required to complete the outage construction activities and a one-month period to complete the startup activities for FGD. Therefore, if back-to-back outages are assumed for a plant installing FGD on just two units, the 27 months needed to install FGD on the first unit and an additional three months needed for outage activities on the second unit would result in an overall schedule requirement of 30 months. This 30-month schedule exceeds the available 27-month implementation period, if the compliance deadline is moved up by one year. For plants installing FGD controls on more than two units and performing hookup construction and startup activities in back-to-back outages, an additional three months would be added to the 30-month schedule requirement for each additional unit.

The EPA notes that certain plants installing multiple-unit controls may be able to meet the compliance deadline requirement by using alternative approaches, such as simultaneous unit outages and purchase of allowances to defer installation of controls on some units. However, Our projections for the final rule show that some facilities would be installing FGD controls on five multiple units at a single site. Moreover, these projections show 26 plants requiring FGD retrofit on more than one unit, which represents a major portion of the total number of plants required to install such controls under CAIR. We believe it would not be appropriate to expect this number of plants to resort to alternative means to accommodate such installations, such as simultaneous unit outages or purchasing of allowances.

For FGD retrofits, some plants would be required to obtain solid waste landfill permits. As discussed previously, the time required to obtain these permits could range from one to 3-1/2 years. With the compliance deadline moved up by one year, the overall implementation period would be reduced from 4-3/4 to 3-3/4 years. For those plants subjected to a 3-1/2-year permit approval period, only three months would be available to prepare the permit applications at the beginning of the compliance period and to prepare the landfill area for accepting the waste after

permit approval. The EPA does not believe that three months is adequate for such activities. These plants would, therefore, need the 4-3/4-year implementation period to complete activities related to landfills associated with the FGD systems.

The EPA also performed an analysis to verify if the available boilermaker labor is adequate to support the January 1, 2009, compliance deadline for both NOx and SO2. This analysis was performed, using commenter-suggested boilermaker duty rates and EIA's assumptions for the natural gas prices and electricity demand rates. The results show that given these assumptions sufficient number of boilermakers will not be available and that there will be a shortfall of approximately 32 percent in the boilermakers available to support Phase I activities for this case.

Considering the constraints identified in the above analyses for the FGD installation schedule requirements and boilermaker labor availability, EPA believes that it is not reasonable to move the Phase I compliance deadline for both NOx and SO2 caps to January 1, 2009.

c. One-Year Phase I Acceleration for NOx Controls Only

A 1 year acceleration would result in a compliance deadline of January 1, 2009, for installing Phase I NOx controls. With this change, the affected sources installing these controls would have approximately 2-1/4 years for implementing the rule's requirements, following the approval of State programs. However the implementation period for installing FGD controls would still be at 3-1/4 years.

As shown previously, 21 months would be required to complete purchasing, construction, and startup of SCR on one unit. For multiple-unit installations with back-to-back unit outages for the tie-in construction and startup, the available 2-1/4-year implementation period would permit staggering of SCR installations on a maximum of three units.[82] For a plant requiring SCR retrofit on more than three units, simultaneous outages of two units would become necessary. However, EPA notes that there are only six plants projected to require SCR installation on more than three units and, therefore, it is expected that simultaneous outages of two units at each of these plants would not have an adverse impact on the reliability of the electrical grid.

In addition, the plants installing SCR on more than three units at the same site would have two other options to meet the rule's requirements, without having to resort to simultaneous two-unit outages. First, these plants would be able to defer installation of SCRs on some of the units by receiving allocated allowances or purchasing allowances from the 200,000-ton Compliance Supplement Pool being made available as part of CAIR.[83] Second, the outage activities for some of the units at these plants could be extended into the first quarter of 2009, which is beyond the

[82]TSD, "Boilermaker Labor Analysis and Installation Timing," (See CAIR eDocket)

[83]The 200,000-ton Compliance Supplement Pool is apportioned to each of the 23 States and the District of Columbia that are required by CAIR to make annual NOx reductions, as well as the 3 States (Arkansas, Delaware and New Jersey) for which EPA is proposing to require annual NOx reductions.

compliance deadline of January 1, 2009, since these units would not generate NOx emissions during an outage and therefore not require any allowances to compensate for them. The EPA's projections show that, of the above six plants installing SCR on more than three units, four of them require SCR retrofits on four units each. If it is assumed that these four plants would perform outage activities on the fourth unit during the first quarter of 2009, there would only be two plants left that would be required to either purchase allowances or perform work during simultaneous outages.

The EPA also notes that the total schedule requirements for multiple-unit plants can be reduced further by performing some of the activities, especially those related to planning and engineering, prior to the 2-1/4-year period. Also, with the total installation time requirement for FGD being more than that for SCR, EPA expects the outages associated with most Phase I FGDs to take place after January 1, 2009. The overall impact of the outages taken for these SCR and FGD retrofits would, therefore, be minimized.

The EPA also performed an analysis to determine the impact of an one-year acceleration in the NOx compliance deadline on Phase I boilermaker labor requirements. Since the amounts of the required Phase I NOx and FGD retrofits are not affected by this change, the overall boilermaker requirements for this phase will remain the same as the case with the same compliance deadline for both NOx and SO2 (see the TSD referenced above). However, with the new NOx compliance deadline, installation of all NOx retrofits would have to be completed by January 1, 2009, and some of the FGD construction work requiring boilermakers would also be done during this period. The EPA assumed that, along with completing installation of all SCRs, 35 percent of the boilermaker labor required to install all FGDs would be used in the period prior to January 1, 2009. This is a conservative assumption, since the amount of boilermaker labor used for this period would be greater than 50 percent of the total Phase I boilermaker labor requirement. The analysis performed by EPA shows that sufficient boilermakers would be available with a contingency factor of approximately 14 percent to install all SCR controls and 35 percent of the FGD retrofit work by January 1, 2009. This analysis is based on the most conservative assumptions, using the boilermaker duty rates suggested by one commenter and the EIA's projections for natural gas prices and electricity demand rates.

Based on the above analyses, EPA believes that moving the compliance deadline for Phase I for NOx only is feasible. Since EPA is obligated under the Clean Air Act to require emission reductions for obtaining NAAQS to be achieved as soon as practicable, we have based the final rule on two separate Phase I compliance deadlines of January 1, 2009, and January 1, 2010, for NOx and SO2, respectively.

d. One-Year Phase I Acceleration - Units with Existing SCRs

Some commenters have also argued in favor of moving the compliance deadline forward for only the SIP Call units that are already equipped with SCR. The EPA agrees that there would be environmental advantages to obtaining NOx emission reductions earlier from units that could achieve them by simply operating an existing SCR that is used during the ozone season on a year round basis. However, under the Virginia case, EPA cannot specifically mandate that States require the operation of these SCRs year-round. Furthermore, as other commenters have noted,

not all of these SCRs can simply be turned on a year-round basis. Some companies have designed existing SCRs without gas bypass ducts; therefore, these units can only be operated over a very small load range. This reduces the utilities' ability to adjust to changing load conditions. Utilities are able to address this constraint to their system during the ozone season, but it is more difficult to address it over a full year when the utility may see larger fluctuations in system-wide demand. Time will be required to modify these SCRs.

One way to ensure that these emission reductions did occur, would be to use a budget approach, with NOx budgets being based on the assumption of year round operation of SCRs. Under this budget approach, States would have the flexibility to either require the operation of the SCRs year round or to achieve the required emission reductions in another way. Since EPA does not have complete information on which SCRs will be able to operate on a year-round basis without modification and EPA does not have information on the emission rates that all units with ozone season only SCRs will be able to achieve, developing these State budgets would be difficult.

Alternatively, EPA is finalizing an early reduction credit program, that EPA believes will achieve commenters objectives of ensuring emission reductions from units with existing SCRs as expeditiously as practicable.

e. Phase II Acceleration

The EPA does not believe that acceleration of the compliance deadline for the second phase is reasonable. As pointed out in response to other comments, a large portion of the units projected to install controls during the second phase consists of small units, less than 200 MW in size. Due to the issues related to financing of the retrofit projects for some of these units and considering that planning and designing of controls for these units is likely to take longer, EPA does not consider the schedule acceleration to be appropriate.

The EPA also notes that the 5-year implementation period for Phase II is consistent with other regulations and statutory requirements, such as title IV for $_{NOx\ and\ SO2}$ controls. In addition, some commenters have cited a need for a 6-year period for obtaining financing for plants owned by the co-operatives. These facilities are likely to commit funds for major activities, only after financing has been obtained. Therefore, for such facilities, a period of approximately 4 years would be available for procuring, installing, and startup activities, assuming that the financing activities were started right after the rule is finalized. Since the plants owned by co-operatives are usually small in size, they are likely to require and be benefitted by the extra time allowed to them by this 4-year implementation period.

The EPA also performed an analysis to verify adequacy of the available boilermaker labor for pollution control retrofits the power industry will install to comply with the Phase II CAIR requirements. A 36-month construction period requiring boilermakers was conservatively selected for this analysis. Based on the IPM analysis for the final rule, conservatively, the power industry will build 27.5 GW of FGD and 26.6 GW of SCR retrofits for compliance with lower emission caps that go into effect for NOx and SO2 in 2015. The analysis was based on using EIA’s projections for the natural gas prices and electricity demand rates and the commenter-

suggested boilermaker duty rates. The results show availability of ample boilermakers with a contingency factor of 46 percent to support Phase II activities.

The EPA notes that the retrofits that will occur in Phase II will be smaller, more numerous, and more challenging, since the easiest and best controls will be installed in Phase I. Therefore, having a greater contingency factor (as we do) is warranted. This is further supported when the uncertainty in predicting the construction activities in the areas outside of air pollution controls is considered. Notably after 2010, the excess generation capacity that we have today is no longer expected to be present and there may be a shift towards increasing generation capacity. Increased construction of new power plants will have a direct impact on the availability of boilermakers for the Phase II controls. The EPA believes that a higher contingency factor for Phase II is desirable to ensure that the industry will succeed in getting the required reductions at the required time.

Any acceleration of Phase II compliance deadline will also cause an appreciable reduction in the above estimated contingency factor. For example, an acceleration of one year will reduce this contingency factor to only about one percent. The EPA does not consider a contingency factor of only once percent adequate to offset any increases in the boilermaker requirements due to unforseen events, such as sick leave, time lost due to inclement weather, time lost due to travel between job-sites, inefficiencies created due to project scheduling issues, etc. Therefore, EPA believes that acceleration of the Phase II compliance deadline cannot be justified.

VII.B.3
Comment:

Two commenters stated that the EPA proposed deadlines should not be extended, since the time available for implementation of controls was adequate.

Response:

The EPA is not proposing any extensions to the Phase I and II compliance deadlines. The EPA also agrees that the time available for controls' implementation is adequate. As explained in our responses to other comments in this section, the final rule is based on an acceleration of one year in the Phase I compliance deadline for implementing NOx controls.

VII.B.4
Comment:

One commenter argued that EPA was overstating use of SCR for CAIR NOx control and, therefor, the boilermaker labor associated with building them. This commenter suggested that a lot of sources would be using SNCR instead, which requires significantly less boilermaker labor. It was also explained that a combination of SNCR and highly efficient combustion controls now available would provide significant NOx reduction.

Response:

The EPA disagree with the commenter’s assumption that SNCR would be applied extensively for CAIR. The IPM analyses conducted by EPA show an insignificant amount of SNCR being applied during the CAIR periods. The high efficiencies of the modern combustion

controls are incorporated into these analyses and the technology choices evaluated for the sources include SNCR applied in conjunction with these combustion controls.

VII.B.5
Comment:

One commenter argued that volatile organic compounds (VOC), which are significant contributors to urban ozone nonattainment, should have been included in CAIR. The commenter recommended that VOC be made a part of future initiatives by EPA.

Response:

As stated in the NPR proposal, VOC were not included in CAIR, based on detailed analyses and recommendations by OTAG. VOC do not play a significant role in long-range transport, important to CAIR.

VII.C. Source reductions cannot be achieved sooner

VII.C.1
Comment:

Several commenters cited shortage of boilermaker labor as the main reason why EPA's proposed deadlines could not be met. One commenter submitted a study that disagreed with EPA's assumptions related to the availability of boilermakers and presented its own set of assumptions and data to show that sufficient boilermaker labor would not be available. This study was later revised and resubmitted in response to EPA's supplemental proposal and data presented by another commenter (see ICAC, VII.B-0771). The main differences between this study and EPA's analyses and other important points noted in the study are described below:

1. The study is based on a model, Economic Emission Modeling System (EEMS), prepared by J. E. Cichanowicz, Michael Hein, and Jim Marchetti, consultants to UARG. The analysis presented in the study shows a substantially greater need for installing SCR in the first phase of CAIR than projected by EPA. The overall projections by the study include 43 GW of FGD and 46 GW of SCR during this first phase.

2. The study uses NOx and SO2 allowance prices that are higher than those used in EPA's analyses and are derived from various different sources. The NOx allowances are allocated to individual units, including steam generating, combined cycle (CC), and combustion turbine (CT) units. The study is based on a power industry system-wide compliance, as opposed to EPA's use of a more region-wide compliance.

3. The FGD capital and O&M costs used in the study have been derived, using EPA's CUECost program. These costs consider only a wet, limestone-based FGD system, with a 95 percent $_{SO2}$ removal capability.

4. The SCR capital costs used in the study have been derived from a recent survey of actually reported capital costs that range from $77 to $203/kW. The average ($140/kW) of this cost range is used in the study.

5. Instead of EPA's figures for the electricity growth rate and the natural gas prices, the EIA's projections for these have been used in the study.

6. The study uses EPA's assumptions related to the available boilermaker labor pool for CAIR-related retrofits. However, it cites data from the U.S. Bureau of Labor Statistics, indicating that fewer boilermakers are projected for the relevant time frame.

7. The study points out that EPA's assumption related to the percentage of the overall boilermaker population available to work on CAIR retrofits is based on only one reference. The study questions this assumption and notes that the actual percentage could be lower than what (35 percent) has been assumed by EPA.

8. The study questions the boilermaker annual employment rate of 2,000 hours per year used in EPA's analyses and notes that the reported historical, average rate is only 1,500 hours per year. In its calculations, the study uses a lower boilermaker employment rate of 1,685 hours per year.

9. The study opposes the remarks made by another commenter (see ICAC, VII.B-0771), which claim that additional boilermakers will be available for CAIR, since the construction of new gas-fired combined cycle units that were being built at a 40 GW per year rate during the NOx SIP Call period will not continue during the relevant CAIR period. The study assumes that this "spike" in gas-fired generation addition that occurred during the NOx SIP Call period will be replaced with the construction of new coal-fired generation for CAIR. Based on a reference cited in the study for this purpose, as much as 60 GW of coal-fired generating capacity may be installed, much of it in the 2008-2012 time frame. The study presents a calculation showing that any increase in the availability of boilermakers due to this shift from gas- to coal-fired generation will be small.

10. The study acknowledges that non-union boilermaker labor will add to the overall availability of this labor pool. However, it points out that significant CAIR retrofits may occur in only three of the 10 traditionally non-union labor states. Also, since non-union labor may offer lower productivity, its overall significance may be small.

11. The study questions EPA's estimates of boilermaker duty rates (boilermaker-year/MW) required to install FGD and SCR retrofits. Based on a survey of 5 FGD and 12 SCR installations, the study uses its own estimates of these duty rates.

12. The study questions the SCR and FGD construction methodology used by EPA, which implies that the use of boilermaker labor will be spread evenly over the available construction time period. Instead, the study uses a non-linear labor use rate based on a 1999-2005 profile of SIP-Call SCR installations in the U.S., which shows only a small portion of the overall installations being implemented during the initial phases of the available time period.

13. The study concludes that, based on the above assumptions, the boilermaker labor limit would require at least a one-year delay in the proposed deadline. It also suggests that possible

shortfalls in other factors, such as available boilermaker pool and percent of boilermakers available for CAIR, would require an additional year of delay.

Another commenter has provided its own estimates of boilermaker duty rate requirement (boilermaker-year/MW) for installing FGDs, that are higher than EPA's estimates.

Other commenters have expressed concerns that boilermaker shortages may occur in only some jurisdictions, including areas with a small number of boilermaker pools or small utilities.

In addition, several other commenters either referred to the first commenter or expressed similar concerns regarding the availability of boilermakers and its impact on meeting the compliance deadlines.

Response:

Detailed investigations conducted by EPA of the boilermaker availability issue show that the concerns raised by the commenters regarding this issue are unfounded. These investigations included discussions with the International Brotherhood of Boilermakers (IBB), U.S. Bureau of Labor Statistics (BLS), and National Association of Construction Boilermaker Employers (NACBE). The EPA also revised the Integrated Planning Model (IPM) used in its analyses for CAIR to include input from various comments received on the NPR proposal. Based on the information from these investigations, EPA performed detailed analyses of the boilermaker availability issue, which are summarized in the docket to this rule as a technical support document (TSD), entitled "Boilermaker Labor Analysis and Installation Timing," (see CAIR eDocket).

The EPA's responses to the above comments on the boilermaker availability issue, including each point related to the study submitted by one of the commenters, are as follows:

1. The commenter has provided only limited information on its model. However, this information suggests that several important features of CAIR were omitted in the commenter's analysis, and may for that reason have overestimated the need for SCR installations.

The IPM used in EPA's analyses for CAIR has been widely applied by both the government and industry organizations. Its scope and capabilities are well documented in its manual, which is publicly available (also referenced in the commenter's study). In addition, the most recent revisions made to this manual in response to the comments received by EPA are available on the docket for this rule.

Compared to projections in the commenter's study, the IPM projections presented in the NPR proposal showed fewer control retrofits, especially those with SCR, being installed for CAIR. The projections in the subsequent IPM analyses performed for the final rule show the number of control retrofits to reduce further. The IPM was revised for these analyses to incorporate comments received on the NPR proposal. These revisions included higher natural gas and SCR costs and greater electricity demand. The EPA also found that more units had installed SCR under the NOx SIP Call than what its records previously showed. In addition, the number of

existing FGD installations was found to be slightly lower than that in EPA's records. These changes were also incorporated in the IPM.

The EPA also evaluated the sensitivity of changing its assumptions further with regards to natural gas prices, electricity demand, and SCR prices, as suggested by the commenter. For these sensitivity analyses, the EIA–projected natural gas prices and electricity demand rates were used. In addition, the effect of a 30 percent increase in the SCR capital cost was also evaluated. The retrofit projections resulting from these analyses are shown below.

a. For the final CAIR policy case using EPA's assumptions for natural gas costs and electricity growth, the retrofit requirements for the first phase include 39.6 GW of FGD and 23.9 GW of SCR.

b. For the sensitivity evaluation using EIA-projected natural gas prices and electricity growth, the retrofit requirements for the first phase include 49.1 GW of FGD and 25.2 GW of SCR.

c. For the sensitivity evaluation using EIA-projected natural gas prices and electricity growth and a 30 percent increase in the SCR capital costs, the retrofit requirements for the first phase include 47.9 GW of FGD and 25.2 GW of SCR.

As shown above, the SCR retrofit requirements for the first phase in all cases are well below the level projected by the commenter. For this reason and the reasons discussed in the items below, EPA cannot agree with the model results presented in the commenter's study.

2. The commenter's study did not describe EEMS except to note that it used capital-cost adjusted IPM NOx allowance prices as input and considered system-wide caps based on assumed allowance allocations. The study noted that this was a departure from the region-wide analysis conducted using IPM, and admitted that EPA's approach allows "a larger pool of units" which can "provide low cost $_{NOx\ or\ SO2}$ removal, offsetting the need for control technologies on higher-cost units." The reasons given for avoiding a region-wide approach were that the CAIR program's great stringency "almost forces system operators to heavily rely on control technology," and "the relative immaturity of the emissions market brings uncertainties that have not been fully resolved." The commenter also states that, because CT and CC units are included within CAIR, the allowances for steam-generating units are "diluted."

First, it should be noted that the 2010 CAIR cap is not dramatically more stringent that the NOx SIP Call constraint in terms of emission rates during the summer months. Yet, the NOx SIP Call has not required all steam units within the affected region to install post-combustion retrofits, nor has its stringency prevented a region-wide allowance market from functioning. The fact that emission markets are subject to uncertainties that have not been fully resolved is not a reason to assume them away, given their successful use in a variety of programs. The commenter's analysis may well have overestimated the need to install control technology because it inappropriately assumed away the ability of low emission sources in some power company systems and generation types to compensate for high-emitting steam units in other systems.

Because IPM was able to model the exploitation of the flexibility provided by the market-based allowance trading system, it was able to find a region-wide combination of responses that met the cap using less SCR.

Though the commenter's model was able to consider allowance purchases, the exploitation of this compliance response may have been undermined in this model by an unreasonably high allowance price. The commenter states that the allowance price used in its modeling was an *input* to the modeling, rather than an *output*. Thus, there is no guarantee that the allowance price is the true marginal cost of NOx reductions at the actual emission cap imposed by CAIR. Instead, the allowance price for NOx, of $2,290/ton, was apparently imported from IPM runs and then scaled up in an attempt to make it compatible with commenter's higher capital cost assumption for SCR. Though no details are provided in the study on how the IPM price was scaled up, it is unlikely to be an accurate reflection of the correct price given that no region-wide modeling appears to have been conducted. Though the commenter judges that differences in SCR retrofits between IPM and EEMS are partly due to differences in allowance price *assumptions*, in fact the allowance prices are actually *calculated* by IPM in the course of region-wide optimization modeling – allowance prices were assumed only by commenter's EEMS.

The commenter also states that "further differences between the EPA and its own approaches exist in how NOx and SO2 allowances are allocated to individual units." In a freely functioning market-based trading program, however, the initial allocation of allowances will not affect the compliance decisions by the affected units: IPM recognizes this fact, while EEMS apparently did not.

The commenter speculates that, in addition to allocation and allowance price differences, control technology costs are part of reason for differences in projected retrofits. Control technology cost differences are unlikely to cause the kind of differences seen in projected SCR installations: since EEMS assumed higher SCR capital costs than IPM did, we would expect EEMS to choose less SCR rather than more, and to substitute more SNCR, fuel reburning, fuel switching, dispatch changes, and combustion modifications. There is no indication of whether these options were modeled in EEMS; if they were not, a higher cost for SCR could result in the same use of SCR to meet a given cap, though with a higher calculated allowance price.

It is also possible that the commenter's modeling incorporated an inappropriate assumption about the need for a compliance margin. In another analysis performed with EEMS, a five percent over-control beyond the required emission cap was used.[84]

Though it is likely that an individual utility system might deem it prudent to overshoot its control needs if a trading system were not available, region-wide overcontrol would not be necessary or expected if unexpected events could be dealt with by purchasing additional

[84]"Analysis of the Wisconsin Department of Natural Resources Proposed Rule to Achieve the 30 and 50 Percent Mercury Reduction Targets," Prepared for Wisconsin Manufacturers & Commerce; Prepared by James Marchetti
And J.e. Cichanowicz August 24, 2001

allowances at some point during the year. If the above over-control was also used in EEMS for the commenter's analysis, it could help explain the overestimate of SCR use compared to the more comprehensive and consistent analysis conducted for EPA using IPM.

3. The EPA does not consider the FGD cost estimates used by the commenter in its analysis as valid, since the source of these estimates (CUECost program)is not current and the estimates consider only the wet, limestone scrubber system for all retrofits. The FGD cost algorithms used in EPA's analysis were developed as part of a study that updated and expanded the assumptions used in the CUECost model. These algorithms and the revised assumptions are described in the IPM manual.

The EPA also disagrees with the use of the wet, limestone scrubber as the only alternative available for CAIR retrofits. This system is not an economic choice for many installations, especially those using coals with less than 2 percent sulfur content (see the IPM manual). Even the CUECost model offers both the lime spray dryer and wet scrubber as options for FGD retrofits. As described in the NPR proposal, EPA's analyses for CAIR are based on three FGD technology options: wet limestone scrubber, wet lime scrubber, and spray dryer. As explained, these are the most widely used technologies in the U.S. coal-fired installations. The IPM model selects the technology with the least overall cost for each FGD retrofit application. In the current analyses using the IPM, each of these three FGD technologies has been applied to a significant number of CAIR retrofits.

As mentioned by one of the commenters (see Dominion, VII.C-1099), the construction schedule requirement for the spray dryer system is well below what is required for the two wet scrubber systems (18-24 months vs. 30-36 months). Therefore, inclusion of the spray dryer system as one of the options would reduce both the average construction costs and the schedule duration used in the commenter's analysis.

4. For the SCR capital costs, the commenter's study uses an average cost of $140/kW that has been derived from a cost range of $77 to $203/kW (see the revised study). This quoted cost range contradicts the cost data presented in commenter's original study (Appendix A) that listed several units with costs below $77/kW. Use of an average capital cost value, using only the minimum and maximum values of the range, also greatly overstates the cost. It is to be noted that only 6 of the 32 units in the commenter's database are over this average cost of $140/kW. The average cost value will be much smaller, if the costs of all units in the database are used (closer to $110/kW).

The EPA also disagrees with the use of an average cost from a small database of SCR retrofits, because it implies that the makeup of all the unit sizes in CAIR retrofits will be the same as that of the database. It also does not take into account the economy of scale, which is clearly reflected in most of the cost data presented by the commenter. The EPA notes that the economy-of-scale principle applies to all cost data presented by the commenter, except for units greater than 900 MW in size. The commenter has not provided any explanation to the high cost of installing SCR on these large units. Without specific information on these SCR installations, EPA cannot comment on why their costs are high. However, EPA believes that the units shown

in the commenter's data are not representative of an average SCR installation. Furthermore, EPA believes that, if costs from additional SCR installations on large units are added to the costs of the limited number of units in the commenter's data, the average cost would be lower.

The SCR costs used in EPA's analyses were updated to include recent industry experience. The documents covering the investigations that led to these updates were added to the docket for this rule. These updates revised the SCR capital cost for the base unit size from $80 to $100/kW. In addition, scaling correlations were developed to adjust these costs to other unit sizes. It is to be noted that these costs are reported on a year-1999 dollar basis. In comparison, the costs in the commenter's study are for the year 2002. The costs used by EPA are, therefore, closer to the overall average costs reported by the commenter, when the estimates are compared using the same year dollars. In addition, EPA has also run an IPM sensitivity analysis to verify the impact of a 30-percent increase in the SCR capital and fixed O&M costs (see Item 13 below).

5. The criteria and methodologies (model) used to develop EPA's projections for natural gas prices and electricity growth rates are well established and amply reviewed by the peers. The EPA, therefore, does not agree with the use of factors based on another source. The EPA has, however, run an IPM sensitivity analysis to consider the impact of using the EIA projected values for the natural gas prices and electricity growth rates (see Item 13 below).

6. The EPA has held discussions with IBB, BLS, and NACBE, on the subject of the projected availability of boilermakers in the time frame relevant to CAIR retrofits.[85] The BLS forecasts the boilermaker population to be 24,994 by 2012. This low forecast is based on little or no growth in the industries relevant to boilermaker demand and an aging boilermaker workforce, which may result in an increased retirement rate.

The EPA was unable to confirm if the projected boilermaker population by BLS included all boilermakers. It is important to note that the BLS reports the boilermaker population in 2002 at 24,568. The actual boilermaker membership for 2002, as reported by the IBB, is 26,696, which exceeds the BLS figure by approximately 2,100. This suggests that the BLS projections miss a significant portion of the boilermaker population.

In contrast to the BLS forecast, the IBB has reported that a 5-to-1 ratio of journeymen (fully trained boilermakers) to apprentices is maintained in all of its local lodges, to sustain and increase the active boilermaker population. IBB also noted that it did not conduct forecasts regarding future boilermaker population. However, it indicated that, as all local lodges had experienced an abundance of apprenticeship, it should be able to maintain its active membership at the current levels regardless of an aging workforce.

The IBB has also indicated that, in case of an increased demand for boilermakers, it can take the following steps to keep up with this demand:

[85]TSD, "Boilermaker Labor Analysis and Installation Timing," (See CAIR eDocket.)

a. Issue mandates, specifying the amount of new journeymen members each lodge must achieve by a certain date. In 2000, the union issued such a mandate that increased the boilermaker population by approximately 5,200 members in one-year time. Only 300 of these members were previously retired boilermakers returning to work. The majority included new apprentices.

b. Obtain and train union members from other IBB divisions. These members can be expedited more quickly into the construction division, as compared to individuals with no prior work experience. For example, the apprenticeship program usually takes 4 years for individuals with no prior experience, but the members from the IBB shipbuilding division can be expedited into the construction division within a year.

c. Bring in boilermakers from Canada (IBB has established a formal mechanism to accomplish this in an expedited manner). In 2003, 1325 Canadian boilermakers were brought in to support the U.S. construction industry.

In view of the above information received from IBB, EPA does not agree with the concern associated with the reduced boilermaker membership. Since IBB has confirmed that their membership will be maintained at least at the current levels, EPA has, therefore, conservatively used the current boilermaker population of 26,000 in its boilermaker availability analyses for the final rule.

7. The IBB has provided the following breakdown of the boilermaker hours worked in the utility industry, during the last 2 years:

- In 2003: 21,022,101 hours or 76.09 percent out of a total of 27,626,923 hours
- In 2002: 29,468,043 hours or 79.18 percent out of a total of 37,216,496 hours

As shown in the commenter's study, SCRs were installed on approximately 41.7 and 15.6 GW of coal-fired capacity in 2003 and 2002, respectively. Using EPA's boilermaker duty rate of 0.175 year/MW and 2,000 hours worked per year, the total boilermaker hours required to complete the 57.3 GW of SCR retrofits during these two years would be 20,055,000 hours. These are approximately 31 percent of the total hours worked by the boilermakers during the last two years.

The percentage of the boilermaker hours spent on the SCRs would be greater, if the higher boilermaker duty rate suggested in the commenter's study is used in the above calculation. For example, using the average duty rate of 0.343 for SCRs derived from the commenter's data provided in the study (see the TSD), the percentage of total hours worked by the boilermakers on the NOx SIP Call projects would increase to 60 percent. Even reducing the total GW capacity of NOx SIP Call SCRs to 41.7 (the capacity installed only in 2003), the percentage of boilermaker hours spent on these SCRs would be 44 percent of the total boilermaker hours for 2002 and 2003. These percentages are significantly greater than the 35 percent value used by EPA for this factor.

The above information supports EPA's assumption regarding the availability of at least 35 percent of the total boilermaker population for CAIR retrofits.

8. The IBB indicates that the average boilermaker in its construction division has a relatively low hours-per-year rate largely due to the lack of long-term employment opportunities for its members and not any other factors. The majority of the work in the utility industry generally can only be performed with the units taken off-line, narrowing the window of work opportunity for the boilermakers. However, boilermakers can and do support greater yearly rates, for projects with long-term work opportunities. The IBB also indicated that the boilermakers prefer to work on projects where there are greater opportunities to work overtime.

An analysis of the boilermaker average yearly hours-worked in 2002 in the NOx SIP Call states was conducted by EPA. This was the last year for which detailed information was available from the IBB. Seventeen states were included in this analysis, with the heaviest concentration of the NOx SIP Call SCR installations. The average yearly hour rate worked by the boilermakers for all of the lodges included in these states was approximately 2,090 hours. This is a conservative estimate, since not all of the lodges may have been involved in the SCR construction.

The above information clearly shows that the low average boilermaker yearly rate used in the commenter's study cannot be applied to CAIR retrofits. This low overall rate is skewed, because a large number of boilermakers work on short-term projects, e.g., the outage work at the utility power plants. The rate for the projects providing long-term work opportunities, such as the NOx SIP Call or CAIR retrofits, would be higher. The above average yearly work rate of 2,090 hours for the SIP Call states in 2002 applies to CAIR retrofits and it fully supports EPA's assumption of 2,000 hours per year for this rate.

9. The EPA does not believe that any significant new coal-fired generating capacity will be added in the time frame relevant to CAIR retrofits. The IPM analysis projects minimal new capacity addition. EIA, whose electricity growth rate has been used in the commenter's analysis, also projects a small amount of new coal-fired capacity being added between now and 2007 and none between 2007 and 2010.[86] This is in direct contrast to the 15 GW of coal-fired capacity addition per year used in the commenter's analyses. With the projections from both EPA and EIA showing negligible amounts of new coal-fired capacity additions during the CAIR time frame, EPA cannot agree with the commenter's assumption showing a large number of coal-fired plants being added during this period.

Based on the commenter's analysis, approximately 4,500 boilermakers were involved in the new gas-fired generating capacity being added during the NOx SIP Call period. In the absence of any substantial new generation capacity addition for CAIR period, many of these boilermakers will become available for CAIR retrofits.

[86]"Annual Energy Outlook 2005 (early release), Tables A9 and 9," December 2004, http://www.eia.gov/oiaf/aeo/i.ndex.html

10. The IPM analysis for CAIR shows that approximately 15 percent of FGDs and 43 percent of SCRs will be built in the traditionally non-union states (e.g., Texas, Kentucky, Georgia, Alabama, Florida, etc.). Some of these projects will, therefore, involve non-union labor. One source has confirmed that substantial amount of SCR retrofit work during the 2000-2002 period in the traditionally non-union states was executed by non-union labor (see the TSD). A consideration of this boilermaker labor source, would, therefore, result in an increased availability of boilermakers belonging to the IBB for CAIR retrofits. As pointed out by another commenter (see ICAC, VI.C-0771), it can be conservatively assumed that 10 percent of these projects will be installed by non-union sources.

The commenter also suggests that the lower productivity of the non-union labor be accounted for in any consideration of this labor pool. The EPA does not agree with this comment, since the commenter has not offered any data or proof to show that a difference in the productivity of union and non-union labor pools exists. The EPA considers the commenter's concern in this regards merely a speculation.

11. The boilermaker duty rates (boilermaker-year/MW) used in EPA's analysis are based on a detailed study, with substantial input from outside sources.[87] Another commenter (see ICAC, VI.C-0771), has also supported use of these rates. The study provides only a limited amount of information in support of the commenter-suggested correlations for estimating the boilermaker duty rates. The EPA notes the following inconsistencies in this information:

a. The correlations have been derived from widely varying data, with no explanation as to the reasons for such variations, especially for the SCR installations. The data show the boilermaker hours varying from approximately 120,000 to 560,000 hours for 6 SCR installations that are very close in size. Given that the sizes for the SCR vessels and ductwork cannot be substantially different for these installations, a difference in the boilermaker hours on the order of more than 4 times cannot be supported. If some of these installations required equipment modifications beyond what is necessary for the SCR retrofits or if there were other extra-ordinary factors involved with them, they should not have been included in the study results. The EPA believes that inclusion of such installations in the commenter-suggested SCR correlation greatly overstates the boilermaker labor requirements.

b. The FGD correlation is based on only 5 installations. As has been stated by the commenter (see above Item 3), these installations appear to involve only the wet, limestone scrubber system. This system has larger scrubber vessel and more extensive supporting equipment, as compared to the other two FGD options (lime scrubber and spray dryer), as described in the IPM manual. The limestone scrubber system requires greater number of boilermaker hours to build. A factor built on only this technology will, therefore, overstate the boilermaker hours for the entire FGD population. The factor used by EPA reflects the average requirements for the three FGD options.

[87] "Engineering and Economic Factors Affecting the Installation of Control Technologies for Multi-Pollutant Strategies", (docket no. OAR-2003-0053-0106)

c. Applying the commenter-suggested FGD correlation to the IPM-projected individual units requiring Phase I FGD retrofits results in an average boilermaker duty rate of 0.269 boilermaker-year/MW. This is significantly greater than the FGD duty rate of 0.152 boilermaker-year/MW used in EPA's analyses. In addition, the commenter's duty rate is not supported by and is well above the average FGD duty rate of 0.199 derived from the data provided by another commenter (see Southern Company, VII.C-1071).

The above items show that the boilermaker duty rate correlations presented in the commenter's study are based on data from a small number of installations and represent scope of work that is well above the average installation conditions used in determining EPA's duty rates. Therefore, EPA considers these commenter-suggested duty rates to represent the upper end of the range of values that would be expected for the SCR and FGD controls under consideration.

In keeping with EPA's desire to be very sure that there is sufficient boilermaker labor available during the CAIR's Phase I construction period, the Agency has considered the most stringent duty rates suggested by the first commenter, as well as the duty rates based on its own assumptions, in analyzing the impact on the boilermaker availability. The EPA considers this to be a bounding analysis in which the estimates based on the most stringent duty rates reflect conditions with the highest retrofit difficulty level that EPA could realistically expect to occur. We expect that the average boilermaker duty rates applicable to the overall boiler population required to retrofit controls under this rule would not fall outside of the values used by EPA and those suggested by the first commenter.

12. The commenter has incorrectly assumed that all the SCR installations built or projected to be built during the 1999-2005 period resulted from a single NOx regulation. The commenter also implied that 1999-2005 was the implementation period available to the affected sources for the installation of these retrofits and that state implementation plans were final at the beginning of this period. On the contrary, different rules and compliance deadlines, as explained below, affected the installations of these SCRs.

The NOx SIP Call was finalized in October 1998, with a compliance deadline of May 1, 2003. Due to a subsequent litigation, a stay order was issued on May 25, 1999. This stay order was lifted on March 3, 2001. At the same time, the compliance deadline was extended to May 31, 2004. Despite this compliance deadline extension, some states decided to maintain compliance with the original deadline of May 1, 2003. Therefore, the SCR retrofits in these states followed a different schedule path than the retrofits in the other states.

Only a few SIPs were finalized in early 2001, while several of them were issued in late 2001 and 2002. Considering the time it takes to complete the SCR procurement and construction and assuming that these activities were most likely started after the SIPs became final, the earliest completion times for the NOx SIP Call retrofits would fall in mid to late 2002. Other retrofits installed prior to this time frame were likely in response to other regulatory requirements and should not be considered a part of the NOx SIP Call profile.

The overall effect of these different regulatory requirements and compliance deadlines is reflected in the specific SCR installation profile during 1999-2005. There is no basis for assuming that CAIR's Phase I requirements will have the same effect and that this profile is applicable to CAIR.

In addition, the commenter relied on SCR retrofit experience from Germany. No information is, however, provided on the regulatory scenario that governed these retrofits. The commenter provides no basis for assuming that this regulatory scenario is similar to CAIR and that German experience is at all relevant to CAIR.

The commenter has also failed to note that, under the NOx SIP Call, approximately 41.8 GW of SCR retrofits were started up in one year (2003) alone. The combined capacity of FGDs and SCRs projected by EPA to be retrofitted during Phase I is 63.5 GW. The installed capacity of the 2003 NOx SIP Call SCRs was, therefore, greater than 65 percent of the total Phase I retrofit capacity required for CAIR. It should also be noted that the commenter's own data show the boilermaker labor required for SCR to be greater than that required for FGD installed on the same size unit and that CAIR requirements for Phase I include more FGDs (39.6 GW) than SCRs (23.9 GW). In addition, the overall construction time available for CAIR exceeds 2 years. With at least 2 years of boilermaker-related construction time available for CAIR (see below), EPA believes that the NOx SIP Call experience fully supports the adequacy of the implementation period available for CAIR.

Contrary to the commenter's assertion, EPA has not assumed a uniformly distributed construction schedule in its boilermaker labor estimates. In the NPR proposal, EPA had conservatively assumed that the boilermaker labor activities would be concentrated over a period of 18 months. This was based on the rule being finalized by June 30, 2005. With the earlier finalization of this rule, an additional 3.5 months would become available for these activities. Therefore, a boilermaker activity period of 21.5 months has been used in the above estimates. With an assumption of a uniformly distributed schedule, this period could have been increased to 27.5 months (see the TSD referenced in above Item 6). The 6-month margin built into the EPA's assumption of 21.5 months for the boilermaker activity period accounts for the expected non-uniformity in the scheduling of the Phase I retrofits.

The EPA notes that the overall boilermaker activity period used in the commenter's study is also greater than EPA's assumption of 21.5 months. In this study, the commenter has assumed that boilermakers would be required on-site for the last 12 months of the 21-month SCR project, and the last 15 months of the 27-month FGD project. Considering simultaneous start of the SCR and FGD construction, the boilermaker activity period for constructing only one set of SCR and FGD retrofits would be 18 months. This period would be greater, when construction of multiple units are assumed or when different construction start dates are assumed for the FGD and SCR projects. For example, substituting the FGD retrofit in the above example with multiple FGD retrofits in a five-unit plant (same as used in EPA's analyses), the boilermaker activity period would increase to 30 months (using two months for outage construction and 1 month for startup of each additional unit). This example shows that the 21.5-month boilermaker activity period used in EPA's analyses is conservative.

13. The EPA performed several analyses to verify the availability of adequate boilermaker labor for control retrofits required by CAIR. As discussed in the responses to comments above, these analyses include cases that use commenter-suggested values for the natural gas costs, electricity growth, boilermaker duty rates, and higher SCR capital costs.

Only the union boilermakers belonging to the IBB were considered in the EPA's availability analysis presented in the NPR proposal. Some commenters have pointed out that additional sources of boilermakers will be available for CAIR. Two such sources include Canadian and non-union boilermakers. IBB has confirmed that 1,325 Canadian boilermakers were brought in to support the NOx SIP Call SCR work in 2003 (see above Item 6.c). The EPA also projects that approximately 15 percent of FGDs and 43 percent of SCRs will be installed for Phase I in the traditionally non-union states (see above Item 10). Based on these data, we have conservatively assumed that 1,000 boilermakers from Canada will be available and 10 percent of the retrofits would be installed by non-union boilermakers for Phase I.

Based on EPA data, an average 32 GW of new gas-fired, combined cycle generating capacity was being added annually, during the NOx SIP Call SCR construction years of 2002 and 2003. A substantial number of boilermakers were involved in the construction of these gas-fired projects. Since projections for the time frame relevant to CAIR retrofits show only a small amount of new electric generating capacity being added, the number of boilermakers involved in the building of new plants would be smaller and more of the boilermaker population would be available to work on the Phase I retrofits. As pointed out by one commenter, the boilermakers available due to this projected drop in the building of new generation capacity represents a third additional source of boilermakers for CAIR (see above Item 9).

Both EPA and EIA project a negligible amount of new coal-fired generating capacity being added during Phase I. The EPA's projections do show approximately 15 GW of new or repowered gas-fired capacity being added, during this period. The EIA projections for new gas-fired capacity addition during Phase I are well below those of EPA's. We have, therefore, used the more conservative EPA's projections for Phase I additions and the gas-fired capacity additions during the NOx SIP Call period to estimate the additional boilermaker labor that would become available for the Phase I retrofits. This estimate shows that approximately 28 percent more boilermakers would be available to work on the CAIR retrofits, because of a slowdown in the construction of new power plants.

In the boilermaker availability analyses performed by EPA, the required boilermaker-years were determined for each case, based on the amounts of SCR and FGD retrofits being installed and the pertinent boilermaker availability factors and duty rates. The required boilermaker-years were then compared to the available boilermaker years to verify adequacy of the boilermaker labor. All sources of boilermakers were considered in these analyses, including the union boilermakers and the boilermakers from the three additional sources discussed previously.

As mentioned previously, the details on the above EPA's analyses are available in the docket to this rulemaking as a TSD. The results of the three key analyses are summarized below:

a. The boilermaker availability analysis for the final CAIR policy case is based on using EPA's assumptions for natural gas prices, electricity growth, and boilermaker duty rates. The IPM projects that 39.6 GW of FGD and 23.9 GW of SCR retrofits will be built during Phase 1 for this case (see above Item 1). The estimates performed for this analysis show that approximately 10,200 boilermaker-years will be required to build the projected retrofits, while approximately 23,700 boilermaker-years will be available. These results show that there are ample boilermakers available for this case, resulting in the availability of a large contingency factor.

b. The analysis performed to reflect the most conservative conditions was based on EIA-projected natural gas prices and electricity growth as well as the commenter-suggested boilermaker duty rates. For this case, the IPM projections show 49.1 GW of FGD and 25.2 GW of SCR retrofits being built during Phase 1 (see above Item 1). The estimates performed for this analysis show that approximately 21,850 boilermaker-years will be required to build the projected retrofits, while approximately 24,900 boilermaker-years will be available. These results show that there are sufficient boilermakers available with a contingency factor of approximately 14 percent.

In the NPR proposal, EPA's estimates had shown a contingency factor of 15 percent, which was available to offset any increases in boilermaker requirements due to unforeseen events, such as sick leave, time lost due to inclement weather, time lost due to travel between job-sites, inefficiencies created due to project scheduling issues, etc. The EPA had considered this 15 percent contingency factor to be adequate for these unforeseen events. We also note that EPA did not receive any comments suggesting a need for a higher contingency factor.

The EPA also notes that the above boilermaker labor estimates have not considered the benefits of the experiences gained by the US construction industry from the recent buildup of large amounts of air pollution controls, including the NOx SIP Call SCRs. As pointed out by one commenter, such experiences include use of modular construction, which can result in a significant reduction in the required boilermaker labor for CAIR retrofits. Also, as a result of this controls buildup, an increased number of experienced designers and construction personnel have become available to the industry. Some of these benefits may be offset by factors, such as the increased level of retrofit difficulty expected for the CAIR retrofits, especially for the small size units. However, we believe that the net effect of this experience is a more efficient use of the boilermaker labor in the construction of the air pollution control retrofits projects. Unfortunately, EPA cannot quantify the value of this experience in determining its overall impact on boilermaker requirements.

Therefore, EPA considers the 14 percent contingency in the available boilermaker-years for the above analysis using highly conservative, commenter-suggested assumptions to be adequate.

c. The EPA performed another analysis to determine the impact of higher SCR capital costs on the boilermaker availability. This analysis was based on using 30 percent higher SCR capital costs and fixed O&M along with the EIA-projected natural gas prices and electricity growth. In addition, the commenter-suggested boilermaker duty rates were also used in this

analysis. For this case, the IPM projections show 47.9 GW of FGD and 25.2 GW of SCR retrofits being built during Phase 1 (see above Item 1). The estimates performed for this analysis show that approximately 21,530 boilermaker-years will be required to build the projected retrofits, while approximately 24,850 boilermaker-years will be available. These results show that there are sufficient boilermakers available with a contingency factor of approximately 15 percent. As discussed in the preceding item, EPA considers this contingency factor to be adequate.

The above responses address the concerns raised by other commenters regarding the boilermaker availability. Some commenters did argue that shortages of boilermakers may occur in restricted jurisdictions. The EPA disagrees with this, since, as confirmed by the IBB, boilermakers can move from state to state and shortages in one area can be made up with boilermakers available in other areas.

VII.C.2
Comment:

Several commenters argued that the first phase compliance deadline could not be met, because sufficient time was not allowed by the rule for completing the retrofit projects. These commenters cited the overall schedule requirements to plan, procure, and build the required retrofits, in support of their claim. One specifically mentioned scheduling issue was the time required to obtain landfill permits for the FGD systems. One commenter noted that this permitting activity has taken as long as ten years to complete.

Response:

EPA notes that, in response to other comments received on the NPR proposal and based on further investigations performed by the Agency (see responses to comments in Section VII.B), the final CAIR is based on two separate Phase I compliance deadlines: implementation of NOx reductions are required by January 1, 2009 (covering 2009-2014) and that for $_{SO2}$ reductions by January 1, 2010 (covering 2010-2014). The compliance deadline requirements for the second phase are the same as proposed. The concerns raised by the commenters are discussed below, with due consideration of this change in the rule's requirement.

With the first phase compliance deadline of January 1, 2009, for NOx and January 1, 2010, for $_{SO2}$, the affected sources would have approximately 3-3/4 and 4-3/4 years for the implementation of the overall requirements for this phase, respectively. The final SIPs would be submitted at the end of the first 18 months of these implementation periods. The remaining 2-1/4 and 3-1/4 years would be available for the sources to complete activities required for the procurement and installation of NOx and SO2 controls, respectively. For the reasons outlined below, EPA believes that these deadlines provide enough time to install the required Phase I controls.

The EPA notes that the States would finalize the SIPs in 18 months after the rule is signed, and that until then, the majority of sources required to install controls may not initiate activities that require commitment of major funds. However, some activities, such as planning, preparation of conceptual designs, selection of technologies, and contacts with equipment suppliers can be started or completed prior to the finalization of SIPs, at least for major sources

expected to require longer implementation periods. In addition, other activities, such as permitting and financing can be started after the rule is finalized. This is based on the NOx SIP Call experience.

The EPA also notes that some States may finalize SIPs in less than 18 months and some sources required to install controls may commit funds prior to the finalization of SIPs. The affected plants associated with these States and sources would have longer implementation periods available to them. This would have a beneficial effect on the availability of resources required to install all CAIR controls, since the use of these resources would be spread over a longer period of time. However, since it is not possible to quantify the effect of any earlier actions by the States and sources, the EPA's analyses are based on conservative assumptions related to the finalization of all SIPs in 18 months after the rule is signed and commitment of major funds by sources only after the finalization SIPs.

After the SIPs are finalized, the sources would have approximately 2-1/4 and 3-1/4 years in which to complete purchasing, detailed design, fabrication, construction, and startup of the required NOx and SO2 controls, respectively. This assumes that activities, such as planning and selection of technologies, have already been started or completed, prior to the start of these 2-1/4- and 3-1/4-year periods. As discussed in the NPR proposal, EPA projects an average single-unit installation time of 21 months for SCR and 27 months for a scrubber. Our revised IPM analysis for the final rule shows that many facilities would install controls on multiple units (a maximum of six for SCR and five for FGD) at the same plant. We expect these facilities to stagger these installations to minimize operational disruptions. We also project that SCRs and scrubbers could be installed on the multiple units in the available time periods of 2-1/4 and 3-1/4 years, respectively.

As compared to projections in the NPR proposal, earlier signing of the final rule adds more than 3 months to the overall implementation periods for both NOx and SO2 controls. Furthermore, EPA's projections for the final rule show fewer Phase I NOx and SO2 controls being added than the projections in the NPR proposal. Since the compliance deadline for $_{NOx}$ controls occurs 1 year after that for SO_2, a 3-month longer implementation period mainly provides more time for implementing $_{SO2}$ controls only. However, since it does allow use of critical resources, such as boilermakers, for $_{SO2}$ controls to be spread over a longer period of time, the net effect would be to make more of these resources available for both $_{NOx\ and\ SO2}$ controls. This is especially true since the implementation periods for both NOx and SO2 controls would start at the same time and the plants installing these controls would be competing for the same resources until January 1, 2009, the compliance deadline for NOx. The EPA, therefore, believes that 2-1/4- and 3-1/4-year time periods provide reasonable amounts of time from the approval of State programs by September 2006, until the commencement of compliance deadlines for meeting the NOx and SO2 emission requirements.

Certain commenters have provided their own estimates of schedule requirements for installing the required controls. In some cases, these estimates are longer than those determined by EPA. For scrubbers, including spray dryer and wet limestone or lime type systems, the control implementation requirements provided by the commenters range from 30 to 54 months for the

overall project and 18 to 36 months for the phase following equipment awards. In this case, the lowest 18-month schedule requirement cited applies to spray dryers, whereas the shortest schedule cited for wet scrubbers for the activities following the equipment awards is 24 months. For SCR, the control implementation requirements cited by the commenters range from 24 to 36 months for the overall project and 17 to 25 months for the phase following the equipment awards.

One commenter has pointed out that the construction schedule requirements for the FGD and SCR retrofit projects have shortened, because of the lessons learned from a significant number of such projects completed during the last few years (see ICAC, VI.C-0771). The EPA notes that a recent announcement for a new 485 MW limestone scrubber facility indicates a construction schedule duration (from equipment award to startup) of only 18 months.[88] This is well below the schedule requirement cited by the commenters for a wet limestone scrubber.

The EPA also notes that most of the commenters' schedule estimates are consistent with the time periods available for completing the CAIR-related NOx and SO2 projects. Some of the longer schedules submitted by commenters would exceed the CAIR Phase I dates. However, EPA considers these longer schedules to be speculative, as these commenters did not justify them. The major factors that influence schedule requirements include size of the installation, degree of retrofit difficulty, and plant location. The EPA does not expect these factors to make a difference of more than a few months between the schedule requirements of various installations. The commenters who have cited long schedule requirements that fall at the higher end of the above ranges have not provided any data to support the wide differences between their schedules and those proposed by others, including EPA. It should also be noted that EPA's schedules are based on information from several actual SCR and scrubber installations. Therefore, EPA cannot accept the excessive schedule requirements proposed by these commenters.

The time cited by various commenters for obtaining a landfill permit for the solid waste associated with FGD also varies considerably. The range quoted by these commenters is from 6 months to 5 years, with one commenter indicating that permit for one specific installation took 10 years to complete.

The EPA has not found the permitting activity to be a major factor in meeting the first compliance deadline. It should be noted that landfill permits would not be required for all FGD installations, as some plants may opt for technologies that provide a saleable byproduct, such as gypsum. In other cases, the plants may have access to existing landfills being used for storing wet ash and/or fly ash. Some of these landfills may have sufficient capacity or may allow expansion to accommodate the additional FGD solid waste.

The EPA contacted several key States requiring FGD retrofits, to investigate the amount of time required to obtain a landfill permit for scrubber waste. Specifically, EPA contacted

[88]Reference: Announcement by Wheelabrator Air Pollution Control Inc. for award of a wet limestone scrubber system for K.C. Coleman Generating Station, Western Kentucky Energy Corp., August 2, 2004, and other related documents. (docket no. OAR-2003-0053-1953)

Georgia, Ohio, Indiana, Alabama, Pennsylvania, West Virginia, Tennessee, and Kentucky.[89] Except for Kentucky, all States indicated that their permit approval periods ranged from 12 to 27 months. Some of these States indicated that permit approval may require more time than 27 months, but only for the cases in which major landfill design issues persist or the permit applicant has not provided complete and proper information with the permit application.

The Kentucky Department of Environmental Protection indicated that, based on their historical records, the average permit approval period was 3-1/2 years. They also stated that the State was sensitive to an applicant's time restrictions and the permit approval times had varied depending on the level of urgency surrounding a permit application. They further confirmed that they would work with the industry to meet compliance deadlines, such as those required by CAIR, as efficiently as possible.

In some cases in the past, the permitting process has taken longer, as pointed out by some commenters. However, this occurred only when there were major issues related to the landfill designs submitted by the applicants for these permits. In the example quoted by one commenter where the permitting process took 10 years, the delay was due to foundation issues specific to the landfill terrain. As indicated by the state involved with this permit, the experience at this installation does not apply to others (see the above referenced document, "Summary of telephone calls with States to discuss landfill permit timing").

Based on the above investigations, EPA notes that the landfill permitting requirements quoted by all States fall well within the 4-3/4 year implementation period for Phase I. Also, landfill permitting activities as well as its design and construction can be accomplished, independent of the design and construction of the FGD system. The EPA, therefore, believes that landfill permitting is not a constraint for compliance with the rule.

VII.C.3
Comment:

Several commenters argued that, because of a large number of CAIR retrofit projects being worked on simultaneously, shortages in general resources would be created so as to make compliance with the first phase deadline not possible. The types of resources cited included construction materials, reagents, construction equipment, and engineering and construction staffs belonging to different trades. Other commenters cited electrical grid reliability as the reason why this compliance was not possible, since the rule may require many units to be taken offline simultaneously to tie the pollution control equipment into the existing plant settings.

Response:

Since commenters have not offered any analyses to support the reasons for the concerns raised, EPA considers these concerns to be speculative. The EPA also notes that a significant capacity of SCRs were retrofitted during the last few years, many of them as a result of the NOx SIP Call Rule. Based on available data for the NOx SIP Call, approximately 68 GW of SCR

[89]Summary of telephone calls with States to discuss landfill permit timing (docket no. OAR-2003-0053-1927)

retrofits were started up during the years from 2001 to 2003. This included approximately 42 GW of SCRs in 2003 alone, which exceeds the combined capacity of SCR and FGD retrofits for CAIR that we expect to be started up in any one year. The EPA projects that startup of the 23.9 GW of SCR and 39.6 GW of FGD capacity required for Phase I would be spread over a period of two years (2008 and 2009). The total capacity of units starting up in each year is therefore expected to be approximately 32 GW (half of the combined SCR and FGD capacity of 63.5 GW). This experience as well as the drop in the building of new power generation facilities (se below) negates concerns regarding the adequacy of general resources and grid reliability, since the types and extent of resources and plant outage time required for the NOx SIP Call SCR installations are either the same or not significantly different than the projected SCR and FGD installations for CAIR.

Compared to the NOx SIP Call period (see EPA's response to comments on boilermaker availability), more resources would be available during the first phase CAIR period, since the amount of new electrical generating capacity added would be small. Addition of a new generating facility consumes significant amounts of all resources mentioned in commenters' concerns. Therefore, with fewer new generating facilities being added, the increase in the supply of these resources would be significant during the time frame relevant to CAIR.

The NOx SIP Call experience shows that outages required to complete installation of the large SCR capacity, especially during 2003, did not have an adverse impact on the electrical grid reliability. The EPA notes that the outage requirement for SCR usually exceeds that for scrubber, since SCR is located closer to the boiler and it may be more intrusive to the existing equipment. As shown above, the CAIR retrofits are projected to include more scrubbers than SCRs and the capacity of these retrofits starting up in any one year is below the capacity of the NOx SIP Call units that started up in 2003. Therefore, the overall outage requirement for CAIR would be less than that experienced for the NOx SIP Call.

Based on published industry data, the planned outage times for coal-fired units from 2001-2002 (SCR buildup years) decreased by over two percent compared to the previous two years from 1998-1999.[90] The reduction in the overall outage time in the 2001-2002 period also shows that the SCR retrofits did not adversely affect the grid reliability. Therefore, EPA believes that the concern regarding electrical grid reliability is unwarranted for CAIR retrofits.

VII.C.4
Comment:

Some commenters questioned the IPM projections for the required SCR and FGD retrofits. These commenters cited their own analyses that show a greater number of these retrofits required for their systems. They also argued that a need to install these larger amounts of retrofits would affect their ability to meet the first phase compliance deadline.

[90]Reference: "NERC, Generating Availability Data System: All MW Sizes - Coal-Fired Generation Report, http://www.nerc.com/~filez/gar.html, October 17, 2003

Response:

The EPA does not agree with the projections presented by the commenters, since no information is provided on the methodology and criteria used to develop these projections. The EPA notes that, based on the IPM analyses, the increased retrofits within the commenters' systems would reflect over-control beyond the required CAIR emission caps. Such an over-control in a market-based allowance trading system is not necessary or expected if unexpected events could be dealt with by purchasing additional allowances at some point during the year.

VII.C.5

Comment:

Some commenters have indicated that the extensive time required to arrange financing for CAIR retrofits would affect their ability to comply with the first phase deadline. The majority of examples cited for this concern included small units or units owned by the co-operatives. Specifically for the co-operative units, it was stated that financing must be arranged through the Rural Utilities Service (RUS), a task requiring 5 to 6 years.

Response:

The EPA notes the NOx SIP Call experience of the last few years which shows a large number of plants successfully financing the SCR retrofit projects in a time frame similar to the implementation period available for CAIR retrofits. The two-phase approach incorporated into CAIR reduces the burden on smaller units, as EPA's projections show a larger portion of these units installing controls only during the second phase.

The EPA's projections also show that only a few co-operative units would require installation of controls. As pointed out by one commenter if these retrofits are funded through private sources, they would require only an approval by RUS. The time required to obtain approval should be shorter than funding the project through RUS. Therefore, if necessary, the overall schedule requirement for these retrofits can be shorter than the 5 to 6 years mentioned in the comments. Therefore, EPA believes that the Phase I implementation periods of approximately 3-3/4 and 4-3/4 years for NOx and SO2 controls, respectively, provide enough time for completing the financing activity for all Phase I controls. The EPA also notes that allowance-trading provisions of CAIR can also be used by such sources to defer implementation of controls.

VII.C.6

Comment:

Some commenters suggested that resources may be required for the installation of any controls resulting from EPA's rule regarding control of mercury from power plants. They argued that these requirements should be considered when evaluating the availability of resources for CAIR.

Response:

The EPA's rule covering mercury emissions from electric generating units is a separate rule and it is scheduled to be finalized sometime during 2005. Therefore, EPA is not in a position to address the requirements for this rule or their impact on CAIR. Notably, the

provisions of the Clean Air Act that EPA will use to develop the mercury controls allow accounting for implementation issues and the Agency will be sensitive to these issues.

VII.D. General

VII.D1
Comment:

Some commenters argue that CAIR requirements need to be revised, since they do not comply with the $PM_{2.5}$ and/or ozone emission caps and compliance deadlines mandated by the Clean Air Act.

Response:

Refer to the responses provided to the comments in Section VI.F that deal with the Clean Air Act-mandated $PM_{2.5}$ and ozone requirements.

VII.D2
Comment:

Some commenters have supported various aspects of the CAIR requirements as proposed by EPA, including compliance deadlines and emission caps.

Response:

The EPA acknowledges the support provided by the commenters with regards to the CAIR requirements established in the NPR proposal. The EPA would also like to point out that, based on comments received on the rule and further investigations conducted by the Agency, we have concluded that it would be feasible to accelerate the compliance deadline for meeting the Phase I NOx cap by 1 year, from the originally proposed January 1, 2010, to January 1, 2009. The final CAIR is, therefore, based on this accelerated compliance deadline for meeting the Phase I NOx emission requirements. The compliance deadline for meeting the Phase I SO_2 emission requirements is still January 1, 2010, as originally proposed. The EPA's analyses related to this change in compliance deadlines are described in the responses to the comments in Sections VII.B.

VII.D3
Comment:

Some commenters have argued against any acceleration in the Phase I and II compliance deadlines.

Response:

The issues related to the acceleration of Phase I and II compliance deadlines are discussed in the responses to comments in Section VI.B.

VII.D4
Comment:

Some commenters have argued that the Phase I and II compliance deadlines can be accelerated.

Response:

The issues related to the acceleration of Phase I and II compliance deadlines are discussed in the responses to comments in Section VI.B.

VII.D5

Comment:

Some commenters have argued that the Phase I compliance deadline is unattainable and that it should be extended.

Response:

The issues related to the extension of Phase I compliance deadline is discussed in the responses to comments in Section VI.C.

VII.D6

Comment:

One commenter has argued that the CAIR should be finalized by December 31, 2004, to provide adequate implementation time.

Response:

The analyses performed by the EPA for the final CAIR indicate that, with the today's finalization of the rule, the sources would have adequate time to implement the CAIR requirements.

VII.D7

Comment:

One commenter has argued that the CAIR should be harmonized/streamlined with the mercury rule.

Response:

EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for $_{SO2, NOx}$, and mercury. We have designed the CAIR rule and the mercury section 111 proposal to take advantage of the combined emissions reductions that non-mercury-specific technologies provide. The section 111 proposal would take advantage of Hg emissions reductions that can be achieved by the air pollution controls designed and installed for CAIR to reduce $_{NOx \text{ and } SO2}$ emissions.

VIII.A. Consideration of interactions between the Hg rules and the IAQR

VIII.A.1.

Comment:

Maine believes a comprehensive multi-pollutant program addressing not only NOx and SO2, but also mercury is the most cost-effective way to ensure the adequate control of transported emissions. At the same time, it is our firm conviction that EPA is legally bound to regulate

mercury from electric generating units (utility boilers) through the use of section 112 of the Clean Air Act; multi-pollutant program such as the IAQR can supplement, but cannot supplant the MACT requirements of section 112. While the IAQR proposal offers some ancillary mercury benefits, NOx and SO2 controls alone cannot provide the level of mercury reductions necessary to meet the MACT requirements and adequately protect public health. Nevertheless, the strong interrelationships between $_{SO2, NOx}$ and mercury controls must be considered in the context of the IAQR.

For example, when SCR, scrubbers and baghouses are applied to bituminous coal-fired boilers, mercury emissions are significantly reduced. Controlling direct emissions of particulate also creates opportunities to more efficiently reduce mercury through such control techniques as activated carbon injection and SO_2 through lime injection. Maine believes EPA should align the implementation deadlines of these two programs to take better advantage of these interrelationships. A 2007 implementation deadline for the first phase of the IAQR would provide facilities the ability to more cost-effectively address the mercury issue while also maximizing multi-pollutant reductions.

Analogous to our position on regional haze, Maine does not believe the IAQR mercury co-benefits should presumptively fulfill the mercury MACT requirements. We believe that although the IAQR mercury co-benefits may help in meeting progress towards the MACT control requirements, meeting an approximately 5 ton per year annual emission cap will clearly require directed mercury controls.

In conclusion, Maine believes that EPA's proposal provides an intriguing opportunity to finally address transported $_{SO2, NOx}$ and mercury emissions through a comprehensive multi-pollutant program.

Response:

EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for $_{SO2, NOx}$, and mercury. EPA has designed the CAIR rule and the proposed mercury rule to take advantage of the combined emissions reductions that existing technologies provide. The Hg proposal would take advantage of Hg emissions reductions that can be achieved by the air pollution controls designed and installed to reduce $_{NOx \text{ and } SO2}$. Specific comments on the mercury rule are beyond the scope of this rulemaking.

VIII.A.2.

Comment:

Unlike large systems, Buckeye faces critical issues related to the timing of the installation of control equipment and the coordination of related outages. Consequently, Buckeye has a high concern with U.S. EPA's need to coordinate the implementation of rule requirements, such as the IAQR. First and foremost, U.S. EPA should promulgate reasonable and achievable compliance

dates that coordinate with the Hg rules proposed on January 30, 2004 (69 Fed. Reg. 4652). The two rules should have compliance dates of no sooner than 2010, in order to allow the installation of control technologies that address emissions under both programs.

Response:

EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for $_{SO2, NOx}$, and mercury. We have designed the CAIR rule and the mercury section 111 proposal to take advantage of the combined emissions reductions that existing technologies provide, and for compliance deadlines between the two rules to be coordinated. The section 111 proposal would take advantage of Hg emissions reductions that can be achieved by the air pollution controls designed and installed to reduce $_{NOx \text{ and } SO2}$.

VIII.A.3.

Comment:

EPA's proposed IAQR requires compliance with Phase I SO2 and NO emission reductions by 2010. EPA's Utility Mercury Rule proposes a cap and trade program option that requires compliance with Phase I emission reductions by 2010. However, EPA's Utility Mercury Rule also proposes a maximum achievable control technology (MACT) option that specifies a 2008 compliance deadline.

In the event EPA decides to promulgate the Utility Mercury MACT Rule (Clean Air Act Section 112(d)) option, the mercury co-benefits of IAQR Phase I NOx and SO2, reductions would not be realized in time to meet the 2008 MACT compliance date. We recommend that EPA align the IAQR Phase I (2010) and the Utility Mercury MACT (2008) emission reduction compliance deadlines such that the IAQR Phase I NOx and SO2, compliance deadline and the Utility Mercury MACT rule emissions reduction compliance deadline are both set at 2010. Aligning the compliance deadlines at a date before 2010 is not practical due to the constraints imposed by allocating finite labor and material resources among the large number of power plant boilers that will require retrofitting in order to comply with the challenging IAQR Phase I SO_2 and NO, emission reduction requirements.

Alignment of the compliance deadlines would provide an opportunity to maximize the mercury co-benefits from SO_2 and NO, emission reductions. For example, utilities planning to install a system of selective catalytic reduction (SCR) technology for reducing NO, emissions and wet flue gas desulfurization (FGD) technology for reducing SO_2 emissions as required by the IAQR rule should be allowed the opportunity to attempt to optimize these controls to also reduce mercury emissions before being forced to additionally invest in mercury-only control technology. Maximizing emission reduction co-benefits is the most cost-effective way to accomplish the multi-emissions reduction goals contained in EPA's two proposed air quality rules. This concept is consistent with EPA's Clear Skies proposal. It is critical that EPA maintain a commitment to

developing rules that coordinate Clean Air Act requirements for power plants, and do so in a way that allows utilities to manage compliance costs and maintain affordable electricity prices.

Response:

EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for $_{SO2, NOx}$, and mercury. We have designed the CAIR rule and the mercury section 111 proposal to take advantage of the combined emissions reductions that existing technologies provide, and for compliance deadlines between the two rules to be coordinated. The section 111 proposal would take advantage of Hg emissions reductions that can be achieved by the air pollution controls designed and installed to reduce $_{NOx \text{ and } SO2}$.

VIII.A.4.

Comment:

AEP supports strengthening provisions for integrating the IAQR with existing programs and for providing more regulatory certainty to impacted sources, similar to elements of the proposed Clear Skies Initiative.

AEP recommends the final IAQR include provisions to assure affected utilities will have a harmonized compliance timeline with the final mercury rule.

Response:

EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for $_{SO2, NOx}$, and mercury. We have designed the CAIR rule and the mercury section 111 proposal to take advantage of the combined emissions reductions that existing technologies provide, and for compliance deadlines between the two rules to be coordinated.

VIII.A.5.

Comment:

Vermont supports the NESCAUM comment that any integrated multi-pollutant program for control of utility plant emissions should directly consider the impacts of regulating mercury as well. We agree also that control of Hg from utility boilers must be regulated under Section 112 of the Clean Air Act. The cost-effectiveness of controls available for NOx and SO2 emission reductions resulting from IAQR implementation would be enhanced if parallel reductions required under a MACT for Hg are considered. EPA should examine the enhanced benefits of reduced fine particulate matter transport as well as reduced Hg emissions from the utility sector that could be obtained cost-effectively by a tightening of both the IAQR caps and an expeditiously adopted MACT standard for Hg. Vermont urges EPA to consider earlier reductions in both Hg (under a MACT standard) as well as earlier reductions in NOx and SO2 than currently proposed under the IAQR in order to take advantage of the increased cost-effectiveness based on

the synergies which exist between available control technologies for these regulatory programs. Vermont opposes the use of any cap and trade approach for the pollutant Hg.

Response:

EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for $_{SO2, NOx}$, and mercury. EPA analysis has indicated that the NOx and SO2 budgets and caps under CAIR reflect the amount of emissions reductions that will be highly cost-effective and achievable in the timeframe required to improve $PM_{2.5}$ and ozone attainment status. EPA has designed the CAIR rule and the mercury proposal to take advantage of the combined emissions reductions that existing technologies provide. The Hg proposal would take advantage of Hg emissions reductions that can be achieved by the air pollution controls designed and installed to reduce $_{NOx \text{ and } SO2}$. EPA proposed a preference for the section 111 approach over MACT. Concerns over regulatory flexibility and timing contributed to the Agency's preference.

VIII.A.6.
Comment:

In general, the structure and multiple programs under the Clean Air Act lead to an approach that is disjointed, relatively inflexible, confusing, and inefficient. The Act specifically authorizes EPA to develop regulations to address air quality issues. However, various air quality issues are addressed within the Act as though they are separate and distinct, when in fact many air quality issues are related through the emissions reductions that are necessary to achieve the required results, and the solutions may focus on narrow groups of industries. The result is multiple programs for pollutants that overlap and are inconsistent with each other, and that cannot be easily synchronized with one another. The proposed IAQR is an effort by EPA to address exactly these regulatory problems by creating an integrated, synchronized strategy for reducing NOx and SO2 emissions from electric generating units (EGUs) to address multiple Clean Air Act mandates. Reliant applauds EPA's efforts to coordinate these air quality measures.

EPA has stated its intent to coordinate implementation of the IAQR with that of the final mercury cap-and-trade rule for EGUs, if that is the regulation ultimately promulgated for mercury. It has been demonstrated that controls for NOx and SO2 also provide some level of control for mercury. Accordingly, it is appropriate to time the reduction requirements of the mercury rules such that NOx and SO2 controls required for the IAQR are fully implemented prior to final mercury reduction requirements. This would maximize the mercury removal co-benefits of NOx and SO2 control and in turn allow industry time to plan for and install, if necessary, additional mercury-specific controls on units needing additional control. EPA has proposed just such a schedule in its mercury cap-and-trade rule. Reliant also strongly supports EPA's efforts to coordinate the schedules of the proposed IAQR and mercury rules.

Response:

EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for $_{SO2, NOx}$, and mercury. We have designed the CAIR rule and the mercury section 111 proposal to take advantage of the combined emissions reductions that existing technologies provide, and for compliance deadlines between the two rules to be coordinated. The section 111 proposal would take advantage of Hg emissions reductions that can be achieved by the air pollution controls designed and installed to reduce $_{NOx \text{ and } SO2}$.

VIII.A.7.

Comment:

In general, the structure and multiple goals of the Clean Air Act lead to a regulatory approach that is piecemeal, relatively inflexible, and inefficient. The Act specifically authorizes EPA to develop regulations to address air quality issues. However, various air quality issues are addressed within the Act as though they are separate and distinct, when in fact some air quality issues are related, and the solutions may focus on narrow groups of industries. The result is multiple programs for pollutants that overlap and are inconsistent with each other, and that cannot be easily synchronized with one another. The proposed IAQR is an effort by EPA to address exactly these regulatory problems by creating an integrated, synchronized strategy for reducing NOx and SO2 emissions from electric generating units (EGUs). Texas Genco applauds EPA's efforts to coordinate these air quality measures. EPA has stated its intent to coordinate implementation of the IAQR with that of the final mercury MACT rule for EGUs. Texas Genco also strongly supports EPA's efforts to coordinate the schedules of the proposed IAQR and mercury rules, as many of the controls expected to be needed for the IAQR may also address emissions of mercury.

Response:

EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for $_{SO2, NOx}$, and mercury. We have designed the CAIR rule and the mercury section 111 proposal to take advantage of the combined emissions reductions that existing technologies provide, and for compliance deadlines between the two rules to be coordinated. The section 111 proposal would take advantage of Hg emissions reductions that can be achieved by the air pollution controls designed and installed to reduce $_{NOx \text{ and } SO2}$.

VIII.A.8.

Comment:

Cinergy believes that a program combining regulations to control mercury, NOx, and SO_2 would achieve substantial multi-emission reductions in a timely fashion and allow companies to appropriately plan and schedule implementation so that costs can be held to a minimum.

Having said that, we also understand EPA can only do what the current law allows and it needs to move forward now with its rulemakings for mercury, ozone and particulate matter. We believe EPA has taken a significant step toward trying to find the best, most cost-effective emissions reduction solution by aligning the proposed mercury rule and the IAQR. While aligning these two rules provides less certainty than Clean Skies, the multi-pollutant approach is far better than the continued reliance on piecemeal efforts under current regulatory programs.

For an effective multi-pollutant control strategy that best mirrors the advantages of Clear Skies, EPA must coordinate and harmonize the mercury rule and IAQR as much as possible. In setting reduction targets and compliance deadlines for individual pollutants, EPA should fully consider the 'co-benefits' that pollution controls such as SO_2 scrubbers and SCR controls will have for reduction of other pollutants. Aligning reduction targets and compliance deadlines will allow companies to address $_{SO2, NOx}$, and mercury in one integrated step, rather than two. This promotes the efficient utilization of resources and better ensures timely compliance. Therefore, it is critical for the Phase I compliance dates under both rules to be set for 2010. As in Clear Skies, the Phase I mercury reduction targets should be set at the co-benefit level resulting from Phase I of the IAQR. Failure to align these deadlines and reduction targets would not only increase compliance costs substantially, but could actually impede the early installation of the most effective control technologies.

The implementation of a MACT Standard in 2008 would impede installation of the most effective controls currently available to reduce mercury and other emissions. Cinergy supports an integrated approach because it makes sense from an environmental standpoint and will ensure compliance in the most cost-effective manner possible. Cinergy anticipates achieving most of its mercury reductions mandated by the rule through installation of scrubbers, SCRs, or some combination of the two. Since installation of scrubbers and SCRs will ensure reduction of mercury, NOx and SO_2, such a compliance strategy would maximize the health benefits associated with early reduction of multiple pollutants. However, these major capital projects require substantial lead-time. Installing one scrubber requires approximately 48 to 54 months and it is impossible to undertake simultaneous installation of scrubbers on a system-wide basis due to unit outage schedule restrictions. A scrubber requires about 12 months to select the appropriate technology and establish design criteria; 12 to 18 months for engineering and design; and 24 to 30 months (depending on weather) for construction and startup. In addition to the time for installation of the scrubber itself, we will need approximately 60 months just for wastewater discharge permits and landfill permits for handling scrubber byproducts. These time constraints would be aggravated with hundreds of the 1,100 affected sources potentially installing scrubbers within the same 3-year window. As EPA has pointed out, this would place an extreme demand on a limited pool of experienced contractors, skilled labor, and material vendors and would also result in industry-wide scheduled outages that could pose significant risk to electric reliability. Cinergy and other companies experienced these problems in complying with the NOx SIP Call. The tighter the Phase I compliance date, the more likely it is that companies would use mercury-only controls that would result in stranded costs as additional controls are installed to obtain

reductions at a later date. This would delay multi-pollutant reductions that are otherwise feasible and ultimately increase the costs that will be borne by the consumer.

Response:

EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for $_{SO2, NOx}$, and mercury. We have designed the CAIR rule and the mercury section 111 proposal to take advantage of the combined emissions reductions that existing technologies provide, and for compliance deadlines between the two rules to be coordinated. The section 111 proposal would take advantage of Hg emissions reductions that can be achieved by the air pollution controls designed and installed to reduce $_{NOx \text{ and } SO2}$.

VIII.A.9.
Comment:

Environmental Defense recommends that EPA use its models to calculate the estimated benefits from anticipated mercury reductions from the IAQR.

Response:

EPA's did not estimate ancillary benefits from mercury reductions under CAIR as part of this rulemaking, but acknowledges that they exist in the RIA. EPA focused on the use of its CAA authority to address the interstate transport of ozone and fine particles, and setting highly cost-effective controls that could be practically implemented to bring about greater attainment with the NAAQS.

VIII.A.10.
Comment:

Stronger mercury rules would yield more NOx and SO2 reductions that what the EPA proposes in the Interstate Air Quality Rule. If EPA addresses the direct emissions of particulate HAPs and acid gas HAPs from all power plants, this would result in much greater reductions of fine particulates than the proposed Interstate Air Quality Rule. Reductions in sulfur dioxide and oxides of nitrogen would be reduced much more as well. The same measures that effectively control mercury emissions also reduce emissions of these other pollutants. It is cost effective and in the best interests of public health to address all pollutants from coal fired power plants in a comprehensive and timely way.

EPA's proposal for the utility MACT, like its proposal the NOx and SO2 transport rule, does not meet the public health, energy, and economic needs of a nation. The legal and technical flaws are so obvious that the courts' invalidation of the rules is virtually a foregone conclusion. I take no pleasure in that prediction, because it consigns us all to nothing more than years of additional delay before the nation even begins to address a severe threat to the health of our children.

Response:

EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for $_{SO2, NOx}$, and mercury. EPA has designed the CAIR rule and the forthcoming Clean Air Mercury Rule to take advantage of the combined emissions reductions that existing technologies provide. The Hg proposal would take advantage of Hg emissions reductions that can be achieved by the air pollution controls designed and installed to reduce $_{NOx \text{ and } SO2}$. Further discussion of the Hg rule is beyond the scope of this rulemaking.

VIII.A.11.

Comment:

We recommend that EPA coordinate the timing of future mercury reductions to occur after the initial phase of the IAQR proposal, by staggering these compliance deadlines in a manner that allows for cost-effective strategies where companies can take advantage of co-benefit mercury reductions achieved through $_{NOx \text{ and } SO2}$ control technologies.

Response:

EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for $_{SO2, NOx}$, and mercury. We have designed the CAIR rule and the mercury section 111 proposal to take advantage of the combined emissions reductions that existing technologies provide, and for compliance deadlines between the two rules to be coordinated. The section 111 proposal would take advantage of Hg emissions reductions that can be achieved by the air pollution controls designed and installed to reduce $_{NOx \text{ and } SO2}$.

VIII.A.12.

Comment:

It is important to harmonize the timeline for the IAQR emission reductions with the mercury emission reductions EPA is also proposing. The Phase I, 2010 compliance time is too short to allow the implementation of highly cost effective emission reductions.

It is imperative that the rule provides the maximum amount of regulatory certainty feasible to enable utilities to optimize compliance planning with generation resource requirements.

Response:

EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for $_{SO2, NOx}$, and mercury. We have designed the CAIR rule and the mercury section 111 proposal to take advantage of the combined emissions reductions that existing technologies

provide, and for compliance deadlines between the two rules to be coordinated. The section 111 proposal would take advantage of Hg emissions reductions that can be achieved by the air pollution controls designed and installed to reduce $_{NOx\ and\ SO2}$.

VIII.A.13.
Comment:

The NESCAUM states believe that any integrated multi-pollutant program should directly consider the impacts of regulating mercury. We believe that EPA must regulate mercury from utility boilers under Section 112 of the Clean Air Act and that any multi-pollutant program for mercury or other toxic air pollutants should supplement, not replace, the requirements of Section 112 of the Clean Air Act. Should EPA choose to continue its development of a supplemental, multi-pollutant program that includes mercury, the NESCAUM States recommend that EPA further evaluate the interactions between these two regulatory programs. For example, EPA should determine how earlier implementation of new NOx and SO2 caps could increase the cost-effectiveness of the imminent mercury MACT requirements and lead to the adoption of more stringent mercury caps on an expedited schedule similar to the caps and the schedules already proposed by the OTC and STAPPA/ALAPCO. EPA is well aware that important synergies already exist between available control options for mercury, $_{SO2,\ NOx}$, and particles. In fact, when the most effective control technologies for $_{SO2,\ NOx}$, and particles (i.e., SCR, scrubbers, and baghouses) in combination are applied to bituminous coal-fired boilers, significant mercury removal results. Better control of direct emissions of particles creates the direct benefit of reduced fine particulate emissions and opportunities to efficiently and very cost-effectively reduce mercury (with respect to injection, such as carbon) and sulfur dioxide (with reagent injection such as lime). Thus, to the extent that power plant owners are required to achieve mercury reductions under stringent mercury MACT requirements on an earlier implementation timetable than the IAQR, opportunities for cost-effective co-control of NOx and SO2 are likely to exist well before the proposed dates of 2010 and 2015. In addition, even deeper NOx and SO2 reductions and particulate emission performance standards could prove cost effective based on he concomitant reductions in mercury.

Since EPA is already in the process of performing additional analyses of its proposed mercury MACT rule, we request that EPA also re-analyze the mercury co-benefits predicted in the IAQR preamble. In addition, the NESCAUM States request EPA to provide NESCAUM copies of all the data used in its previous analysis as well as the additional data and analyses currently in progress. NESCAUM reserves the right to comment on EPA's co-benefits analysis pending receipt of the information requested herein.

While the NESCAUM States support properly designed cap-and-trade approaches for NOx and SO2, we oppose a mercury cap-and-trade approach, particularly given the significant concern that mercury trading could result in new mercury 'hot spots' and exacerbate the 'hot spots' that already exist in the Northeast.

While the NESCAUM States believe that reductions through the IAQR could assist in meeting progress toward the Mercury MACT program goals, we cannot support a presumption that meeting the requirements of the IAQR will meet the goals of the mercury MACT program.

Response:

EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for $_{SO2, NOx}$, and mercury. EPA has designed the CAIR rule and the forthcoming Clean Air Mercury Rule to take advantage of the combined emissions reductions that existing technologies provide. The Hg proposal would take advantage of Hg emissions reductions that can be achieved by the air pollution controls designed and installed to reduce $_{NOx \text{ and } SO2}$. Further discussion of the Hg rule is beyond the scope of this rulemaking.

VIII.A.14.

Comment:

If the control levels specified in the transport rule are subsequently adopted in federal legislation, (as opposed to the rulemaking) we suggest the addition of a 2008 cap on mercury emissions of 15-20 TPY and a 2013 cap of 8.3 TPY. Mercury levels in this interim cap range should be largely achievable through the application of the same air pollution control equipment needed to achieve compliance with the interim NOx and SO2 caps that STAPPA/ALAPCO have identified in their analysis. Traditional control technologies for criteria pollutants have been shown to be effective for mercury reduction, especially when used in combination; the most effective for mercury is a combination of low-NOx burner, selective catalytic reduction, baghouse and scrubber technologies. This interim cap range is also intended to encourage the use of mercury specific control technologies, such as activated carbon injection (ACI), by some facilities. ACI has low capital cost, especially with an existing baghouse, has been proven on incinerators, and has been piloted and demonstrated and is currently available for coal. [[(STAPPA/ALAPCO's analysis can be found in Docket Number 0470)]]

Response:

This comment is outside the scope of the CAIR rulemaking.

VIII.A.15.

Comment:

While acknowledging the concurrent efforts to regulate utility sector mercury emissions, the proposal in its current form does not directly address the controls design, installation and investment efficiencies of a truly multi-pollutant retrofit effort directed at maximized, coordinated emission controls. Such a coordinated MACT and ambient air quality response should be able to limit total system outage times and to ensure adequate regional power capacity in the 5-to-8 year window needed to address a comprehensive national retrofit effort.

Response:

EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for $_{SO2, NOx}$, and mercury. EPA analysis has indicated that the NOx and SO2 budgets and caps under CAIR reflect the amount of emissions reductions that will be highly cost-effective and achievable in the timeframe required to improve $PM_{2.5}$ and ozone attainment status. It should be noted that EPA has considered system reliability issues (i.e., outage times) in both the CAIR and Hg rulemaking and is sensitive to this issue. EPA believes that there will not be reliability problems resulting from its approaches to both sets of controls.

VIII.A.16.

Comment:

EPA has issued a series of proposed rules to regulate emissions from fossil-fired electric generating units, specifically the Clean Air Interstate Rule for NOx and SO2 controls and a second rulemaking for regulating mercury. Together, the emissions control requirements proposed by these rules will have substantial and far reaching impacts on the electric power industry, generally, and large public power systems, specifically. The rules, if finalized as proposed, would require the largest single industry investment in air pollution control in the history of the country.

In this regard, LPPC appreciates your efforts to coordinate these two air rulemakings with regional haze control requirements recently proposed by EPA. Although still evaluating the regulatory implications of this rulemaking proposal, we are encouraged by your efforts to establish clear guidance confirming that regional haze compliance can be achieved though implementation of the more stringent NOx and SO2 control obligations called for under the transport rule.

Response:

EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities.

VIII.A.17.

Comment:

We also identify in this document specific critiques of certain methodologies, timelines and other items, and offer views on the tie-in to the EPA's proposed Utility Mercury Reduction Rules (UMRR).

Response:

EPA's consideration of the this commenter's proposal regarding Indian Country coal are considered in section IX of this document. Specific comments about the implications of mercury trading specifically or the mercury rule in general were beyond the scope of this rulemaking.

VIII.A.18.
Comment:

U.S. EPA must promulgate reasonable and achievable compliance dates that coordinate with the Hg rules proposed on January 30,2004 (69 Fed. Reg. 4652). The two rules should have compliance dates of no sooner than 2010, in order to allow the installation of control technologies that address emissions under both programs.

The IAQR requires considerable revision prior to final promulgation. Of all the factors to consider in a final rule, U.S. EPA must provide for a certain, reasonable, and coordinated time schedule for this and all the rulemakings. Failure to coordinate deadlines will be unreasonably costly and of no benefit to the environment.

Response:

EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for $_{SO2, NOx}$, and mercury. We have designed the CAIR rule and the mercury section 111 proposal to take advantage of the combined emissions reductions that existing technologies provide, and for compliance deadlines between the two rules to be coordinated. The section 111 proposal would take advantage of Hg emissions reductions that can be achieved by the air pollution controls designed and installed to reduce $_{NOx \text{ and } SO2}$.

VIII.A.19.
Comment:

Any multi-pollutant program should be considered concurrently with a mercury proposal, especially given that there is considerable overlap in benefits between certain SO_2 controls and mercury controls. We believe the overall costs of including mercury with a multi-pollutant program would be significantly lower than if the mercury were considered separately.

Response:

EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for $_{SO2, NOx}$, and mercury. We have designed the CAIR rule and the mercury section 111 proposal to take advantage of the combined emissions reductions that existing technologies provide, and for compliance deadlines between the two rules to be coordinated. The section 111 proposal would take advantage of Hg emissions reductions that can be achieved by the air pollution controls designed and installed to reduce $_{NOx \text{ and } SO2}$.

VIII.A.20.
Comment:

Ohio EPA recognizes that US. EPA has also proposed regulations for the control of mercury emissions from utility plants in a separate regulatory proposal. Both the IAQR and utility mercury control proposal are important priorities to Ohio EPA and Ohio EPA encourages US. EPA to finalize the promulgation of both rules as soon as possible.

Response:

EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for CAIR and the proposed Hg rule. EPA has worked to finish these rules as quickly as possible.

VIII.A.21.

Comment:

Empire agrees with EPA. Due to the interrelationship of pollution control technologies, a multi-pollutant approach which incorporates a flexible cap and trade program will provide for the efficient protection of the environment in a cost effective manner. In contrast, if EPA should adopt the Mercury MACT in 2008, utilities could not use the co-benefits gained through the control of $_{NOx \text{ and } SO2}$ as required by the IAQ Rule and costs to our customers will be increased. Empire encourages EPA to continue the design of a $_{SO2, NOx}$, and Mercury MACT program that eliminates the inefficiencies and confusing overlapping of separate implementation plans.

Empire recognizes the importance of the potential coordination between Mercury MACT and the IAQ Rule. Empire supports the timing of Phase I and Phase II if EPA also implements a flexible, multi-pollutant cap and trade program which incorporates NOx, $_{SO2}$, and Hg.

Response:

EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for $_{SO2, NOx}$, and mercury. We have designed the CAIR rule and the mercury section 111 proposal to take advantage of the combined emissions reductions that existing technologies provide, and for compliance deadlines between the two rules to be coordinated. The section 111 proposal would take advantage of Hg emissions reductions that can be achieved by the air pollution controls designed and installed to reduce $_{NOx \text{ and } SO2}$.

VIII.A.22.

Comment:

The compliance deadlines for the IAQR should be coordinated with the compliance deadlines for the mercury rule.

Generally speaking, the current CAA regulatory approach is piecemeal, inflexible, and inefficient. While the Act authorizes the EPA to develop regulations for specific industries for

each emission identified, the complex and overlapping nature of the regulatory programs often result in a series of inconsistent regulations for the same pollutant, and prevents the synchronization of emission reduction programs for multiple pollutants. EPSA applauds EPA's efforts to avoid this outcome through an integrated regulatory strategy for controlling emissions from electric generating units (EGUs).

EPSA supports EPA's efforts to coordinate the NOx and SO2 control requirements of the transport rule with the mercury control requirements under the other rulemaking. This is in keeping with EPSA's preference for a comprehensive approach to air quality regulations rather than implementing it in a piecemeal fashion. The coordination of compliance deadlines will bring cleaner air, sooner, at a lower cost, while providing greater certainty to the industry.

Response:

EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for CAIR and the proposed Hg rule.

VIII.A.23.

Comment:

EPA has not proposed a timeline that aligns with workable mercury control requirements. If EPA chooses to pursue IAQR during the next 8 years, it is important that EPA harmonize the deadlines for the $_{NOx\ and\ SO2}$ reductions with workable mercury compliance dates. Only coordination of these control programs will permit affected entities to develop cost-effective planning strategies that effectively allow reductions of all three pollutants. As EEI has stated, failure to synchronize these deadlines could affect electric rates and reliability.

Response:

EPA is sensitive to the commenter's remarks and is acting to coordinate the CAIR and Hg rule implementation in an effective manner. EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for CAIR and the proposed Hg rule.

VIII.A.24.

Comment:

Michigan supports a national multipollutant effort to reduce air emissions of nitrogen oxides (NOx), sulfur dioxide ($_{SO2}$), and mercury from electric generating units, as well as industrial and commercial combustion units. Any multipollutant regulation must provide timely and sufficient emission reductions to ensure adequate protection from adverse local, regional, and national health and environmental impacts.

Michigan supports provisions for States to place limits on mercury trading, and for the assessment of local impacts and evaluation of total mercury emissions.

Response:

EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. The CAIR emissions reduction requirements and timelines are designed to improve States' $PM_{2.5}$ and ozone attainment status.

This comment on mercury trading is beyond the scope of this rulemaking.

VIII.A.25.

Comment:

We support EPA's proposed approach to harmonize the timing of the NOx and SO2 reductions in the IAQR proposal. It is paramount that EPA adopt a regulatory approach that harmonizes the deadlines for mercury reductions with the NOx and SO2 reductions proposed in the IAQR. The coordination of these control programs will allow the development of cost-effective planning strategies that effectively allow facilities to take advantage of co-benefit mercury reductions that can be achieved through conventional NOx and SO2 control technologies.

Response:

EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for $_{SO2, NOx}$, and mercury. We have designed the CAIR rule and the mercury section 111 proposal to take advantage of the combined emissions reductions that existing technologies provide, and for compliance deadlines between the two rules to be coordinated. The section 111 proposal would take advantage of Hg emissions reductions that can be achieved by the air pollution controls designed and installed to reduce $_{NOx \text{ and } SO2}$.

VIII.A.26.

Comment:

The EPA should harmonize the IAQR with the compliance dates in the separately-proposed Utility Mercury Reduction Rule in order to allow regulated utilities to coordinate their planning and control installation activities to reduce $_{SO2, NOx}$ and mercury.

Response:

EPA agrees. EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for CAIR and the proposed Hg rule.

VIII.A.27.
Comment:

AEP recommends that the schedule for implementing the CAIR be harmonized with the timelines associated with reductions required by the final Mercury Rule. AEP further recommends that to the extent such a schedule is inconsistent with the attainment dates assigned to EPA for certain areas, EPA should re-examine and/or establish an attainment and extension policy that allows adequate time for the development and implementation of both the IAQR/CAIR programs and nonattainment state implementation plans for $PM_{2.5}$ or 8-hour ozone.

Response:

EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for $_{SO2, NOx}$, and mercury. EPA analysis has indicated that the $_{NOx\ and\ SO2}$ budgets and caps under CAIR reflect the amount of emissions reductions that will be highly cost-effective and achievable in the timeframe required to improve $PM_{2.5}$ and ozone attainment status. EPA has considered the need for extensions for pollution control under CAIR and believes there is not a need for one. However, as an extra hedge, a compliance supplement pool has been created for State's use for the $_{NOx}$ program.

VIII.A.28.
Comment:

We note that the compliance date for mercury MACT proposed in EPA's NESHAPs rule is December 15, 2007, two years ahead of the 2010 compliance date proposed for the first phase of reductions in the IAQR. EPA has pointed out that control SCR units installed to reduce $_{NOx}$ and scrubbers installed to reduce $_{SO2}$ can prove effective in reducing mercury. Some companies may want to take advantage of equipment installed to comply with the IAQR to also meet their mercury reduction requirements. Because it would be unfeasible to accelerate the compliance date for the first phase of the IAQR, EPA should move the compliance date for its mercury rule to January 1, 2010.

Response:

EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for $_{SO2, NOx}$, and mercury. EPA has designed the CAIR rule and the forthcoming Clean Air Mercury Rule to take advantage of the combined emissions reductions that existing technologies provide. The Hg proposal would take advantage of Hg emissions reductions that can be achieved by the air pollution controls designed and installed to reduce $_{NOx\ and\ SO2}$. Specific comments on the mercury rule are beyond the scope of this rulemaking.

VIII.A.29.
Comment:

Further, by separating mercury control from this rulemaking, the opportunity to require that NOx and SO2 controls be designed in a manner that optimizes mercury reductions is permanently lost. The separately proposed mercury rule relies exclusively on these NOx and SO2 control systems for mercury reductions until at least 2018. EPA is passing up the opportunity to incorporate mercury control into the design of these systems, choosing instead to attempt to retrofit them 14 years from now.

Response:

EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for $_{SO2, NOx}$, and mercury. EPA has designed the CAIR rule and the forthcoming Clean Air Mercury Rule to take advantage of the combined emissions reductions that existing technologies provide. The Hg proposal would take advantage of Hg emissions reductions that can be achieved by the air pollution controls designed and installed to reduce $_{NOx \text{ and } SO2}$.

VIII.A.30.
Comment:

EPA has stated that the combination of the IAQR and the Agency's proposed mercury regulations will demand the largest single industry investment in emissions reductions in the history of the CAA. This is on top of past emission reductions costing tens of billions of dollars in capital and billions annually for operation and maintenance. Texas is willing to do its part, however the economic well-being of the State cannot be sacrificed for those that have time and again failed to make environmental progress. Texas has made significant reductions early and the IAQR as proposed, not only fails to recognize this progress, but it actually penalizes for it.

Under the IAQR, many TAB member companies may be required to install pollution control equipment at costs in the millions of dollars. Accordingly, the final rule must get the most 'bang for the buck' by making substantial pollution reductions, preventing further exacerbation of natural gas supplies and prices, maintaining reliable electricity generation and minimizing costs to electric utilities, businesses and homeowners. Any multi-emission policy must also streamline regulatory requirements while providing certainty to electric generators.

Response:

EPA appreciates the contribution that Texas has made to improvements in air quality. EPA has set the reduction requirements of CAIR to levels that are highly cost-effective, and the use of a cap-and-trade program will limit the costs of the program relative to a command-and-control program with the same reduction requirements. Furthermore, EPA believes that a carefully designed multipollutant approach – a program designed to control $_{SO2, NOx}$, and mercury at the same time – is the most effective way to reduce emissions from electric utilities. One key feature of this approach is the relationship of the timing and cap levels for $_{SO2, NOx}$, and mercury.

EPA's cost-effectiveness analysis for CAIR is discussed in Section IV of today's preamble. The economic impacts of the rule are discussed in the CAIR RIA, and show that CAIR does not create substantial increases in electricity or natural gas prices, in a program that is very efficient in providing health benefits – over $25 of benefits for every dollar of electricity production costs. EPA will be mindful of Texas's concerns completing its work on the Hg rule in the near future, in keeping with the Agency's belief about the value of a carefully designed multipollutant approach between the CAIR and Hg rules.

VIII.B. Use of Title IV SO_2 allowances as basis for CAIR SO_2 program

VIII.B.1
Comment:

Commenters question the legality of using Title IV allowances for the CAIR SO_2 program.

Response:

See Preamble Section IX.B.

VIII.B.2
Comment:

Commenters oppose the use of Title IV allowances for the CAIR SO_2 program because it would result in an inequitable distribution; the data upon which the Title IV allowances is based is very out-of-date.

Response:

See Preamble Section V.A.

VIII.B.3
Comment:

Commenters support the use of Title IV allowances for the CAIR SO_2 program.

Response:

This comment is supportive of the approach taken in the CAIR.

VIII.B.4
Comment:

The title IV and CAIR SO_2 programs should be kept as separate and distinct programs. Some commenters offer different approaches for how to accomplish this.

Response:

The title IV Acid Rain Program will remain a distinct program with key elements (e.g., applicability, emission monitoring and reporting, allowance trading, compliance, and penalties)

maintained. CAIR builds upon the Acid Rain Program but compliance is determined separately for each program as part of a single accounting procedure.

VIII.B.5
Comment:

Using Title IV allowances for the CAIR SO_2 program does not give States adequate flexibility.

Response:

EPA has given great consideration to providing States with as much flexibility as practicable in providing an efficiently functioning, regionwide cap and trade program. In fact, States have flexibility to achieve the CAIR emission reductions using a mechanism other than the EPA-administered SO_2 CAIR cap and trade program. States choosing to participate in the EPA-administered, regionwide SO_2 cap and trade programs will have flexibility in how they distribute their SO_2 allowances. See the CAIR NFR preamble for additional discussion of the reasons for basing the CAIR SO_2 program on the title IV program.

VIII.B.6
Comment:

Commenters request that EPA clarify in the model trading rules and guidance that allowances are to be allocated to joint owners in accordance with CAA §408(i).

Response:

The CAIR model trading rules do take into account joint ownership of units and sources through the requirement for each source to have a designated representative selected through an agreement binding on all owners and operators (see sections 96.113, 96.213, and 96.313).

VIII.C. Interactions with Other Clean Air Act Requirements - the NOx SIP Call

VIII.C.1.
Comment:

Several commenters recommend leaving the current NOx SIP Call ozone season NOx limitation on EGUs in place as a way to ensure that ozone season NOx reductions from EGUs required by the NOx SIP Call would be achieved. Many of the same commenters suggested a dual-season or bifurcated CAIR trading program as a mechanism for maintaining an ozone season NOx cap for EGUs under the CAIR. Commenters also recommend including non-EGUs affected by the NOx SIP Call in the CAIR ozone season trading program so that they may continue to trade with EGUs.

Response:

See preamble.

VIII.C.2.
Comment:

Several commenters commented that because attainment demonstrations for early action compacts were made based on having EGUs and non-EGUs together in the NOx SIP Call, EPA could not allow EGUs to leave the NOx SIP Call and still have valid early action compacts ("EAC").

Response:

See preamble.

VIII.C.3.
Comment:

EPA should make non-EGUs under the NOx SIP Call subject to an annual NOx cap similar to EGUs under the CAIR so that non-EGUs could continue to trade with EGUs.

Response:

See preamble.

VIII.C.4.
Comment:

EPA notes that the costs for non-EGU boilers and turbines to comply with NOx SIP Call Trading Program requirements will increase due to the EGUs no longer being in the trading program. That cost has not been quantified. EPA should provide an analysis of the cost of excluding non-EGU sources from the 'cap and trade' program.

Response:

In the final CAIR, EPA is allowing non-EGUs covered by the NOx SIP Call to participate in the CAIR ozone season trading program. See preamble for further discussion.

VIII.C.5.
Comment:

Indiana's non-EGUs have complied with the NOx SIP Call and made compliance decisions based their ability to participate in the trading program. EPA has not fully evaluated the effect of this proposed change on these sources.

Response:

In the final CAIR, EPA is allowing non-EGUs covered by the NOx SIP Call to participate in the CAIR ozone season trading program. See preamble for further discussion.

VIII.C.6.
Comment:

The IAQR Preamble anticipates the creation of a large group of sources that are currently obligated to comply with the terms of the NOx SIP Call but which will not be covered by the

IAQR. EPA provides no information as to what will happen to these orphan sources. EPA recognizes this effect of the exclusion of the orphan sources but proposes to do nothing about it.

Response:

In the final CAIR, EPA is allowing non-EGUs covered by the NOx SIP Call to participate in the CAIR ozone season trading program. See preamble for further discussion.

VIII.C.7.

Comment:

Trading under the $_{OTC\ NOx}$ Budget Program (now under the NOx SIP Call) included sources larger than 250 MMBtu, including EGUs, large industrial boilers, and cement kilns. These sources should be included in the trading scheme proposed in the IAQR. If these sources are not subsumed under the IAQR trading program, they will be orphaned - and the efficacy of an IAQR trading scheme will backslide to less than the current NOx SIP Call.

Response:

In the final CAIR, EPA is allowing non-EGUs covered by the NOx SIP Call to participate in the CAIR ozone season trading program. See preamble for further discussion.

VIII.C.8.

Comment:

Excluding large non-electric generating units such as industrial boilers, turbines, and cement kilns would likely erode the environmental benefits of the NOx SIP Call, which included these sources.

Response:

It is unclear what the commenter means by "erode the environmental benefits of the NOx SIP Call." In the final CAIR, EPA is allowing non-EGUs covered by the NOx SIP Call to participate in the CAIR ozone season trading program. See preamble for further discussion. Also see preamble section VIII for discussion of why EPA did not assume reductions from non-EGUs.

VIII.C.9.

Comment:

If the non-EGUs are excluded from the program and the EGUs are allowed to demonstrate compliance with the NOx SIP Call with this year-round program, how does that affect the trading for the non-EGUs over the ozone control period? Unless non-EGUs will be allowed to trade with the EGUs during the ozone control period, they will be under undue hardship as they were originally predicted to be purchasers due to the high cost of controlling their units.

Response:

In the final CAIR, EPA is allowing non-EGUs covered by the NOx SIP Call to participate in the CAIR ozone season trading program. See preamble for further discussion.

VIII.C.10.
Comment:

Will non-EGUs also be exempted from the NOx SIP Call once the IAQR takes effect?

Response:

No, non-EGUs affected by the NOx SIP Call will continue to be affected by the NOx SIP Call and EPA will continue to run the NOx SIP Call program until the CAIR ozone season $_{NOx}$ trading program takes effect. See preamble for further discussion.

VIII.C.11.
Comment:

Delaware supports the annual NOx reduction requirement. However, any trading under the annual NOx cap should include a mechanism to ensure that the ozone season reductions of the NOx SIP Call are not adversely impacted. Therefore, Delaware believes there should be a nested ozone season NOx cap to safeguard NOx controls in the summer months.

Response:

See preamble.

VIII.C.12.
Comment:

Failure to retain an ozone season cap could undermine the existing NOx Budget Program by allowing sources to use banked allowances to offset control requirements in the summer.

Response:

EPA is retaining an ozone season cap for NOx emissions in the CAIR. See preamble for further discussion.

VIII.C.13.
Comment:

A commenter strongly supports year-around caps on NOx emissions, rather than just seasonal controls. NOx emissions in the Fall, Winter, and early Spring contribute significantly to stream acidification, and caps must be in place during these seasons to mitigate stream acidification.

Response:

EPA is finalizing year-round caps on NOx in certain States. See preamble for further discussion.

VIII.C.14.
Comment:

An approach to addressing local area needs regarding ozone is to establish ozone season and/or 30-day or 24-hour summer targets for NOx emissions. These budgets could be the

seasonal NOx SIP structure that already exists, and that provides for some non-EGU source involvement, or, these targets could be emission-rate based or reflect a differing currency that is useful only during the 3-5 month critical season for the region. The key to such a program is ensuring that there is no backsliding in the current ozone control effort and that summer NOx emissions are further reduced in the NOx SIP area in Phase 2 to better address 8-hour ozone control need.

Response:

EPA is finalizing ozone season NOx caps and is allowing non-EGUs currently in the NOx SIP Call to participate in the CAIR ozone season $_{NOx}$ trading program. See preamble for further discussion.

VIII.C.15.

Comment:

EPA must address interactions between the proposed trading program, and existing NOx and SO2 programs. The current NOx trading programs established under the $_{OTC\ NOx}$ Program and the Section 110 NOx SIP Call are seasonal programs with control requirements only during the ozone season, while the IAQR however, proposes annual control requirement (which Maine support). EPA must design its trading program to ensure that ozone season reductions are actually occurring during the ozone season. The current proposal appears to allow for free and unfettered trading throughout the year, thereby providing no red assurances that ozone-directed NOx reductions will be occurring during the time when they me most need for ozone control. While it is recognized that NOx plays a larger role in PM fine/regional haze pollution during the winter months, ozone season reductions are critical if Maine is to attain and maintain the ozone NAAQS. The commenter believes this problem is best addressed by establishing separate ozone and non-ozone season caps. At the same time, EPA should not allow inter-program (or inter-season) trading of NOx allowances. The commenter is very concerned that inter-seasonal trading could result in a program that does not adequately address significant contribution to Maine's ozone air quality from the sources, since a portion of the reduction requirements from contributing states could be met with non-ozone season emission reductions. The current 22-state cap and trade program is an ozone season only program designed to address NOx emissions only. As noted above, EPA must take steps to ensure that NOx reductions occur during the ozone season, and to eliminate the inter-season trading of NOx between the ozone and non-ozone seasons. The commenter would suggest that this could best be accomplished by establishing both ozone and non-ozone season caps.

Response:

See preamble.

VIII.C.16.
Comment:

Commenter recommends that the USEPA pay special attention to Nitrogen Oxide emissions during summer months. The adverse effects of ozone on human health are especially apparent in summer, and therefore, NOx emissions should be regulated appropriately.

Response:

EPA is finalizing an ozone season NOx cap in the final CAIR. See preamble for further discussion.

VIII.C.17.
Comment:

We are concerned that the IAQR nitrogen oxide reductions may only annualize the NOx SIP Call and hence may not result in added relief during the ozone season. Within the proposal EPA states: 'For States affected for both $PM_{2.5}$ and ozone, EPA is proposing compliance with the $PM_{2.5}$-related annual emissions reduction requirement be deemed sufficient for compliance with the seasonal ozone-related emissions reduction requirement.' This results in 24 of the 29 states covered in the rule being able to meet the proposed nitrogen oxide cap by annualizing its nitrogen oxide emission reductions. This is the most likely scenario as it is cheaper for sources with existing Selective Catalytic Reducers that run in the summer to merely run year round rather than an uncontrolled source to install this technology. While we agree with EPA that wintertime reductions in nitrogen oxides is an important benefit of this rule, we would like to see reductions in both summer and winter achieved by a tighter cap or modified compliance approaches. Ozone is often transported to rural and mountainous regions in the summertime when our members are outside the most trying to escape congested urban areas. The function of this rule is to deal with all transported pollution and aid states in meeting health standards for both ozone and fine particles. As it is written it is difficult to see how it will expeditiously aid states that have areas currently exceeding the ozone health standard.

Response:

EPA is retaining an ozone season NOx cap in the final CAIR. See preamble for further discussion.

VIII.C.18.
Comment:

Commenter supports EPA's proposal that compliance with the IAQRs annual NOx emission caps would satisfy the NOx SIP Calls ozone-season caps. For States affected for both $PM_{2.5}$ and ozone, EPA is proposing that compliance with the $PM_{2.5}$-related annual emissions reduction requirement be deemed sufficient for compliance with the seasonal ozone-related emissions reduction requirement. See 69 Fed. Reg. At 4586/1-2. EPA is proposing that States may choose to recognize compliance with the more stringent annual NOx reduction requirements contained in the proposed IAQR as satisfying the original NOx SIP Call seasonal reduction requirements for sources that States cover under both the NOx SIP Call and proposed IAQR. Id.

At 4586/2. EPA's proposal will help reduce unnecessary regulatory burdens for States and sources in the IAQR region, and commenter supports EPA's proposal that the annual NOx emission caps under the IAQR would supercede the ozone-season caps under the NOx SIP Call.

Response:

In response to comments, EPA is retaining an ozone season NOx cap in the final CAIR. See preamble for further discussion.

VIII.C.19.

Comment:

A particular area of concern with a regional (east/west) cap is whether a seasonal cap is needed. It may not be possible to establish a seasonal cap at this time, or to make a reasonable recommendation. Our goal should be to get to attainment-level NOx and VOC controls year round so that the environmental benefits (acid rain, eutrophication, etc.) Still accrue when ozone is not a problem. Once the capital improvements are made to a facility, the reagent (urea or ammonia) costs do not warrant seasonal operation only. A seasonal cap may be needed if we are not going to reach attainment, but it probably needs to address multiple sectors simultaneously to determine what is necessary and makes sense.

Response:

EPA is retaining an ozone season NOx cap in the final CAIR. See preamble for further discussion.

VIII.C.20.

Comment:

By the end of the comment period, we are sure you will hear from the various state regulatory bodies about the integration of the summer Ozone Program in 22 eastern states, which is to begin in May. We believe that there are at least two points that deserve more consideration. First, the electric generating utilities in those states have already set into motion plans to reduce nitrogen emissions for at least the summer months. There may not be a need to wait until 2015 to reach the proposed caps for nitrogen. Second, the benefits to human health of lower nitrogen emissions in the summer months should not be lost in the creation of a year round nitrogen program. Summertime ozone reductions should not be postponed. New York has recently adopted a year-round program for nitrogen that has separate targets for the summer and winter months. The Agency should review the merits of this approach.

Response:

EPA is retaining an ozone season NOx cap in the final CAIR. See preamble for further discussion.

VIII.C.21.
Comment:

Assuming that a NOx cap remains in the final rule, we support EPAs proposal that will allow the states to write rules under which compliance with the annual caps will satisfy compliance with the ozone-season caps. Neither the states nor EPA need overlapping regulatory programs competing for human and financial resources.

Response:

EPA is retaining an ozone season NOx cap in the final CAIR. See preamble for further discussion.

VIII.C.22.
Comment:

The IAQR would make it more difficult for New Jersey to attain the ozone standard. Instead of reducing power plant NOx emissions during the critical summertime ozone season, the proposal would increase those emissions. The Northeastern and Mid-Atlantic states have capped ozone season NOx emissions from power plants since 1999. Beginning in 2004, the EPA will implement a Clinton Administration initiative that will include several more states in the cap. The IAQR would undermine this progress by turning his targeted ozone season program into a year-round program. The year-round approach will enable power plants to increase their emissions during the ozone season when wholesale electricity prices are typically highest, and compensate for those higher summertime emissions by running less in the less profitable spring and fall. The USEPA can not assume that an annual oxides of nitrogen NOx cap for fine particle control purposes is also sufficient for seasonal ozone control. Ozone standard exceedances are dependent on daily temperature and other meteorological conditions and occur on relatively few days a year. Replacing an ozone season cap with an annual cap will almost certainly increase emissions of NOx during the ozone season, taking us all a step backward in our efforts to attain the 8-hour ozone standard. Under an annual cap, a rational operator of a higher-emitting power plant will run more and emit more during the summertime ozone season (when wholesale electricity prices are higher) than it would under an ozone season cap. The USEPA should require both a seasonal and annual NOx cap, not allowing non-ozone season allowances to be used during the ozone season, as well as other measures to control NOx on high ozone days. Peak ozone day caps may also be required.

Response:

In response to comments, EPA is retaining an ozone season NOx cap in the final CAIR. This ozone season cap will be in addition to an annual NOx cap in certain States. See preamble for further discussion.

VIII.C.23.
Comment:

In the Supplemental Proposal, on pages 32701-02, EPA has proposed ‘that if States achieve all of the mandated NOx reductions by including their EGUs in the regionwide, annual

NOx cap-and-trade program managed by EPA, EPA will consider the reductions from that program to also meet the ozone season reduction requirements that States were previously achieving from EGUs participating in the regionwide ozone season NOx cap-and-trade program. Under these circumstances, EGUs in a State achieving all of the required NOx reductions from only EGUs would not be subject to a seasonal NOx cap-and-trade program unless the State elects to retain such a program.' A commenter supports EPA's proposal to allow States to write rules under which compliance with the annual caps will satisfy compliance with the ozone-season caps under the NOx SIP Call. The alternative, i.e., having both ozone-season caps and annual caps with which to comply, without corresponding environmental and regulatory benefits, would only add to the burdens of compliance. The commenter recognizes the concerns of non-EGU sources affected by the NOx SIP Call that letting CAIR satisfy the NOx SIP Call for affected EGUs could make the NOx credit market for remaining NOx SIP Call-affected sources more limited (i.e., fewer sources will be involved and lesser opportunities for trading will exist). The commenter acknowledges this concern and suggests that EPA could construct a process whereby NOx SIP Call-affected EGUs could voluntarily participate in, or perhaps opt in to, the 5-month summer ozone season NOx allowance market.

Response:

EPA is retaining an ozone season NOx cap in the final CAIR. See preamble for further discussion. EPA is also allowing non-EGUs covered by the NOx SIP Call to participate in the CAIR ozone season $_{NOx}$ trading program. See preamble.

VIII.C.24.

Comment:

It is critical to retain a seasonal, summer time ozone cap to ensure that the NOx reductions needed for ozone attainment are realized during the ozone season. Failure to retain an ozone season cap could undermine the existing NOx Budget Program by allowing sources to use banked allowances to offset control requirements in the summer. EPA relies on IPM modeling in concluding that there will be no increase in ozone season NOx emissions. IPM modeling is a useful tool but should not serve as the basis for dismantling the NOx ozone season cap. The annual NOx cap proposed is already too high to provide the needed relief to downwind states. Combined with removal of a separate ozone season cap, downwind states are at further risk of increased summertime ozone concentrations.

Response:

In response to comments, EPA is retaining an ozone season NOx cap in the final CAIR. See preamble for further discussion.

VIII.C.25.

Comment:

A commenter supports provisions in the supplemental CAIR that state that compliance with CAIR equates to compliance with the NOx SIP Call for electric generating units (EGU).

Additionally, the commenter supports the removal of ozone season specific limits under the CAIR program for EGU's currently subject to the NOx SIP.

Response:

In response to comments, EPA is retaining an ozone season NOx cap in the final CAIR. See preamble for further discussion.

VIII.C.26.

Comment:

Ozone Season NOx Reductions Must be Retained: In our CATF Group IAQR Comments, we stressed that EPA must ensure that implementation of the annual emission caps under CAIR do not compromise the ozone season NOx reductions required by the NOx SIP Call. EPA, however, proposes in the supplemental CAIR proposal to allow the annual CAIR NOx emission reductions to completely replace the ozone-season NOx reductions in the NOx SIP Call. Specifically, EPA proposes that 'if States achieve all of the mandated NOx reductions by including their EGUs in the regionwide, annual NOx cap-and-trade program managed by EPA, EPA will consider the reductions from that program to also meet the ozone season reduction requirements that States were previously achieving from EGUs participating in a region-wide ozone season NOx cap-and-trade program.' EPA's proposal amounts to an effective repeal of the NOx SIP Call, and is arbitrary and capricious and unlawful.

The primary rationale that EPA offers to support its proposed repeal of the NOx SIP Calls ozone season emission reduction requirements is that it has conducted 'modeling of expected NOx emissions from EGUs assuming that all States affected by the proposed CAIR achieve all of their required NOx reductions under the CAIR by including their EGUs in a regionwide annual NOx cap-and-trade program.' EPA provides no description of the modeling or the modeling protocol, provides no results other than a broad conclusion, and does not explain why the modeling may be considered an adequate basis for repeal of the ozone-season requirements. Without a detailed description of the modeling and a thorough explanation of the rationale, EPA has no basis for proposing such a sweeping regulatory repeal. In any event, even were EPA modeling to show that if all EGUs in all states in the CAIR region are subject to CAIR, then their ozone-season emissions are projected to meet the requirements of the NOx SIP Call, that is not a lawful or adequate reason to repeal those requirements. EPA has established lawful, binding emission caps in the NOx SIP Call explicitly designed to reduce NOx during the summer ozone season when the weather is conducive to ozone formation. Those summer caps must be enforced to ensure that the emission reductions required by the rule actually occur during the ozone season. Modeling predictions are simply not an adequate or permissible substitute for enforcement.

EPA implies that repeal of the seasonal NOx caps required by the NOx SIP Call is justified by its belief that compliance for sources would be simplified and the administrative burden of implementing both a seasonal and an annual program would be eased. Here again, EPA provides only its conclusion without any detail or supporting rationale. It does not allege or demonstrate that complying with or administering the two programs would pose a hardship

certainly not one sufficient to justify doing away with one of the programs. In fact, states are already administering the NOx SIP Call seasonal caps. It should not be difficult at all for either a source or a state to keep track of both annual emissions and seasonal emissions. Both have compliance duties under the Clean Air Act that are far more complex. In any event, compliance with a lawful regulatory requirement cannot be excused on grounds of administrative convenience.

Response:

EPA is retaining an ozone season NOx cap in the final CAIR. See preamble for further discussion.

VIII.C.27.

Comment:

Transition from NOx SIP Call to NOx Cap-and-Trade Program Under the CAIR Both in the preamble of the January 30, 2004 proposed CAIR and in the preamble of the supplemental proposal to the CAIR, EPA indicates that it's analysis shows that under the proposed annual NOx caps, EGUs in the NOx SIP Call region would emit less during the ozone season than they were allowed to emit under the NOx SIP Call. One commenter believes that it is important for EPA to demonstrate and insure that the transition to the proposed annual NOx caps under the CAIR will not result in any more ozone season NOx emissions from sources than would otherwise be required under the NOx SIP Call. The commenter requests that EPA identify where in the record for this rulemaking the results of its analysis can be found supporting the conclusion that under the proposed CAIR annual NOx caps, EGUs in the NOx SIP Call region would emit less during the ozone season than they were allowed to emit under the NOx SIP Call.

Response:

EPA is retaining an ozone season NOx cap in the final CAIR. See preamble for further discussion.

VIII.C.28.

Comment:

EPA has proposed to allow compliance with the annual NOx emissions caps (imposed to satisfy the $PM_{2.5}$ portion of the IAQR) to be deemed sufficient to comply with the ozone-season NOx emissions caps of both the IAQR (for eight-hour ozone) and the previously promulgated NOx SIP Call rule. Although one commenter believes that EPA has not adequately justified the need for further NOx reductions under the IAQR, if such reductions are included, the commenter supports EPA's proposal to allow States to write rules under which compliance with the annual caps will satisfy compliance with the ozone-season caps. The alternative, i.e., having both ozone-season caps and annual caps with which to comply, would only add unnecessary burdens for compliance without corresponding benefits to the environment.

Response:

In response to comments, EPA is retaining an ozone season NOx cap in the final CAIR. See preamble for further discussion.

VIII.C.29.
Comment:

EPA is considering allowing states implementing the transport rule to discontinue the SIP Call due to the added stringency of the NOx requirements. 69 Fed. Reg. 4586. A commenter fully supports including this provision in the final rule.

Response:

In response to comments, EPA is retaining an ozone season NOx cap in the final CAIR. See preamble for further discussion.

VIII.C.30.
Comment:

Given that the Section 110 NOx SIP Call covers both EGUs and non-EGU industrial sources, one commenter would suggest that the expansion of the IAQR to cover non-EGU sources is also advantageous to the development of a rigorous trading program and may help to eliminate concerns regarding leakages.

Response:

In response to comments, EPA is allowing non-EGUs covered by the NOx SIP Call to participate in the CAIR ozone season NOx trading program.

VIII.C.31.
Comment:

Purdue University is a state-funded University with a steam generation facility that has the potential to be affected by the proposed IAQR. Though the rule as proposed does not specifically list large industrial boilers as affected sources there is the potential that our boilers could be affected either by direct inclusion in our state's SIP revision or by a collateral effect of a changed NOx trading market due to the utilities entering a market of their own under the IAQR.

Response:

In response to comments, EPA is allowing non-EGUs covered by the NOx SIP Call to participate in the CAIR ozone season NOx trading program.

VIII.C.32.
Comment:

"In the Clear Skies legislation (Zone 1 = 35 slates in eastern US.), the NOx cap for 2008 was 1.582 million tons (based on a 0,16 lb/mm Btu emission rate) and for 2018 was 1.162 million tons (based on a 0,ll lb/mm Btu emission rate). In the IAQR proposal for 25 states, the NOx cap for 2010 was 1.6 million tons(based on a 0.15 lb/mmBtu emission rate) aid for 2010 was 1.3 million tons (based on a 0.125 Ib/mm Btu emission rate). The IPM results for Clear Skies and

IAQR use basically the same data. Why is it that the Clear Skies cap covering more states is 1.582 million tons at 0.16 lb/mm Btu but the IAQR proposes a higher cap of 1.6 million tons with a lower emission rate of 0.15/mm Btu? Shouldn't the IAQR cap be lower than the Zone 1 cap in Clear Skies? What is the difference between the technical analyses for Clear Skies and those for IAQR to justify the different Phase 1 NOx cap implementation years, 2008 in Clear Skies and 2010 in IAQR?"

Response:

It is unclear where the commenter got the 0.11 lb/mmbtu emission rate for phase II of Clear Skies. The effective NOx emission rate for zone 1 of Clear Skies is 0.16 lb/mmbtu and 0.12 lb/mmbtu. See Clear Skies website. The differences pointed out by the commenter may be explained by the use of historical vs. projected future heat input.

VIII.C.33.
Comment:

The details of EPA's emissions trading approach could have a severe adverse impact on industrial sources included in the trading program under the NOx SIP Call. Regulatory changes could easily avoid this impact with no adverse impact on EPA's emission reduction goals.

Response:

In response to comments, EPA has modified its proposed approach and is allowing non-EGUs in the NOx SIP Call to participate in the CAIR ozone season NOx trading program. See preamble.

VIII.C.34.
Comment:

Exelon appreciates EPA's position that electric generating units (EGUs) in states adopting all of the CAIR requirements do not need to participate in the seasonal NOx cap and trade program. A requirement to operate under both annual and seasonal NOx programs, rather than a single annual program, would be more costly to administer and would introduce increased complexity into the compliance planning process. [[(p.3)]] EPA's position on this issue is informed by the Agency's power sector modeling that demonstrates that under an annual program that sufficient emission reductions will occur during the May to September summer season to address concerns around the 1-hour ozone standard. We would encourage EPA to work with the states to develop unified support of a single, annual NOx program. We are concerned that some states will retain a seasonal NOx program, with state-specific elements such as progressive flow control, and layer over the annual CAIR (perhaps with or without progressive flow control requirements and other requirements that EPA is not proposing for the annual program). A patchwork quilt of NOx requirements, NOx allowance 'currencies,' affected sources and other variables should be avoided at all costs to reduce administrative burden, complexity, inefficiency and increased costs.

Response:

In response to comments, EPA is modifying its proposed approach of allowing EGUs in the CAIR to satisfy their NOx SIP Call seasonal requirements by satisfying the CAIR annual NOx limitation. See preamble for further discussion. EPA is offering to administer a model trading rule that does not require progressive flow control and would provide consistent treatment of sources across the States. See preamble.

VIII.C.35.
Comment:

Removing EGUs from the NOx SIP Call trading program will raise costs to non-EGUs for implementing that rule thereby ruining the cost-effectiveness of that program.

Response:

EPA is allowing non-EGUs in the NOx SIP Call to participate in the CAIR ozone season $_{NOx}$ trading program. See preamble.

VIII.C.36.
Comment:

API Supports EPA developing a model cap-and-trade program to address regional air pollution problems: API supports EPA allowing sources to participate in a cap-and-trade program as a way of reducing the costs of achieving the targeted emission reductions. In addition, we agree with EPA's stated goal that The proposed cap-and-trade solutions must provide opportunities for incorporating additional sources (e.g., non-title IV sources, other source categories) and States during promulgation and in the future. Designing a cap-and- trade program that can include these additional sources creates the potential to achieve additional environmental benefit and/or reduce the programs total cost. IAQR, 69 Fed. Reg. At 4631. Consequently, we oppose EPA's proposal to remove EGUs from the NOx SIP Call trading program because rather than incorporating additional sources into the most competitive market, it bifurcates the emission reduction program. In addition, API opposes the many restrictions that EPA is placing on facilities that wish to opt into the cap-and-trade program. [[p. 9]] Removing EGUs from the NOx SIP Call trading program will raise costs to non-EGUs implementing that rule, thereby reducing the cost-effectiveness of that program: EPA proposes to remove EGUs from the NOx SIP Call because it has determined that EGUs will meet the seasonal limits imposed by the NOx SIP Call by participating in the CAIR cap-and-trade program. On the other hand, EPA decided to maintain a separate market for non- EGUs participating in the NOx SIP Call because the Agency does not have sufficient information to project whether these units would continue to meet their ozone season NOx reduction requirements if they were subject to an annual limitation only. CAIR, 69 Fed. Reg. At 32,702. API opposes removing EGUs from the NOx SIP Call program. Allowing EGUs to leave the NOx SIP Call rule is inconsistent with EPAs own policy goals of having an expansive market that can produce environmental benefits less expensively. Non-EGUs in the NOx SIP Call will not be able to purchase allowances as cheaply and EGUs will lose buyers of credits. It will also increase the complexity and transaction costs of achieving emission reductions by operating two cap-and-trade markets at the same time. Therefore, it will increase the cost of both programs. If EPA cannot determine whether switching to an annual cap-and-

trade program would result in non-EGUs achieving the seasonal NOx emission targets, then the Agency could merge the CAIR and NOx SIP Call programs so that there is only one 'market,' i.e., after allowances are made, facilities can participate in the cap-and-trade program as their needs dictate. The Agency could do so by bifurcating EGU allowances into seasonal and non seasonal allowances so that both EGUs and non-EGUs can participate in one market. While this may raise additional issues regarding how to divide annual CAIR allowances into seasonal and non-seasonal allowances, it is clear that the Agency can do so, since the Agency was able to determine that annual EGU allowances will achieve their respective seasonal reductions. Operating one market should be more efficient than having two markets. [[pp. 9-10]]

Response:

EPA is allowing non-EGUs in the NOx SIP Call to participate in the CAIR ozone season $_{NOx}$ trading program. See preamble. See section VIII for discussion of the opt-in provision EPA is finalizing. In response to comments, EPA is expanding the number of sources that could opt-in to the CAIR.

VIII.C.37.

Comment:

EGU's are to be removed from the NOx SIP trading program. NCDAQ has several concerns with this proposed change to the NOx SIP Call budgets. First, all of the recent attainment demonstrations for Early Action Compact areas are based on the NOx SIP Call budgets being met by EGU's and non-EGU's. EPA should not remove the EGU's from the NOx SIP Call budget requirements until such time as the annual budgets can be assured to be sufficiently stringent to show the ozone season budgets established by the NOx SIP Call are met. Additionally, the removal of the EGU's from the NOx SIP Call budget places the non-EGU sources at a disadvantage. Under this proposal, the non-EGU sources must meet the NOx SIP Call budgets without the advantage of the full market as envisioned by the NOx SIP Call rule.

Response:

In response to comments and to ensure the seasonal limitations of the NOx SIP Call continue to be met, EPA is finalizing a seasonal NOx limitation under the CAIR. See preamble. EPA is also allowing non-EGUs in the NOx SIP Call to participate in the CAIR ozone season NOx trading program. See preamble.

VIII.C.38.

Comment:

Further clarification is needed to show how the NOx SIP Call trading program relates to the CAIR NOx trading program. Will they exist simultaneously or will the CAIR NOx trading program absorb the NOx SIP trading program eventually? Furthermore, how do the non-EGUs play into the trading of NOx allowances once the CAIR NOx trading program is initiated?

Response:

See preamble.

VIII.C.39.
Comment:

Relation to NOx SIP Call: Although EPA states that the CAIR will not relieve states from the requirements of the seasonal NOx SIP Call, EPA is proposing that if states achieve all of the mandated NOx reductions by including their EGUs in the regionwide, annual NOx cap-and-trade program, EPA will consider the reductions from that program to also meet the ozone season NOx reduction requirements that the states were previously achieving from EGUs participating in the regional, seasonal NOx cap-and-trade program. EPA further indicates that EGUs in a state achieving all of the required NOx reductions from only EGUs would not be subject to a seasonal NOx cap-and-trade program unless the state elects to retain such a program. We generally support this concept and appreciate EPA's efforts to consolidate the seasonal and annual NOx programs.

Response:

In response to comments, EPA is modifying its proposed approach of allowing EGUs in the CAIR to satisfy their NOx SIP Call seasonal requirements by satisfying the CAIR annual NOx limitation. See preamble for further discussion.

VIII.C.40.
Comment:

In the CAIR SNPR, EPA proposes that EGUs that are subject both to the CAIR and to the NOx SIP Call rule should be excused from the latter's seasonal NOx reduction requirements if they participate in the CAIR NOx cap-and-trade program. LPPC supports this proposal, as it is consistent with the aim of avoiding the imposition of redundant and unnecessary emission reduction requirements on EGUs.

Response:

In response to comments, EPA is modifying its proposed approach of allowing EGUs in the CAIR to satisfy their NOx SIP Call seasonal requirements by satisfying the CAIR annual NOx limitation. See preamble for further discussion.

VIII.D. Approach for handling future CAA section 126 petitions

VIII.D.1.
Comment:

EPA received numerous comments regarding its intended appraoch for acting on any future section126 petitions that might be filed. Many commenters expressed support for the approach that EPA had outlined. Other commenters raised issues regarding the timing of emissions reductions under a new section 126 action. Some pointed out that the CAIR compliance date would be later than the 3 years allowed for compliance under section 126. Some were concerned that the proposed CAIR compliance date is later than many attainment dates and States may need section 126 petitions in order to get earlier upwind reductions in order to meet their attainment dates. Some questioned the legal basis for linking the two rules. Several

commenters expressed concern that EPA would be restricting the use of or weakening the section 126 provision. A number of commenters urged EPA not to prejedge any petition, but to evaluate each on its own merit. Some thought that any petitions submitted prior to designations or before States had had the opportunity to prepare SIPs would be premature and should be denied. Others suggested that CAIR might not solve all the transport problems and that States would need to retain the section 126 tool to seek further reductions.

Response:

As discussed in the final CAIR preamble, after issuing the CAIR proposal, EPA received, on March 19, 2004, a section 126 petition from North Carolina seeking reductions in upwind SO_2 and NOx for purposes of reducing $PM_{2.5}$ and 8-hour ozone levels in North Carolina. The petition relies in large part on the technical record for the proposed CAIR. When we issue our proposed action on the North Carolina petition, we will take into consideration adn respond to the section 126-related comments we received during the CAIR comment period.

VIII. E. Compliance through the EGU model rules is 'better than BART'

VIII.E.1.

Comment:

Several commenters believed that the Better-than-BART "debate" belongs in the regional haze rule making process and not within the CAIR, or felt that it was premature to make that a decision at this time on whether CAIR may substitute for BART.

Response:

The EPA agrees that the final determination on whether CAIR may substitute for BART in the CAIR-affected region cannot be made until the BART guidelines for EGUs and the criteria for BART-alternative programs are final. Information and analysis regarding EPA's present understanding of this issue is presented in the CAIR preamble and supporting documentation in order to provide the public with as much information as possible regarding the potential implications of the CAIR.

VIII.E.2.

Comment:

Several commenters assert the policy of allowing CAIR to satisfy BART requirements is arbitrary or otherwise not in accordance with the law. Such arguments are based on several related grounds. Commenters assert that because CAIR and BART arise from independent provisions of the CAA, and because Congress specifically identified 26 source categories for regulation under BART, EPA has no authority to supplant BART requirements with other requirements. Some commenters further elaborate or qualify that assertion by arguing that a BART alternative program could be legal if the emissions reductions required of non BART-eligible sources were based on visibility considerations (rather than other criteria such as NAAQS attainment). If BART-eligible sources may avoid installing BART based on reductions otherwise required by law, BART is rendered largely superfluous, they argue. Commenters also point to

Regional Haze Rule section 308(e)(2), in support of the idea that reductions from other programs such as Title IV and NOx SIP Call must be achieved in addition to, not as substitute, for BART. These commenters also cite *Sierra Club v. EPA*, 294 F.3d 155 (DC Cir. 2002), for the proposition that EPA has no authority to alter or ignore programs mandated by Congress in the CAA.

Response:

The policy of allowing another program to substitute for BART is not an illegal substitution of the Agency's judgment for that of Congress, but rather is based on a reasonable interpretation of the ambiguous language of CAA § 169A(b)(2). This section provides that EPA must require SIPs to contain certain measures "as may be necessary to make reasonable progress toward meeting the national goal . . . including– " among other things, a requirement that BART-eligible sources install BART. See 42 USC 7491(b)(2). The EPA has interpreted this as meaning that BART is required only "as may be necessary to make reasonable progress." A logical corollary is that if an alternative strategy covering a given source or source sector makes greater progress than BART, then BART is not necessary for that source or sources.

In *Central Arizona Water Conservation District v. EPA*, 990 F.2d 1531, (1993), the Ninth Circuit applied the two-step *Chevron* test (*Chevron, U.S.A., Inc. v. NRDC,* 467 U.S. 837, 842-45 (1984) and found that the statutory language was ambiguous and that EPA's interpretation was reasonable. 990 F.2d at 1543. The court therefore agreed that the statute provided EPA with "discretion to adopt implementation plan provisions other than those provided by BART analyses in situations where the agency reasonably concludes that more 'reasonable progress' will thereby be attained." *Id.* In that case, the BART-alternative in question applied to a single facility.

In *Center for Energy and Economic Development v. EPA*, No. 03-1222, (D.C. Cir., Feb.18, 2005), ("CEED"), the DC Circuit similarly applied the two-step *Chevron* test and also found that the statutory language was ambiguous and that EPA's interpretation was reasonable. CEED, slip op. at 12-13. In *CEED*, the BART-alternative at issue (the WRAP Annex) applied not just to one facity but to all BART-eligible sources (as well as other sources) in participating States. Therefore, the *CEED* decision clarified that EPA's interpretation of section 169A(b)(2) allowing a BART-alterntive is reasonable not only in a source-specific context but also in the context of larger programmatic BART-alternaitves. (The court vacated the Annex on other grounds, holding that EPA did not rationally exercise its discretion with respect to the particular methodology required of States to demonstrate that the Annex would result in greater progress than BART. *CEED,* sip op. at 14).

The CAIR cap and trade program for EGUs represents an intermediate case between the single-source BART alternative in *Central Arizona Water* and the all-BART-sources alternative in *CEED.* A BART-alternative program can only achieve emission reductions at sources included in the program and so cannot achieve greater reasonable progress than BART with respect to BART-eligible sources which are not covered by the program. Therefore, the relevant question for CAIR is whether it achieves greater reasonable progress from EGUs than would BART for EGUs. If it can be shown that CAIR does so, then under EPA's interpretation of

169A(b)(2), upheld in both these cases, BART for EGUs is not "necessary to make reasonable progress." Because this finding would be applicable only to EGUs, it would not frustrate Congress' intent in identifying 26 source categories for BART applicability. (Note that as explained in the NFR, a State which chooses to meet its CAIR emission reduction requirements partially or wholly from non-EGU sources could consider BART satisfied for any BART-eligible non-EGUs affected, but the State would have to conduct a better-than-BART analysis covering this alternative means of meeting its CAIR requirements).

The EPA believes the analysis presented in the CAIR preamble and TSD convincingly demonstrate that CAIR achieves greater reasonable progress, with respect to $_{NOx \text{ and } SO2}$ emissions from EGUs, than would source-specific BART for EGUs in the CAIR region.

Moreover, the EPA does not believe that it is a prerequisite of BART-alternative programs that the emission reductions be developed explicitly for visibility purposes in the first place. As long as the end result is greater visibility improvement than BART, it is of no consequence that the emission reductions were initially developed to serve other air quality purposes. As the DC Circuit stated, "Congress's addition of § 169B . . . clarified that the focus of the Clean Air Act was to achieve 'actual progress and improvement in visibility,' . . . not to anoint BART the mandatory vehicle of choice." *CEED* slip. op. at 13. As long as visibility is actually improved more than it would be under BART, it should not matter whether the emission reductions were developed explicitly for visibility, as under BART, or for some other purpose, as under CAIR.

The EPA also does not believe that regional haze rule section 308(e)(2) provides any support for the notion that emissions reductions from other programs must be in addition to, not substitute, for BART. We first note that the decision in *CEED* necessitates revisions to 308(e)(2), at least in the provisions requiring visibility to be evaluated on a cumulative basis in defining the BART benchmark for comparison to BART alternative programs. It remains to be seen whether 308(e)(2)(iv), which requires that emissions reductions from the BART alternative be "surplus to reductions resulting from measures adopted to meet requirements as of the baseline date of the SIP," will be changed. Even if that section remains unchanged, CAIR complies with it. The baseline date of Regional Haze SIPs is 2002. Since any emissions reduction requirements to meet CAIR would necessarily be adopted after 2002, CAIR-required reductions would be surplus to measures adopted as of the baseline year.

Finally, with respect to the decision in *Sierra Club*, nothing in that case alters EPA's opinion that it has the authority to approve alternative programs in lieu of BART. *Sierra Club* simply represents an application of the two pronged *Chevron* test, in which the court found that Congress *had* directly spoken to some of the questions at issue and therefore remanded those matters to EPA. Because there was no ambiguity in the Act with respect to certain requirements at issue, the court applied the principle that an agency is not free to substitute its own policy judgment for that of the Congress. In contrast, as explained above, EPA's interpretation of 169A(b)(2) under *Chevron* has been upheld in both the Ninth and DC Circuits.

Notwithstanding all the above, as discussed in the NFR preamble and below, the EPA recognizes that the determination that CAIR achieves greater progress than BART may not be finalized until the proposed guidelines for making BART determinations, and additional regulatory changes necessitated by the recent decision in *CEED*, are final. The BART guidelines will contain presumptive levels of control for EGUs. In a separate action we will establish criteria for evaluating BART-alternative programs. The current analysis in the TSD is based on the application of proposed presumptive BART controls for EGUs to all BART-eligible EGUs as a conservative (most stringent) estimate of emissions, and on the "better-than-BART" criteria proposed in the 2004 BART guidelines package.

VIII.E.3.
Comment:

Several commenters stated that a categorical exclusion by EPA of BART-eligible sources from BART would constrain State discretion in violation of the decision in the *American Corn Growers* case, because it would allow no consideration of visibility impacts on individual source basis. Others commented that the better-than-BART policy appears to limit the ability of state to apply additional standards (e.g., BART) if the State participates in the cap and trade program. At least one State commented that it desires to maintain its discretion to make BART determinations.

Response:

The CAIR does not constrain State discretion in making BART determinations. If EPA determines that CAIR achieves greater progress than BART for EGUs, States will be allowed to treat CAIR as an alternative in lieu of BART but will not be required to do so.

VIII.E.4.
Comment:

Some commenters noted that CAA 169A(c) prescribes the specific conditions under which EPA may grant exemptions from BART, which have not been satisfied in this case.

Response:

As also explained in greater detail in the preamble, the Better-than-BART policy is not properly cast as an exemption, but rather is an alternative means of complying with the BART requirements in the CAA.

VIII.E.5.
Comment:

Some commenters note that CAA 169A(b)(2)(A) requires BART based on contribution to *any* Class I area. They point out that EPA did not demonstrate greater progress than BART at each and every Class I area, but instead modeled only certain class I Areas, and the assessed improvement on an average basis. These commenters assert there is no basis in the law or the regional haze rule to support a BART substitute which is not demonstrated to achieve greater progress at each area.

Response:

This comment was addressed in the preamble. There we explained that we disagree with comments that CAA section 169A(b)(2)'s requirement of BART for sources reasonably anticipated to contribute to impairment at *any* Class I area means that an alternative to BART program must be shown to create improvement at each and every Class I Area. Even if a BART alternative is deemed to satisfy BART for regional haze purposes, based on average overall improvement as opposed to improvement at each and every Class I Area, 169A(b)(2)'s trigger for BART based on impairment at any Class I area remains in effect, because a source may become subject to BART based on "reasonably attributable visibility impairment" at any area.

VIII.E.6.

Comment:

One commenter stated that EPA did not provide sufficient information regarding the application of the BART factors to affected sources.

Response:

Under the proposed Better-than-BART test, the pertinent question is whether the alternative-to-BART program makes greater reasonable progress by producing greater emission reductions and, if the distribution of reductions is different, greater visibility benefits. To determine the emission reductions and corresponding visibility improvements achievable by BART for EGUs, we used the presumptive control levels currently proposed in the BART guidelines. The statutory BART factors were applied to develop these presumptive control levels. The analysis employing these factors will be further explained in the BART Guidelines NFR, on or before April 15, 2005.

VIII.E.7.

Comment:

One commenter implied that the CAIR ultimate $_{SO2}$ reductions of 70 percent, with 58 percent reductions in 2015, fall short of the BART presumptive level of 90– 95 percent for uncontrolled EGUs.

Response:

It is not appropriate to compare these percentages directly. The CAIR reductions of 70 percent is for *all* EGUs in the affected regions, which includes not only currently uncontrolled BART-eligible sources, but BART-eligible sources which are currently controlled at a lesser efficiency and may not be required to achieve 95 percent after consideration of the BART factors, *plus* all other non-BART eligible EGUs. The relevant point of comparison is total emission reductions, which as stated elsewhere are 2.3million tons SO_2 more per year nationwide under CAIR than under BART.

VIII.E.8.
Comment:

One State commented that the SNPR modeling shows that the improvement of CAIR compared to source-specific BART is so slight it may be potentially within the margin of error, and therefore insufficient for the Better than BART demonstration or to assure that no hot spots will occur.

Response:

EPA has completed the refined modeling of the nationwide BART and BART + CAIR model runs using an updated 2001 modeling platform. The visibility results continue to show that the CAIR cap and trade program provides considerably more visibility improvement compared to nationwide BART (for EGUs only). The NFR modeling results show that the average visibility improvement from CAIR on the 20 percent worst days at 29 Eastern Class I areas is 1.6 deciviews (dv) compared to only a 0.7 dv improvement from nationwide BART controls. In the BART TSD we have provided modeling results for 116 individual Class I areas. The modeling shows that CAIR will not create any "hot spots." On the 20 percent worst days, all of the Eastern Class I areas show more visibility improvement under CAIR than under BART. In many of the Western Class I areas, BART and CAIR provide about the same visibility benefits. While the visibility benefits are similar in the West (outside of the CAIR region), they are clearly not similar in the East, where the CAIR is predicted to achieve twice as much visibility improvement compared to BART. We do not agree with the commenter that the improvements are slight. At the four Class I area sites in North Carolina, on the 20 percent worst days, the modeling shows that the CAIR cap and trade program provides 2-3 times more visibility improvement compared to nationwide BART (the CAIR visibility improvements range from 1.9-2.6 dv at the four Class I areas). The modeling also shows that CAIR will not result in any visibility degradation on either the 20 percent worst days or 20 percent best days.

VIII.E.9.
Comment:

Several commenters agreed with our determination that CAIR would not preclude the possibility of reasonably attributable determinations by Federal Land Managers (FLMs) or States under the 1980 BART regulations, and that sufficient regulatory certainty could be provided to sources through a memorandum of understanding with FLMs similar to that used by the WRAP.

Response:

As noted in the preamble, the EPA continues to maintain that BART based on reasonably attributable visibility impariment (RAVI) must be retained in order to protect against the possibility of localized degradation, even though current modeling does not predict such “hot spots.” We also agree that regulatory certainty may be improved by agreements with FLMs regarding the circumstances under which RAVI may be certified, coupled if necessary with “geographic enhancements” to the trading program to accommodate sources subject to RAVI BART.

VIII.E.10.
Comment:

One commenter believed that CAIR should be deemed to satisfy not only BART for regional haze purposes but BART for reasonably attributable visibility impairment (RAVI) as well, without need for geographic enhancements to reconcile the cap and trade program to BART requirements triggered by RAVI.

Response:

This comment is addressed in the preamble and the response to the previous comment above.

VIII.E.11.
Comment:

One commenter believed that geographic enhancements, if used, should not be determined on an across the board (i.e, across all States) basis.

Response:

The EPA agrees that it is not necessary to develop a uniform policy on geographic enhancements. Instead, this is appropriately left to State discretion, so we have not prescribed any geographic enhancement provisions within the cap and trade program rules.

VIII.E.12.
Comment:

Commenter stated that geographic enhancements should also be available for purposes of new source requirements. Thus, the commenter believes, visibility improvements from CAIR should be incorporated in FLM review of visibility impacts of new generating units located near Class I areas, and that EPA provide guidance to the states and FLMs on how to do so.

Response:

The EPA disagrees that geographic enhancements should play any role in the context of new sources. The purpose of geographic enhancements is to accommodate the emission market to source-specific retrofits required because an existing source is causing a "hot spot." Such considerations do not exist with respect to new sources. The EPA is not including guidance to States and FLMs on how to incorporate visibility improvements from CAIR into the review of new source impacts, but will continue to work with States and FLMs on these issues, primarily through the Regional Planning Organizations.

VIII.E.13.
Comment:

Several commenters stated that CAIR should be deemed to satisfy BART whether or not a state participates in the cap and trade program.

Response:

EPA's preliminary demonstration that CAIR gets more reasonable progress than source-specific BART for EGUs is based on a comparison of emissions reductions and attendant air quality affects under BART as applied to EGUs, with those under CAIR for EGUs. If emissions reductions are achieved from other source sectors, a similar analysis would need to be conducted for those sectors before it could be determined that the reductions were better than BART for affected sources. For example, the inclusion of non-EGU sources in the State's emission reduction requirement would allow more emissions from the State's EGUs. The State would have demonstrated that these increased emissions do not cause degradation at any Class I area, and still result in greater overall improvement, when considered along with the emission reductions from non-EGUs. In addition, the State would have to conduct a better-than-BART demonstration for any BART-eligible non-EGUs, if the State seeks to substitute the CAIR reductions at those sources for BART requirements.

VIII.E.14.

Comment:

CAIR could satisfy "regulatory requirements under the Regional Haze Program" only if the budgets established by the rule are equal or less than the emission rate achieved through the application of BART in 308 States or through the WRAP Annex.

Response:

With respect to States in the CAIR region, we note that our analysis indicates that CAIR would result in 2,339,000 less tons per year of SO_2 and 639,000 less tons per year of SO_2 in 2015 compared to emission in those states under a nationwide BART strategy. With respect to the rest of the country, this same analysis indicates that nationwide emissions would be 2,427,000 tons less SO_2 and 638,000 tons less SO_2 under CAIR as compared to nationwide BART. With respect to the WRAP Annex, that program is currently under review in light of the DC Circuit's decision in *CEED*. We note however that the BART control assumptions we modeled are more stringent, with respect to EGUs, than those utilized by the WRAP in developing the Annex. (For SO_2, our modeling reflected a 90 percent control level on BART-eligible EGUs. The WRAP utilized a tiered approach with a maximum of 85 percent control on uncontrolled or undercontrolled BART-eligible EGUs).

VIII.E.15.

Comment:

One State felt that allowing CAIR to substitute for BART would reward States and sources that have historically resisted emission controls.

Response:

The EPA believes environmental policy should be designed to achieve environmental benefits in the most expeditious manner possible, not to assign blame or reward. Moreover, considering that source-specific BART requirements have not been fully implemented at *any* source since the provisions were enacted in 1977, there does not appear to be much basis for

distinguishing among States in terms of their performance in this area.. (There have been a handful of cases were controls were installed as a result of settlements that halted the BART process).

VIII.E.16.
Comment:

One commenters felt it would be inequitable to "exempt" EGUs from BART when non-EGUs are subject to other requirements such as NSPS and MACT standards. One State believed this policy would disadvantage non-EGU BART sources by requiring earlier compliance with them.

Response:

Because non-EGUs are generally not in economic competition with EGUs, it is difficult to see how varying compliance time frames would raise any equity issues. To the extent such issues exist, States may be able to address them by designing similar BART-alternatives in their regional haze implementation plans. Moreover, States are not precluded from obtaining more emission reductions from EGUs for haze purposes if they believe that is the most cost effective and equitable means of achieving reasonable progress.

VIII.E.17.
Comment:

One State thought that the cap and trade program would result in fewer source-specific reductions because economic factors favor getting reductions at newer, more base-loaded units. Another State expressed that it is difficult to envision a source complying with BART solely through the purchase of allowances. Another State argued that CAIR should be deemed to satisfy BART within a State only if that State does *not* participate in the cap and trade program.

Response:

The purpose emissions trading program is to achieve targeted emission reductions in the most cost effective manner. As long as the overall emissions reductions, and corresponding environmental benefits, are greater under the cap and trade program than otherwise, it should not matter where those reductions occur. Therefore, except for provisions necessary to address localized "hot spots," cap and trade programs should avoid geographic restrictions on trading in order to maximize the efficiency of the market.

VIII.E.18.
Comment:

Some commenters asserted that EPA should allow non-CAIR affected states to opt-in to the cap and trade program in order to meet BART; others further stated that this opt in should be allowed if the State shows that reasonable progress goals and BART reductions will be achieved.

Response:

As explained in the CAIR NFR preamble at section VII, allowing states outside the CAIR region which have not been shown to contribute significantly to nonattainment to participate in the cap and trade program could result in emission shifting to states in the CAIR region. To prevent this, States outside the CAIR region are not allowed to participate in the program. Any expansion of the CAIR cap and trade region must be done not based on individual State opt ins, but rather in a systematic way which takes into account the potential for emission shifting.

VIII.E.19.

Comment:

One commenter stated that the policy of allowing CAIR to substitute for BART should not be limited to States that are affected by CAIR for both SO_2 and NO_x. The commenter was concerned that in NOx SIP-call States that chose to meet some of their NOx reduction requirements from non-EGUs, it was likely that SO_2 reductions under CAIR would also be obtained in part from these non-EGUs, thereby disqualifying the State from participating in the cap and trade program and thus from satisfying BART. Similarly, one commenter thought that CAIR-affected EGUs should also be "exempt" from BART for VOC and direct PM.

Response:

Because BART eligibility is based on, among other criteria, the emissions of 250 tons per year or more of *any* visibility impairing pollutant, a BART-alternative program (such as CAIR in this case) satisfies BART only for those pollutants regulated. Therefore a source subject only to summertime NOx controls cannot be considered to have satisfied BART with respect to SO_2. With respect to VOC and PM, we note that we are considering including in the BART guidelines a de minimus policy for pollutants other than those on which the BART determination is based.

VIII.E.20.

Comment:

A few commenters stated that the relationship of BART to CAIR should be analogous to the two phases of the NOx SIP Call – that is, BART reductions should be achieved first, and only then should emissions trading be used to obtain further reductions. One commenter urged that EPA preserve the requirement that BART be installed on all individual sources for which it is appropriate under the Agency's BART Guidelines.

Response:

The EPA is not removing the requirements for BART in this rulemaking. As explained in the preamble and elsewhere in this document, the EPA has determined that CAIR will achieve greater average visibility improvement with respect to EGUs in the CAIR region than would BART, as defined by the presumptive EGU control levels proposed in 2004. Once the final BART guidelines for EGUs and the criteria for BART-alternative programs are final, EPA will determine whether CAIR achieves greater reasonable progress than BART and *may* therefore substitute for BART for EGUs. Whether or not EPA makes that determination, nothing will preclude States from deciding at their own discretion that BART controls are needed at specific

sources in order to achieve reasonable progress under the regional haze program. In addition, as also previously noted, the requirements of BART for reasonably attributable visibility impairment continue to apply.

However, any requirements dictating where emission reductions occur tend to undermine the purpose of the emission trading programs – reducing emissions in the most cost-effective manner. Therefore it is preferable to avoid superimposing source-specific requirements onto trading programs to the extent possible. If EPA determines that CAIR may substitute for BART, then EPA will leave it to the discretion of States to decide whether it is appropriate to require BART-eligible sources in the CAIR region to install BART controls, or whether to allow the market to determine the most cost-effective emission reductions without interference.

We also disagree with the commenter's suggestion that BART be implemented first, with further reductions from the trading program coming later. The CAIR emission reductions are required before BART implementation is required under the CAA and regioanl haze rule, therefore the only way to integrate the requirements is to implement the CAIR cap and trade program first. In addition, because CAIR achieves both greater and earlier reductions, it is a better alternative than that suggested by the commenter.

VIII.E.21.
Comment:

Several commenters stated that if CAIR is not allowed to substitute for BART, then BART determinations should start with a consideration of controls resulting from CAIR, and then consider the incremental costs of additional controls.

Response:

As noted, the EPA believes that once the BART guidelines are finalized, it will be demonstrated that CAIR makes greater reasonable progress than BART and therefore may substitute for BART for affected sources and pollutants. In the event this does not occur, or for States that choose not to accept our final better-than-BART determination, the BART determination process pursuant to CAA 169A(b)(2) provides for consideration of existing controls at a particular source. Controls installed for compliance with CAIR would be considered under these provisions, and in accordance with the BART determination guidelines.

VIII.E.22.
Comment:

One commenter stated that EPA analysis indicates it will be difficult to achieve cost-effective emission reductions from non-EGUs, therefore EPA must set the CAIR reduction levels to assure visibility goals met.

Response:

The CAIR emission reductions requirements were based on cost-effective emission reductions at all EGUs in the affected regions, not just BART-eligible units. Because the cost

effectiveness of emissions reductions is not dependent on purpose of the reductions (unlike a benefit-cost analysis), it is difficult to envision how cost effective emissions reductions based on visibility could be any greater than for reductions based on health effects. Moreover, as stated elsewhere, States are not constrained to accept the better-than-BART determination and may seek greater reductions from BART-eligible EGUs if deemed necessary to fulfill the State's obligation to make reasonable progress.

VIII.E.23.
Comment:

One commenter stated that because CAIR extends BART compliance past 2015, due to banking of allowances, reasonable progress towards the national visibility goal will be jeopardized.

Response:

The EPA first notes that CAIR reductions will commence earlier than would BART reductions, that is, in 2010 rather than 2014 or 2015. Therefore, in the short term, reasonable progress will be accelerated. Moreover, although banking of allowances will delay the achievement of the full reductions required by CAIR, the reductions achieved in 2015 will under CAIR will still far outweigh those projected under BART alone. Specifically, CAIR would result in 2,339,000 less tons per year of SO_2 and 639,000 less tons per year of SO_2 in 2015 compared to emission in those states under a nationwide BART strategy

VIII.F. Compliance with CAIR satisfies first reasonable progress requirement for visibility

VIII.F.1.
Comment:

Several States and multi-state organizations stated that is premature and inappropriate for EPA to determine whether CAIR satisfies reasonable progress requirements. One State commented that the emission inventory and modeling work have not been sufficient to establish that the first regional haze goals have been met. Several States commented that the technical analyses underway by the Regional Planning Organizations should be allowed to continue, with the CAIR emission reductions being among the strategies analyzed.

Response:

The EPA agrees that it is premature to make any determination regarding whether CAIR (or any other measures) will achieve the reasonable progress goals for the first long term strategy period ending 2018, for the simple reason that those goals have not yet been determined by the States. This is explained more fully in response to the next set of comments below.

VIII.F.2.
Comment:

The commenters note that the CAA delineates relevant factors that must be considered in determining reasonable progress and BART at CAA § 169A(g)(1)-(2). The commenters argue that Congress plainly envisioned that the states assess additional measures that are necessary, beyond the minimum requirements of BART, to make reasonable progress toward the national visibility protection goal, and that EPA cannot preempt that analysis. Therefore the commenters EPA to maintain the integrity of the Regional Haze Rule and BART Guidelines, by allowing projected emissions from the CAIR to be considered by states in formulating and implementing their plans to make reasonable progress towards achieving natural visibility by 2064, but preserving intact the RHR requirements that states follow the process and conduct the analysis necessary to ensure that such progress is being achieved.

They further note that under the Regional Haze Rule and BART Guidelines, states must analyze visibility conditions in Class I areas located both within their own boundaries and within other states in which their emissions are contributing to visibility impairment, and must develop plans leading to natural visibility conditions within 60 years at such all Class I areas. Commenters point to provisions in EPA's final regional haze rule which require States to identify all anthropogenic sources of visibility impairment considered by the State in developing its long term strategy; and which provide that States should consider major and minor stationary sources, mobile sources and area sources. (40 CFR § 51.308(d)(3)(iv)).

The commenters note that EPA's rule making record does not consider or evaluate all sources of haze-forming pollution in a state impacting class I areas, or conduct a thorough analysis of the reasonable progress factors. If EPA were to ignore these provisions and determine that the reductions under the CAIR satisfy the requirements of reasonable progress for the first long-term strategy planning period, EPA would be acting contrary to the requirements of the Clean Air Act and implementing regulations, and abusing its discretion, the commenters argue.

The State commenter (Maine) similarly asserted that because the Regional Haze program requires each state to consider all emission sources and implement all reasonable measures to reduce visibility impacts, there should remain a clear distinction between CAIR and Regional Haze requirement..

Response:

The CAIR will maintain the integrity of the regional haze program by keeping in place the requirements that States set reasonable progress goals based on the factors delineated in the regional haze rule. The EPA agrees that it would be inconsistent with the Act and the Regional Haze Rule for EPA to make a prospective determination that CAIR satisfies reasonable progress requirements.

The Regional Haze Rule, at 40 CFR 51.308(d)(1), provides the process for States to follow in setting reasonable progress goals. In summary, this process entails: (a) determining the

uniform rate of progress needed to reach natural background conditions in 60 years, (b) determining the emission reductions needed to achieve the rate for the first 10-year strategy period, (c) considering certain statutory factors relative to potentially affected sources (the factors are the costs of compliance, time necessary for compliance, energy and non-air environmental impacts, and remaining useful life). After conducting this analysis, the State sets the reasonable progress goals for each Class I area. If a reasonable progress goal is set at a point representing less than the uniform rate of progress to natural background conditions, the state must explain why the slower rate of progress is reasonable. Conversely, if the State determines that a faster rate of progress is reasonable, the State should adopt goals reflecting that rate. See 64 FR 35714, 35732 (July 1, 1999).

After determining the reasonable progress goals for each Class I area, the State then incorporates the measures needed to achieve those goals in its long term strategy. See 40 CFR 51.308(d)(3)(v). Long-term strategies must also requires states to consider *all anthropogenic* sources of visibility impairment, including major and minor stationary sources, mobile, and area sources, smoke management techniques for agricultural and forestry management.40 CFR 51.308(d)(3)(iv).

Thus, the process of setting reasonable progress goals and appropriate long term strategies involves the examination of all source categories, includes the application of statutory factors to determine reasonableness, and is not terminated by a finding that reductions from any particular source category are sufficient to achieve the uniform rate to natural conditions.

Therefore, the proper question is not whether CAIR "achieves" the reasonable progress goals, but rather what should those goals be, in light of CAIR and other new and ongoing measures; and what additional measures, if any, are needed to achieve those goals. The EPA anticipates that States will be able to consider affected EGUs as having met their emission reductions obligations *towards* the reasonable progress goal. States may draw upon our analysis of highly cost-effective emission reductions from EGUs in applying the reasonable progress criteria to EGUs as potentially affected sources. However, States retain the discretion to decide whether further reductions are required, from EGUs or other sources, in order to make reasonable progress. EPA remains committed to supporting the work of the Regional Planning Organizations to assist the states with these matters.

VIII.F.3.
Comment:
Some States and private interests commented that the reasonable progress requirements should be considered satisfied by CAIR in affected States for the first long term strategy period., either in general, or at least to the extent those requirements apply to EGUs.

Response:
As explained above, EPA is without authority to determine that reasonable progress goals have been satisfied at this time, and in any case it would be inappropriate to attempt to do so before the

States and Regional Planning Organizations have set reasonable progress goals. It is important to keep in mind that reasonable progress goals are *visibility* goals for each Class I area, not emission reduction requirements for sources or source sectors. States may determine that, considering the statutory factors for reasonable progress, the CAIR emission reduction requirements are all that will be required of affected sources for regional haze purposes in the first long term strategy period. States may determine the reasonable progress goals for their Class I areas based in part on the visibility improvements expected from CAIR, but only after considering other source categories according to the process provided in the Regional Haze Rule.

VIII.F.4.
Comment:
Several commenters stated that while the evidence suggests that the CAIR may achieve the reasonable progress goals for affected States, they recognize that States retain the discretion to make reasonable progress determinations. Some suggested EPA could establish a presumption of adequacy of the CAIR for reasonable progress purposes, which States could rely on if they desire.

Response:
For the same reasons that EPA may not determine that the CAIR satisfies reasonable progress requirements, neither may we establish a presumption to that effect. Again, reasonable progress goals are visibility targets set for each Class I area after consideration of several factors, including the uniform rate to natural background conditions, the application of statutory factors to potentially affected sources, and emission reductions available from various source categories. Even if the EPA were inclined to offer such a presumption, we have not conducted the comprehensive analyses with respect to non-EGU sources which would be necessary to justify such a presumption.

VIII.F.5.
Comment:
Several states commented that the first reasonable progress goals should be considered met once non-EGU BART sources have complied with BART requirements.

Response:
Again, the reasonable progress goals must be determined based on several factors, including the application of the statutory factors to all potentially affected sources. This analysis is not limited to BART eligible sources. Therefore there would be no basis to determine at the outset that meeting BART requirements would satisfy reasonable progress requirements. Such a determination would effectively read the reasonable progress requirements out of the Act.

VIII.F.6.
Comment:
Several electric utility industry commenters said that an analysis submitted by CEED demonstrated that CAIR would achieve the 2018 point on the uniform glide path at most eastern

Class I areas, and cite this analysis in support of EPA establishing a presumption that CAIR satisfies reasonable progress.

Response:
As explained, the EPA does not believe it would be appropriate or permissible to establish such a presumption. The CEED analysis cited may inform the States' and Regional Planning Organizations' reasonable progress considerations.

VIII.F.7.
Comment:
Numerous environmentalist organizations and citizens commented that EPA analysis shows CAIR visibility improvements fall short of uniform rate of progress to natural background and achieves only 1 deciview per decade compared to the 3 deciview per decade required for such a rate. They argue that this analysis precludes EPA from determining that CAIR satisfies reasonable progress requirements.

Response:
As previously explained, the EPA is not proposing to make such a determination. As with the CEED analysis, States and Regional Planning Organizations are encouraged to utilize the analysis provided by the commenters, in determining their reasonable progress goals.

VIII.F.8.
Comment:
One commenter stated that EPA has demonstrated that the CAIR reductions will provide for reasonable progress by the first regional haze milestone (2018).

Response:
The EPA wishes to clarify that nothing in our discussion and analysis of CAIR and its relationship to BART requirements under the Regional Haze Rule is intended to demonstrate that CAIR satisfies the reasonable progress requirements of the rule. Under EPA's interpretation of section 169A(b)(2), discussed in the preamble and elsewhere in this document, EPA believes we have the authority to approve alternative measures to BART, provided those measures achieve *greater* reasonable progress than would source-specific BART. We have explained that by applying the "better-than-BART" criteria in the currently proposed BART guidelines, and using modeling of anticipated emissions under CAIR compared to those under BART without CAIR, we believe that CAIR provides greater reasonable progress than would BART. Nothing in this analysis implies that CAIR will achieve *all* the progress that is reasonable in the first long term strategy period.

VIII.F.9.
Comment:
Some commenters stated that EPA's default natural background conditions are artificially low because they do not consider international transport and underestimate anthropogenic

contributions; and that when they are raised it will be demonstrated more clearly that reasonable progress goals will be met.

Response:
EPA has issued guidelines for determining natural background conditions, which contain default natural background estimates at each Class I areas, for use if the States choose not to develop refined estimates based on more specific local data. Neither the guidelines nor the default values are at issue in this rule making. Any adjustments to natural background estimates may be made by States according to the process in the guidelines. We do note, however, that it would be illogical to lower the *natural* background condition estimate in response to anthropogenic emissions emitted outside the U.S. Natural background values are used to determine the emission reduction measures needed to make reasonable progress. Once those measures are determined and become part of the SIP, neither the State nor the sources will be subject to sanctions in the event international emissions prevent the actual achievement of the goals, as long as the State complies with the SIP measure.

VIII.G. New Source Review

VIII.G.1.

Comment: The EPA did not propose any provisions in the CAIR related to new source review (NSR). Nonetheless, we received some comments on the relationship between CAIR and the NSR provisions that may apply to emissions sources also impacted by the CAIR. Many asked that EPA clarify the NSR requirements for sources subject to CAIR. Some requested streamlined permitting requirements. Many commenters indicated that if an EGU is part of an EPA-administered regional cap-and-trade program for NOx and SO2, then that EGU should be exempted from major NSR. One stated that the CAIR should not be a substitute for NSR.

Response: See CAIR preamble section IX for response.

VIII.H. General/Other

VIII.H.1
Comment:
Regulatory Certainty: CAIR should be harmonious with the mercury rule, regional haze and other Clean Air Act programs with respect to timing and stringency to assure regulatory certainty for sound utility compliance planning. The timing of CAIR proposed Phases should be at least 5 years apart to assure adequate design and installation time for controls. Mercury rule requirements should not precede CAIR requirements and should be synchronized to assure cobenefits from CAIR NOx and SO2 control actions receive consideration before additional controls are required in Phase 2.

Response: For a detailed discussion of this topic, see responses elsewhere in this response to comment document, e.g., VII.A.

VIII.H.2
Comment:
US EPA should work to coordinate as best as possible the reductions to be achieved through this rule with attainment requirements under the Act. Most areas in Indiana will have ozone and fine particle attainment dates in 2009 or 2010. We will be developing our attainment plans taking into account the air quality improvement expected from the Interstate Air Quality Rule, even though both phases have compliance dates later than lean Air Act mandated deadlines. It appears that US EPA is relying on the Act's provisions for granting extensions of the attainment deadlines to assist in the states' planning efforts. US EPA should ensure that states will not be required to implement additional control programs that are otherwise unnecessary to tide them over until utility reductions are achieved and, as noted above, provide strong incentives for early reductions.

The documentation for the IAQR indicates that, particularly for $PM_{2.5}$, local controls may be considerably less effective in achieving attainment than regional controls.

Response:
As discussed above in section VI in this RTC document, the emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

As described above in section VI in this RTC, and in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8_hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the early step of finalizing CAIR, we are requiring a very substantial air

emissions reduction that addresses interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

VIII.H.3
Comment:
The model proposed in the Clear Skies Act provides appropriate guidance for the expanded cap and trade approach and the IAQR. Absent meaningful regulatory certainty, affected sources in the west will oppose expansion to the west of the cap and trade approach in the IAQR. PacifiCorp believes that any expanded cap and trade approach in the IAQR must explicitly recognize that sources complying with the emission reduction requirements of the cap and trade program are meeting the requirements of the following additional programs under the CAA: Reasonable progress requirements under S169A and the regional haze rule through the first planning period (2018); BART for regional haze visibility impairment; BART for reasonably attributable visibility impairment; Any new PSD requirements pertaining to NOx and SO2 increments affecting major class I Federal areas (per the recent settlement agreement).

Response:
Any regulatory relief for EGUs in an expanded CAIR region would be dependent on the exact terms of that expansion, and on other applicable provisions then in place . EPA will finalize the BART guidelines for EGUs on or before April 15, 2005. EPA also intends to develop criteria for evaluating whether alternatives to BART make greater progress than BART, in response to the February 18, 2005 decision of the DC Circuit in *CEED v. EPA.* Should EPA decide to expand a CAIR-like program to the west, the program's relationship to BART would be governed by these guidelines and criteria. With respect to PSD requirements for NOx, EPA proposed several alternative approaches on February 14, 2005. The outcome of that rulemaking process would also be taken into consideration in developing a CAIR-like program for the West.

VIII.H.4
Comment:
Another initial concept described in the proposal that poses significant problems is that this rule will require an additional state SIP on top of others already required during the same time frame, such as for the regional haze rule.

Response:
EPA has attempted to coordinate and streamline SIP requirements to the maximum extent practicable. For example, we have provided guidance coordinating the base year emission inventories for regional haze, ozone, and $PM_{2.5}$ SIPs. In addition, Congress last year passed legislation coordinating the time of $PM_{2.5}$ and regional haze SIP submittals. Nonetheless, given the multiple air quality challenges facing States, it is inevitable that multiple SIP submissions be required. The EPA believes the administrative burden of SIP submittals under CAIR is justified by the significant public health and environmental benefits and the contribution the program will make towards reaching NAAQS attainment in the areas identified in the NFR.

VIII.H.5
Comment:
Other comments, including those submitted by the Northeast States for Coordinated Air Use Management (NESCAUM) and New York State Department of Environmental Conservation(NYSDEC), explain that the emission reductions required under the proposed Rule occur after the relevant attainment dates for fine particulate matter and the eight hour ozone standard. As a result, the Proposed Rule allows emissions to continue – for a period of up to eight years after the relevant attainment dates – even though EPA recognizes that such emissions contribute significantly to downwind nonattainment.

For example, the projected attainment date for New York to comply with the fine PM NAAQS is 2009. Nevertheless, the Proposed Rule does not require emission reductions adequate to bring New York County, the only $PM_{2.5}$ nonattainment area in New York projected by EPA, into compliance until 2015. See Tables IX-1 and IX-2, Fed. Reg. At 4636-37. If these emissions contribute significantly in 2015, as EPA has found, then they do so also in 2009 and should be controlled by that date. Thus, the proposed Rule allows emissions until 2015 that contribute significantly to nonattainment in New York from 2009-2015. This is contrary to the mandates of the Clean Air Act.

Response:
As discussed above in section VI in this RTC document, the emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

As described above in section VI in this RTC, and in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the early step of finalizing CAIR, we are requiring a very substantial air emissions reduction that addresses interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

VIII.H.6
Comment:
How are states to address conflicts between EPA modeling and conclusions specified in the IAQR if a different conclusion is drawn in a states attainment demonstration?

EPA has declared that transport is a national issue that is to be addressed by the federal government. How will interstate contribution be addressed for areas designated nonattainment after the effective date of the IAQR?

Response:

The CAIR is for the purpose of reducing interstate transport, it is not an attainment plan. In developing attainment plans, States should follow the 8-hour ozone and $PM_{2.5}$ implementation rules and the modeling guidance for that purpose.
Any additional areas in the CAIR region that might be designated nonattainment after the effective date of the CAIR would receive the benefits of the CAIR transport control measures. It is premature to speculate how EPA would address transport for areas designated nonattainment in the future outside of the CAIR region.

VIII.H.7
Comment:
In this final rule and upcoming ozone and PM-2.5 implementation rules, EPA must discuss the ability of states to rely specifically on EPA's projected 2010 and 2015 design values in the proposed rule as the basis for identifying and implementing further reduction measures in the remaining counties that EPA predicts will fail to attain the NAAQS in 2010 and 2015 following full implementation of the IAQR.

States Should Be Allowed To Use IAQR-Predicted Design Values In Their SIP-Planning for Areas That Will Still Not Be Able To Attain the NAAQS.

Another set of issues raised by the IAQR involves the areas that EPA predicts cannot meet the NAAQS, even with the IAQR measures fully implemented. According to the Notice of Proposed Rulemaking, even with timely implementation of the IAQR, 46 areas will not attain the ozone standard in 2010 and 34 will still show nonattainment in 2015. Id. At 4636-7. Likewise, 61 PM-2.5 nonattainment areas will fail to attain the new PM fine NAAQS in 2010, and 41 areas will remain in nonattainment in 2015. Id. However, EPA's modeling demonstrates that these areas' design values will improve as a result of regional IAQR emission reductions. For these areas, it will be critical that additional reduction measures are identified locally, and that such measures be 'tailored' to compliment air quality improvements that will result from the IAQR. Therefore, EPA must authorize local air pollution planning authorities to utilize the 'design values' predicted in the IAQR rule for these remaining nonattainment areas as the basis for future NAAQS planning and attainment demonstrations. Only then can state and local governments prudently determine which further controls and other measures are necessary to require to meet the NAAQS.

States Must Be Authorized To Rely On EPA's IAQR Attainment Demonstrations For Areas That Will Achieve The NAAQS After IAQR Controls Are Implemented.

Even if the final rule maintains a short deadline for IAQR SIP-submission in the final rule, EPA does not address whether and how States can legally use EPA's IAQR modeling that shows post-2010 IAQR reductions will result in attainment in their ozone and PM-2.5 SIP-planning. Yet EPA modeling seems to conclude that with regional reductions in NOx and SO2 as a result of the IAQR, the vast majority of existing ozone and PM-2.5 Nas will meet the NAAQS. It would be unnecessarily costly to local economies and industries for EPA to require additional local controls

where regional controls will bring those Nas into attainment.

To address this problem, we urge EPA to authorize and approve SIPs demonstrations that predict attainment, taking into account IAQR reductions in their baseline modeling, even though these areas will not actually be able to 'monitor attainment' until Phase 1 and Phase 2 controls are installed. Once EPA and downwind states have the ability to enforce future-mandated reductions under the IAQR, States should be allowed to take credit for IAQR-mandated reductions in their ozone and PM-2.5 demonstrations.

Alternatively, a State should be allowed to apply the IAQR reductions in their demonstrations, if the jurisdiction can demonstrate that no more 'cost-effective' measures can be adopted locally.

Depending on how EPA is able to answer the questions we raise about NAAQS SIP creditability of future IAQR reductions, Congress may need to act to reconcile the NAAQS attainment deadlines with IAQR measures. Such amendments may need to be considered by Congress to allow mechanisms for synchronizing NAAQS deadlines in addition to other measures being advocated for reduction of emissions from electric generating units as part of the President's 'Clear Skies' legislation.

Response:
These comments are outside the scope of the rulemaking, but they do raise issues EPA does intend to address. The EPA will be issuing modeling guidance for attainment demonstrations that will provide information on methods for calculating emissions, how to do the modeling, and which years to focus on.

VIII.H.8
Comment:
EPA requests comment on the timing of each phase of the cap and trade program, especially with regard to the fact that the Phase I NOx compliance date of January 1, 2010 is not in time to help moderate ozone areas attain by their statutory deadline of April 15, 2010. With this rule EPA is squandering opportunities to advance ozone and $PM_{2.5}$ attainment, as well as the chance to optimize the cost effectiveness of mercury controls. The magnitudes of the proposed caps represent minimal steps which would resolve only that portion of nonattainment resulting from transported NOx and SO2 emitted by EGUs. The timing of the proposed caps does not insure that even the transport portion of the nonattainment problem is solved by statutory attainment deadlines, and worse, reflects no urgency to minimize public exposure to the adverse health effects of these pollutants. EPA should propose a coordinated rule requiring maximum cost-effective reductions (i.e., BACT) of EGU pollutants in the shortest achievable timeframe.

Response:
In the final CAIR, EPA is establishing 2009 as the compliance date for the NOx emissions reductions requirements. As discussed above in section VI in this RTC document, the emission reductions required by CAIR are intended to reduce significant contribution from upwind States,

which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

As described above in section VI in this RTC, and in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the early step of finalizing CAIR, we are requiring a very substantial air emissions reduction that addresses interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

Timing issues are futher discussed in section II of the CAIR preamble.

VIII.H.9
Comment:
Pollutants emitted from power plants greatly contribute to decreased visibility throughout different parts of the eastern United States. The new rule would add to visibility improvements in our scenic national parks, notably the Shenandoah and Great Smoky Mountain national parks. In addition, the Adirondacks will substantially benefit.

Response:
The EPA agrees that CAIR will provide significant visibility improvement at eastern Class I areas and has providing documentation of this in the preamble and technical support documents.

VIII.H.10
Comment:
How are states to address conflicts between EPA modeling and conclusions specified in the IAQR if a different conclusion is drawn in a states attainment demonstration?

Response:
The CAIR is for the purpose of reducing interstate transport, it is not an attainment plan. In developing attainment plans, States should follow the 8-hour ozone and $PM_{2.5}$ implementation rules and the modeling guidance for that purpose.

VIII.H.11
Comment:
We are concerned that the establishment of an annual NOx cap my erode the benefits of EPA's NOx State Implementation Plan call (NOx SIP Call). We urge EPA to establish a bifurcated NOx allowance program with two separate NOx caps (annual and ozone season) and prohibitions on the use of non- ozone season NOx allowances during the ozone season.

Response: The final CAIR includes both an annual NOx program and an ozone-season NOx program. Inclusion of a nested, ozone-season NOx cap and trade program ensures that summertime SO_2 emission reductions occur. For additional discussion, see the CAIR NFR preamble and other sections of this response to comment document for addition.

VIII.H.12
Comment:
We encourage EPA to more fully integrate these rules in order to provide greater certainty, flexibility and efficiency as the Agency also considered under the Clear Skies bill.

Regulatory Certainty of IAQR Related to Other CAA Rules. Regardless, Alliant Energy strongly recommends that EPA effectively replace requirements under the NOx SIP Call.

Response: For a detailed discussion of coordination between rules, see responses elsewhere in this response to comment documen, for example section VIII.A

The final CAIR and section VIII.C address the relationship to the NOx SIP Call.

VIII.H.13
Comment:
EPA and the Affected States Need to Coordinate the IAQR with Implementation of the 8-Hour Ozone and $PM_{2.5}$ Ambient Air Quality Standards - It is important that EPA coordinate with affected states to ensure that SO_2 and NO, emission reductions under the IAQR are taken into account prior to identifying the need for any additional in-state emission reductions to address local 8-hour ozone and $PM_{2.5}$ nonattainment areas.

Response:
We agree.

VIII.H.14
Comment:
EPA requests comments on whether the IAQR proposal could help make progress toward 'meeting the goals' of other regulatory programs. We believe that the IAQR must not replace or be construed to meet any goal of any other regulatory program. The NESCAUM states cannot support a presumption that compliance with the IAQR would constitute compliance with or supplant any other regulatory program; we cannot support blanket exemptions from other existing regulatory programs.

Response:
EPA is not providing "blanket exemptions" from other programs through CAIR. EPA is considering allowing States to use CAIR to satisfy BART requirements for EGUs. In the preamble, we explain that according to our current analysis, based on EGU BART guidelines proposed in April 2004 it appears that CAIR would satisfy the criteria for evaluating BART-

alternative programs that were also contained in that proposal. However, a final determination of whether CAIR makes greater progress than BART and therefore comprises an acceptable alternative to BART must await finalization of the BART guidelines and the "better than BART" criteria. If so, States would still be free to choose not to utilize this regulatory flexibility.

VIII.H.15
Comment:
More stringent caps that will provide an adequate margin of safety are one way to compensate for the uncertainties inherent in any modeling exercise that attempts to predict attainment status in future years.

Response:
The CAIR is not an attainment strategy. The emissions reductions requirements under the CAIR are based on controls that are highly cost effective for EGUs.

VIII.H.16
Comment:
The CAIR proposal would require all affected EGUs to obtain a CAIR permit detailing the relevant provisions and requirements applicable to the EGUs CAIR units. AMP-Ohio appreciates the U.S. EPA's efforts to smoothly integrate this permitting program with the existing Title V program and specifically supports the determination that the allocation of CAIR NOx and SO2 allowances will not require amendment of a facility's Title V permit.

Response: This comment is generally supportive of the approach taken in the final CAIR.

VIII.H.17
Comment:
The Ohio Utilities strongly urge U.S. EPA to coordinate compliance dates in CAIR with other regulatory programs, such as the Regional Haze and Mercury NESHAPS proposals. Only by coordinating compliance dates can U.S. EPA hope to minimize the costs to electricity consumers and avoid possible threats to service reliability.

Response: For a detailed discussion of this topic, see responses elsewhere in this response to comment document.

VIII.H.18
Comment:
Compliance With The IAQR Is Not A Substitute For Compliance With Other Statutory Provisions: Although it is a step in the right direction toward bringing the eastern part of the Nation into attainment with NAAQS for fine particulates and ozone, EPA's analysis indicates that, even with these significant reductions in emissions and resulting air quality improvements, many areas in the targeted states will not attain the ozone and $PM_{2.5}$ standard by 2010 or 2015.

Standard With the Anticipated Emission Reductions From The IAQR And Other National Emission Reduction Rules: Nonattainment with EPA's 8-hour ozone standard despite implementation of the IAQR and other Clean Air Act programs will be a significant problem. The deadlines for attainment proposed in EPA's 8 hours Ozone Implementation proposal will not allow nonattainment areas to make use of the IAQR or mobile source emission reductions from the Tier 2, Highway Diesel and proposed Non-highway Diesel rules. Most 8-hour nonattainment areas will have deadlines of 2010 or sooner, requiring 3 years of clean monitoring data before that time. Many of the nonattainment areas are relying on national and/or regional controls to attain the 8-hour ozone standard and will have few, if any, remaining cost-effective local control measures to implement. As such, they may not be able to submit approvable SIPs to EPA. As EPA knows, failure to achieve attainment imposes severe penalties on the non-attaining area. States and the regulated community should not be placed in the untenable position of facing severe negative economic consequences for reasons that are beyond their control. EPA must align the deadlines in the upcoming 8-hour Ozone Implementation Rule to reflect the degree of the problem and the actual time needed to attain the standard. In the context of this rule, the Agency should consider offering incentives to EGUs to make the changes needed to comply with the IAQR ahead of schedule.

Response: As discussed above in section VI in this RTC document, the emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

As described above in section VI in this RTC, and in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the early step of finalizing CAIR, we are requiring a very substantial air emissions reduction that addresses interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

VIII.H.19
Comment:
EPA must ensure IAQR reductions are creditable in SIP demonstrations for the 8-hour ozone and fine particulate NAAQS. We believe that EPA can and should authorize and approve SIPs demonstrations that predict attainment, taking into account IAQR reductions in their baseline modeling, even though these areas will not see the full benefits of IAQR reductions until Phase 1 and Phase 2 controls are installed. Alternatively, a State should be allowed to apply the IAQR reductions in their demonstrations, if the nonattainment area can demonstrate that no more 'cost-effective' measures are available to be adopted locally.

Response:

The attainment demonstration requirements are being addressed through the 8-hour ozone and $PM_{2.5}$ implementation rules and the modeling guidance for attainment demonstrations.

VIII.H.20
Comment:
EPA Should Continue Exploring Ways to Avoid Adverse Consequences of Areas Being Unable to Attain the 8-hour Ozone and PM Standards: In previous comments, API expressed considerable concern over the fact that the Agency's IAQR would not provide much assistance to nonattainment areas achieving the nearer term nonattainment compliance dates. We noted that the deadlines for attainment proposed in EPA's 8 hour ozone Implementation proposal will not allow nonattainment areas to make use of the IAQR (now CAIR) or mobile source emission reductions from the Tier 2, highway diesel and non-road diesel rules. Most 8-hour nonattainment areas will have deadlines of 2010 or sooner, requiring 3 years of 'clean' monitoring data before that time. Many of the nonattainment areas are relying on national and/or regional controls to attain the 8-hour ozone standard and will have few, if any, remaining cost-effective local control measures to implement. As such, they may not be able to submit approvable SIPs to EPA.

Since we submitted those comments, EPA has issued two final rules relating to attainment of the 8-hour ozone standard and addressing interstate transport. In both of these rules the Agency demonstrates its awareness of the problems that States will have meeting attainment deadlines for areas that have marginal and moderate nonattainment. In particular, EPA's nonattainment classification scheme for ozone places more of the 'gap' areas into subpart 1 thereby providing more flexibility to address nonattainment impacted by upwind transport. We also appreciate EPA indicating that it has flexibility in determining that areas unable to timely achieve attainment may be able to gain additional time under Section 172(a)(2(A) if their nonattainment is affected by transported pollution. API commends the Agency for diligently addressing these issues within statutory constraints.

In the CAIR proposal, the Agency responds to comments it received on the IAQR raising concerns that the compliance dates for the IAQR/CAIR program will be too late for many eastern States to meet their deadlines for attaining the new 8 hour ozone NAAQS or $PM_{2.5}$. EPA explains that it has addressed timing concerns in making their 8 hour ozone designations by noting that (1) States may choose to reclassify their areas to higher classifications with longer attainment dates; (2) some subpart 1 areas may qualify for an extension and receive an attainment date later than June, 2009, and (3) some areas may qualify for up to two one-year extensions if they meet statutory criteria. EPA concludes that CAIR implementation by the 2013 or 2014 ozone season could facilitate attainment by a serious nonattainment area receiving one year extensions. CAIR, 69 Fed. Reg. At 32,690. This does not help the vast majority of nonattainment areas that must attain the 8-hour ozone NAAQS by 2007 or 2010, using 3 years of compliant data prior to those deadlines. Further, it ignores the fact that areas are very unlikely to voluntarily seek a higher area classification. As Judge Eckels noted in his testimony before U.S. Senate's Committee on Environment and Public Works on April 1, 2004, reclassification to a higher classification 'is not a feasible option.' To date, we know of only two areas that have done so.

In addition, EPA has estimated that 51 areas will not be able to achieve attainment with the 8-hour ozone standard by 2007. See Eight-hour Ozone Rule, 69 Fed. Reg. At 32.805. Modeling in some of these areas show that even if all of the industrial and mobile source emissions are eliminated, they still will not be able to attain the standard.

EPA's proposal also recognizes that the IAQR will not result in all areas within the region attaining the fine particle standards on schedule either. API believes that EPA needs to address the issue for fine particulates as well.

Response: As discussed above in section VI in this RTC document, the emission reductions required by CAIR are intended to reduce significant contribution from upwind States, which will help downwind States to achieve attainment. However, CAIR is not intended to bring every nonattainment county into attainment.

As described above in section VI in this RTC, and in section IV in the CAIR NFR preamble, CAIR is an early step in the process of addressing $PM_{2.5}$ and 8-hour ozone nonattainment and maintenance requirements. The Clean Air Act requires States to submit section 110(a)(2)(D) plans to address interstate transport, and overall attainment plans to ensure the NAAQS are met in local areas. By taking the early step of finalizing CAIR, we are requiring a very substantial air emissions reduction that addresses interstate transport of $PM_{2.5}$ as well as a further reduction in interstate transport of ozone beyond that required by the NOx SIP Call Rule.

VIII.H.21
Comment:
Visibility Improvement Resulting from the CAIR Should Be Taken Into Account in Evaluating the Effect of New Sources Locating Near Class I Areas: EPA should provide guidance to the states and Federal Land Managers (FLMs) on how to incorporate the visibility improvement from the CAIR in evaluating the visibility impacts from new sources locating near Class I areas. The major limiting factor for new fossil fuel generation is often the visibility impact on Class I areas. Since all new sources must operate under the state caps, they will not impact the 'geographic enhancement' of the CAIR. Visibility improvements from the CAIR should be incorporated into the assessment procedures for determining visibility impacts of new EGUs on Class I areas.

Response:
EPA has committed itself to providing assistance to States, through Regional Planning Organizations, in evaluating the impacts of CAIR. EPA has not determined at this point whether guidance of the nature requested by the commenter is a priority for States.

VIII.H.22
Comment:
As alluded to in several instances in our above comments, disparities and inconsistencies between federal and state air regulatory programs can significantly increase compliance costs, increase

regulatory uncertainty and introduce unnecessary complexity into the compliance planning process. We respectfully urge EPA to work with the states to obtain their buy-in to a single federal CAIR program.

Response:
We are encouraging States to adopt the NOx and SO2 cap and trade programs provided in the CAIR. However, States have the flexibility to choose which control strategies to adopt to meet the CAIR requirements.

VIII.H.23
Comment:
SRP is committed to continue participating in dialogue with both EPA and other regional stakeholders to determine if the IAQR presents an opportunity to streamline and integrate existing regulatory requirements affecting Western utilities. In that regard, there are several issues that SRP will ask to have addressed should the IAQR be expanded. The IAQR should be harmonized with the Regional Haze Rule's requirements by preserving the agreements of WRAP, and by providing caps consistent with both the amount and timing of the milestones developed by WRAP.

Response:
The EPA believes that honoring the SO_2 agreements developed by the WRAP is an important policy objective. EPA is currently evaluating potential responses to the DC Circuit decision in *CEED v. EPA* which granted petitioner's challenge to the rule governing the WRAP's program. If EPA determines in the future that an expansion of a CAIR-like approach to the rest of the country is appropriate for regional haze purposes, we will attempt to integrate it with whatever program is in place for the West at that time.

VIII. I: Comments on Emissions Reporting Requirements

The EPA proposed regulatory language to revise Subparts A and G to Part 51 of the Code of Federal Regulations (CFR), requirements for emissions reporting for State implementation plan revisions relating to budgets for $_{NOx\ and\ SO2}$ emissions. Commenters recommended changes to the proposed regulatory language.

VIII.I.1.
Comment:
A number of commenters objected to the 45 day comment period as being too short to allow for full understanding of and comment on the emissions reporting changes that EPA had proposed.

Response:
This comment has been addressed in the preamble to the final CAIR.

VIII.I.2.
Comment:
The Mississippi Department of Environmental Quality commented on the requirement that Mississippi and four other States report ozone season emissions. Mississippi asserted that they should not be included with the other States subject to the CAIR provisions, including the emissions reporting provisions.

Response:
This comment has been addressed in the preamble to the final CAIR.

VIII.I.3.
Comment:
Received several comments regarding the proposal to eleminate the NOx SIP Call special all-sources 2007 emissions inventory. All of the comments supported EPA's proposal to eleminate the 2007 emissions inventory.

Response:
This comment has been addressed in the preamble to the final CAIR.

VIII.I.4.
Comment:
A number of commenters said that EPA should not have included changes to national emissions reporting requirements in a rule placing emission reduction requirements on only certain states. These commenters suggested that EPA should propose a separate rule that would propose changes to the Consolidated Emissions Reporting Rule.

Response:
This comment has been addressed in the preamble to the final CAIR.

VIII.I.5.
Comment:
A number of States responded to EPA's request for comment on harmonizing the due dates for emissions inventories under the NOx SIP Call and under the CERR. EPA proposed to harmonize the due date at 17 months, but also asked for comment on changing the due date to 12 months. All comments that expressed an opinion on this topic favored harmonizing the due dates, specifically at 17 months. Some of the comments cited specific reasons where a shortening of the due date to 12 months would make it difficult to produce a quality assured emissions inventory for EPA.

Response:
This comment has been addressed in the preamble to the final CAIR.

VIII.I.6.
Comment:
North Dakota commented that the proposal established the requirement for reporting $_{SO2, NOx}$, CO, VOC, PM_{10}, $_{PM2.5}$ and ammonia. They asserted that EPA should not require the reporting of $_{PM2.5}$ and VOC until EPA can provide emission factors or approved test methods.

Response:
This is not correct. The Consolidated Emissions Reporting Rule (CERR) (FR 67 39602, June 10, 2002) established the reporting requirements for all of these pollutants and pollutant precursors. The issues of the availability and use of emission factors to estimate these emissions was discussed in the preamble to the CERR.

VIII.I.7.
Comment:
The Utility Air Regulatory Group (UARG) commented that § 51.30(e) of the CERR required that EPA estimate the reporting burden for point sources before the reporting provisions of § 51.30(e) could be required.

Response:
EPA satisfied this provision of the CERR § 51.30(e) by revising its Information Collection Request (ICR) No. 0916.10. The OMB approval of this ICR was published in the Federal Register on June 20, 2003 (FR 68 36982). Interested parties should consult the supporting statement for ICR No. 0916.10 for details.

EPA received a number of comments regarding specific requirements that were proposed, but that EPA has not included in the final CAIR. These comments will not be discussed in this Response to Comments document since they are not germain to the final CAIR. EPA has considered these

comments and will address them as appropriate in the preamble to the notice of proposed rulemaking for the Air Emissions Reporting Requirements (AERR).

IX. TRIBAL ISSUES

IX.A. Establishing Tribal set asides

IX.A.1.
Comment:
One Tribe commented that EPA had not fulfilled its trust and consultation responsibilities towards tribes, because the proposed rule did not contain any means for providing tribes with emission allowances, independently of allocations to States. The commenter cited the need for a tribal set aside in order to avaoid economic unfairness and legal conflict with States, as tribes are not subject to State Implementation Plans. The commenter pointed to the Western Regional Air Partnership as a possible model.

Response:
This comment is addressed in the preamble. The EPA believes that while tribal equity concerns with cap and trade programs are legitimate, such concerns are too inchoate with respect to the CAIR to form the basis of a prospective solution such as a tribal set-aside. Such concerns are better addressed within specific factual contexts as the need arises, in accordance with the framework provided by the CAA and Tribal Authority Rule, as discussed in more detail in the preamble.

IX.A.2.
Comment:
The commenters jointly proposed two options for addressing future power plant development by Tribes:

Option 1. Exemption of all new power plants developed by the tribes or developed on tribal land from being required to hold allowances for $_{NOx\ or\ SO2}$ emissions, as long as these new power plants meet New Source Performance Standards (NSPS) and all other relevant permitting requirements at the date of initial operation.

Option 2: If such an exemption as presented in Option 1 cannot be made, EPA should make available to developers or new consumers of Indian country energy a pool of NOx and SO2 allowances equal of 5 percent of all allocations at set prices. Commenters further recommend that these allowances should be priced at the average price for 2000-2003 in teh case of SO_2, and at 50 percent of the price modeled by EPA in the case of NOx.

Response:
Section I.A of the CAIR NFR preamble includes a discussion of the applicability of the CAIR in Indian country, under the framework provided by the CAA and the Tribal Authority Rule. For the reasons explained there, the EPA believes that the best approach to regulating future-constructed major sources of NOx and SO2 in Indian country is a case-by-case approach. We do not believe there is sufficient information and understanding of the potential for unintended

consequences to justify a blanket exemption from CAIR for future Indian country EGUs that satisfy otherwise applicable new source requirements.

Similarly, we do not believe we have sufficient knowledge to determine ahead of time wheat is an appropriate size for a tribal set aside. Although teh commenters recommend a specific size set-aside and pricing scheme, they do not provide an explanation of how these specific numerical recommendations were derived.

IX.B. Impact of Tribal Sources

IX.B.1.
Comment:
One State commented that since no tribes in teh State currently contain EGUs, the State's allowances should not be shared with tribes. Instead, allowances could be shared at the time an EGU is constructed under tribal jurisdiction, according to rules in existence at that time.

Response:
This comment is addressed in the preamble. The EPA is not requiring that State allowance allocations be shared with tribes prior to the establishment of any EGUs in Indian country.

IX.B.2.
Comment:
One multi-State organization commented that in order for the program to be effective the iclusion of sources should be based on factors such as size, emissions, and relative contribution to nonattainment, rather than location.

Response:
EPA agrees with the commenter and has determined the extent of the CAIR region based on significant contribution to nonattainment. The determination of sources affected is in turn dependent upon the strategy chosen by the State to meets its emission reduction requirements. EPA will work relevant tribal governments to ensure that any sources in Indian county which emit in areas which significantly contribute to nonattainment are appropritely regulated through a tribal or Federal implementation plan.

IX.C. Other Tribal Issues

IX.C.1.
Comment:
The commenters commented on adverse affects they believe the CAIR will have on coal mining operations on and near the Crow Tribe reservation in Montana. Analysis by one of the commenters indicates that title IV SO_2 allowance prices are rising in anticipation of CAIR, and this may place some Indiana coal at a disadvantage in the marketplace even prior to the implementation of the rule. In conjunction with the Crow Tribe of Indians, who operate the Absaloka Mine through mineral leases with Westmoreland Resources Incorporated (a subsidiary of Westmoreland Coal) one of the commenters proposes a number of provisions to CAR that are intended to protect Indian coal. Under CAIR, the commenters believe that fuel switching as a result of higher SO_2 allowance prices could force the mine to shut down, with significant adverse economic effects on the Tribe. Currently 90 percent of the mine's coal is sold to one customer, and should this customer switch to a lower-sulfur coal, the mine would be forced to shut down.

In addition to the recommendations regarding future power plan develoment described in Section IX.A above, the provisions requested by commenters are as follows:

Option 1: EPA should require the installation of emission control technology rather than implement the propsed cap-and-trade program. In particular, EPA should require all power plants producing more than 50 MW that are not scrubbed to install emission control equipment that meets the latest standards.

Option 2: If a cap-and-trade program is to be implemented, existing power plants burning noncompliacne Indian county (>1.2lb SO_2/mmBTU) coal or future tribal energy development projects should be allocated allowances according to the rule and allowed to use them at the following retirement rates.

- 1 allowance for 2 tons of SO_2 -effective immediately through 12/31/05
- 1 allowance for 3 tons of SO_2 -effective 1/1/06 forward
- 1 allowance for 2 tons of SO_2 -effective with CAIR implementation

Response:
EPA understands and is sympathetic to the economic situation of the tribe. EPA staff and officials have met with the commenters regarding their concerns, and considered the comments and proposals put forth by the commenters. EPA's analysis of the Crow tribe's economic situation, and discussions with commenters, suggest that the Tribe should not experience adverse economic impacts as a result of the SO_2 caps under CAIR. Rising SO_2 prices, however, may lead to the erosion of the competitive advantage currently held by coal from Absaloka mine, and could potentially force the mine to shut down. However, the erosion of this competitive advantage is not a direct effect of CAIR, as the price advantage held by Absaloka coal is likely to disappear under title IV alone.

The EPA has determined that we can not implement the commenters recommendations for the following reasons:

Option 1 disregards the advantages of a cap-and-trade program, which include greater environmental certainty, and lower overall compliance costs, relative to command-and-control appraoches such as the commenters propose. Although States have teh option of achieving required emission reductions in whatever manner they chose, including source-by-source command and control strategies, we are offering the option of participation in the EPA administered cap and trade program in order to achieve emission reductions in the most cost-effective manner possible, while assuring integration with other applicable CAA programs.

The proposed allowance retirement ratios presented in Option 2 would undermine both the environmental certainty and economic stability of the cap-and-trade program. If EPA were to allow power plants buring Indian county coal and future tribal energy development projects to retire allowances at a less than one to one ratio, the certainty of the cap level, and the resulting knowledge of the value of an allowance, would be jeopardized. This lack of certainty about the cap is unacceptable for a cap and trade program, which functions most successfully when environmental economic certainty have been established.

X. SETTING STATE EMISSIONS BUDGETS

X.A. Methodology for setting state-level SO_2 Budgets

X.A.1 Comment:
The proposed IAQR does not allocate allowances to post-1990 units or new units and potentially penalizes the use and construction of new environmentally friendly facilities.

A sensible energy, environmental and economic policy dictates that newer, cleaner and more efficient units should be encouraged, especially for the replacement of older technology. However, EPA's proposal, in addition to penalizing clean units that were in operation before 1990, does not provide allowances for post-1990 units or for units not yet constructed. EPA's current SO_2 allowance surrender program will discourage construction of new units through the penalties of an unfair allocation of allowances. The proposal should not penalize new, base load coal plants as this could result in 'fuel switching,' increasing the possibilities of shortages and higher prices as competition for the limited supplies of natural gas increases.

The Administration's Clear Skies Act (CSA) would have provided that a percentage of SO_2 allowances be set aside and available for both newer units not receiving allowances under the original Clean Air Act Amendments of 1990 (post-1990 units that did not receive title IV allowances) and for a limited number of units not yet built. Providing allowances for these units would remove an important barrier to the construction of new clean coal units and provide equity to the post 1990 units in operation.

It should be noted that both Senate and House versions of the CSA established a national set aside of SO_2 allowances to provide allowances for post-1990 units and new units that had not reached normal operation. The Chairman's mark of the Senate version of the CSA also provided for allocation for post enactment units from a national set aside. We believe EPA has sufficient flexibility to establish a set-aside from the regional cap to provide SO_2 IAQR allowances for post-1990 units. This approach would not penalize low-emitting states with relatively lower caps.

Response:
See response to Comment X.A.12, and response to Comment X.A.26 below, and see discussion in Section V of the preamble.

X.A.2 Comment:
Examples of concerns to many of our members include:-New units that were not allocated allowances under the title IV acid rain program;
-Existing units that were originally exempt from the title IV program that would be regulated under the IAQR cap and trade program for SO_2; and
-Existing low emitting units that were allocated SO_2 acid rain allocations based on very low emission rates achieved through SO_2 controls.

Response:
See response to Comment X.A.12, and response to Comment X.A.26 below, and see discussion in Section V of the preamble.

X.A.3 Comment:
Midwest Generation Notes That Sources With Low Or No Sulfur Dioxide Allocations Under The Acid Rain Program Will Be Disadvantaged By EPA's Allocation Methodology.: EPA should consider approaches for ameliorating the harsh results that the allocation methodology for IAQR SO_2 allowances will work against particular EGUs. Qualifying facilities and new sources do not currently receive title IV SO_2 allowances as other sources do, nor will they under the IAQR. Low allocation and 'clean coal' units currently receive artificially low allocations as compared to other EGUs and will continue to do so under the IAQR. These sources will be significantly disadvantaged under the IAQR because their current allocations are insufficient given a one-to-one trading ratio and will be even more inadequate if EPA implements a two-to-one ratio for 2010-2014 vintage allowances.

Response:
See response to Comment X.A.12, and response to Comment X.A.26 below, and see discussion in Section V of the preamble.

X.A.4 Comment:
How will non-title IV units receive SO_2 allowances when they were not part of the original Acid Rain allocation system. Congress determined the Acid Rain caps based on existing facilities in the 1980s. As a matter of equity, if additional facilities are added to the programs, the allowances should be reallocated. Not doing so may unnecessarily raise the price of allowances and adversely affect states not included in the IAQR region.

Response:
See response to Comment X.A.12, and response to Comment X.A.26 below, and see discussion in Section V of the preamble.

X.A.5 Comment:
Under the proposed IAQR, a number of Pennsylvania waste coal combustor EGUs will not receive SOx allowances. These are facilities that were not included in the title IV baseline, but would be covered by the proposed EPA requirements. These facilities should be granted allowances to assure that the operators of the sources can continue to compete effectively. EPA's failure to consider these sources in its allowance allocations will result in the loss of more than 27,000 tons of allowances for Pennsylvania.

Response:
See response to Comment X.A.12, and response to Comment X.A.26 below, and see discussion in Section V of the preamble.

X.A.6 Comment:
Under the proposed rule, subject to possible change in the SNPR, it appears that 'new' units built after 1990 in a covered State would not receive SO_2 allowances. In order to continue or start operation, these units would have to obtain SO_2 allowances each year from the market. This would create a major disincentive for the construction of new, cleaner plants, while encouraging the continued operation of older, less well-controlled plants. The added cost and the attendant uncertainty over future allowance costs could strongly discourage the financing and construction of the next generation of power plants that will produce power more efficiently and with fewer emissions. The problem of cost uncertainty would be particularly troubling in States experiencing growth in demand for electricity, resulting in less opportunity to internally generate needed allowances by shutting down older and less efficient plants.

The proposed rule's disincentive against constructing new power plants is clearer under the proposed SO_2 State caps because of the way EPA is proposing to structure the program. If a State deviates from the SO_2 unit-by-unit allocations to be established in the rule (in order, for example, to provide new units with allowances), the State would not be able to participate in the regional cap and trade program. Thus, under the proposed rule, States (and the individual EGUs within those States) would be penalized if they seek to correct this problem, making it all the more important that the allocation scheme to be proposed in the SNPR gets it right.

For SO_2, the proposed rule requests comment on an alternative that would require States to reduce emissions by a greater percentage so as to create additional allowances that can be redistributed. While the rule does not directly suggest this, the second pool of allowances could be used for new sources.

We recognize that EPA is planning to address specific allowance allocation options in an upcoming supplemental notice of proposed rulemaking (SNPR), and that there will be an opportunity to comment on the effects of its specific proposal at that time. GE believes it is very important that the allocation scheme to be included in the SNPR encourage rather than further burden the construction of new electric power generation units. Accordingly, GE is submitting these comments to urge EPA to shape the SNPR to reward and encourage the construction of new clean and efficient generation capacity.

It should be a matter of general agreement that sensible energy, environmental and economic policy dictates that newer, cleaner and more efficient units should be encouraged, especially for the replacement of older technology. Because EPA's proposal fails to provide such units with allowances, it creates a disincentive for their use and a poor precedent for future environmental regulation. While the overriding goal must remain emissions reductions from existing units, EPA can and should accomplish this goal without penalizing needed new base load IGCC coal plants.

EPA should eliminate the disincentives in the proposed rule for constructing new power plants. Ideally, clean new plants would be given sufficient allowances to operate or, depending on how clean they are, be provided performance bonus allowances that reward exceptional environmental

performance and that could be sold to help offset some portion of the cost of the plant. This could be accomplished in any number of different ways.

Among other possible approaches that EPA should consider as it develops the SNPR are:

(I) to exempt new facilities that are particularly low-emitting and that have the potential to represent a significant advance in power generation technology (for example, natural gas turbines that achieve extraordinarily high efficiency, or ultra-clean coal generation technologies); and

(Ii) to allow utilities to 'borrow' allowances in order to allow the construction of replacement facilities that would substantially reduce emissions and that would represent a significant advance in power generation technology.

Response:
See response to Comment X.A.12, and response to Comment X.A.26 below, and see discussion in Section V of the preamble.

X.A.7 Comment:
If ARIPPA Facilities Are Subject to the SO_2 Provisions of the Interstate Transport Rule, Allocations of SO_2 Allowances to ARIPPA Members Should Reflect Current SO_2 Emissions Levels.: To the extent that the Agency determines that the SO_2 provisions of Interstate Transport Rule nonetheless will apply to ARIPPA facilities, the Agency must modify the proposed rule, and the proposed SO_2 budgets, to clarify its application to these sources. In particular, sources determined to be subject to the Interstate Transport Rule should not be disadvantaged in the allocation process under this rule by virtue of their initial exemption from the Acid Rain Program. Further, in this context, the Interstate Transport Rule should establish an allowance allocation mechanism for such ARIPPA facilities based upon the sources' current SO_2 emission levels. Such allocation would recognize the following considerations which are unique to ARIPPA facilities, as discussed above: (1) the inherently clean nature of these sources; (2) the low SO_2 emissions from these sources relative to conventional coal-fired utility units; (3) the technical and economic infeasibility of installing back-end SO_2 controls on CFB boilers; (4) the inability to pass on control costs to electricity consumers; and (5) the likelihood of reduced compliance options under the Interstate Transport Rule as compared to title IV units. Therefore, to the extent that ARIPPA facilities are included within the SO_2 provisions of the proposed rule, the Agency should revise the regionwide and State SO_2 budget to include sufficient allowances for ARIPPA facilities based on their current SO_2 emission levels.

Response:
See response to Comment X.A.12, and response to Comment X.A.26 below, and see discussion in Section V of the preamble.

X.A.8 Comment:

Under the CAIR, the Agency proposes to allocate an SO_2 budget to each State in an amount equal to the total number of Acid Rain Program allowances for Acid Rain units in the State. The CAIR SO_2 budget will not include SO_2 allowances for non-Acid Rain EGUs subject to the CAIR, including IPPs. The Agency offers no explanation for its failure to include non-Acid Rain units in the allocation progress. Further, the Agency provides no proposed mechanism for the States to make an SO_2 allocation to those units, instead stating that non-Acid Rain sources must obtain allowances in the marketplace.

To the extent that the Agency determines that the SO_2 provisions of the CAIR nonetheless will apply to ARIPPA facilities, notwithstanding their exemption from the Acid Rain Program and their low SO_2 emissions, the Agency must revise its budget allocation scheme to ensure that neither the ARIPPA facilities nor the Commonwealth of Pennsylvania are disadvantaged relative to other EGUs and other States.

Response:
See response to Comment X.A.12, and response to Comment X.A.26 below, and see discussion in Section V of the preamble.

X.A.9 Comment:
Existing units that did not receive an Acid Rain Program allocation: Existing affected utility units that did not receive an allowance allocation under title IV should receive an allocation based on the unit's baseline and the targeted average coal unit emission rate under CAIR Phase 1 and 2.

Response:
See response to Comment X.A.12, and response to Comment X.A.26 below, and see discussion in Section V of the preamble.

X.A.10 Comment:
How will allowances for SO_2 be allocated to existing, non-title IV affected facilities? The EPA must provide guidelines to the State agencies to use in allocating allowances under the CAIR initiative to provide equity to the sources that will now become affected.

Response:
See response to Comment X.A.12, and response to Comment X.A.26 below, and see discussion in Section V of the preamble.

X.A.11 Comment:
The proposed IAQR does not allocate allowances to post-1990 units or new units and potentially penalizes the use and construction of new environmentally friendly facilities.

A sensible energy, environmental and economic policy dictates that newer, cleaner and more efficient units should be encouraged, especially for the replacement of older technology. However, EPA's proposal, in addition to penalizing clean units that were in operation before

1990, does not provide allowances for post-1990 units or for units not yet constructed. EPA's current SO_2 allowance surrender program will discourage construction of new units through the penalties of an unfair allocation of allowances. The proposal should not penalize new, base load coal plants as this could result in 'fuel switching,' increasing the possibilities of shortages and higher prices as competition for the limited supplies of natural gas increases.

IECA believes it is necessary that a percentage of SO_2 allowances be set aside and available for both newer units not receiving allowances under the original Clean Air Act Amendments of 1990 (post-1990 units that did not receive title IV allowances) and for a limited number of units not yet built. Providing allowances for these units would remove an important barrier to the construction of new clean coal units and provide equity to the post-1990 units in operation.

We believe EPA has sufficient flexibility to establish a set-aside from the regional cap to provide SO_2 IAQR allowances for post-1990 units. This approach would not penalize low-emitting States with relatively lower caps.

Response:
See response to Comment X.A.12, and response to Comment X.A.26 below, and see discussion in Section V of the preamble.

Also, EPA notes that States have the flexibility to allocate SO_2 allowances as they wish. EPA's example SO_2 allocation approach includes both recent and new units in the allocation process.

X.A.12 Comment:
The absence of new source set asides in the SO_2 allowance allocation discourages the installation of new units, particularly new clean coal units, that bear the extra and uncertain cost of purchasing SO_2 allowances from a shrinking market.

Response:
EPA has determined that it is very important build its SO_2 control program for CAIR on the basis of the tried and proven title IV program for number of reasons that were noted in the preamble. CAIR SO_2 reductions are implemented using title IV allowances which have already been allocated to sources (except for the amount set aside to be auctioned). Absent an effective method to recollect these allowances from their current owners and re-allocate these allowances, sources not holding title IV allowances (because they did not receive them, or because they sold them) would need to procure such allowances from the market or from the title IV auction.

While commenters express concern about the availability of allowances for non-Acid Rain units, EPA notes that not all sources covered under the Acid Rain program received allowances. By the design of the title IV program (as outlined by Congress), because of the permanent allocations of allowances, new units beginning commercial operation after 1995 or beginning construction after 1990 did not receive title IV allowances. Thus Congress recognized that, over time, new units would be built and covered under the program, but felt it reasonable that such units would be able

to obtain title IV allowances either through the auction or from the market. Additionally new and non-Acid Rain units , needed to comply with NSPS, and thus have generally lower emissions levels than the existing title IV sources - and less of a need for controls and allowances.

It is also worth noting, that not all title IV allowance for future years have been allocated. In particular, 250,000 allowances will continue to be auctioned for the years 2012 onward, and these allowances could be used to comply with the requirements of the CAIR program. The availability of these allowances ensures that all sources, including new coal units and non-title IV sources, will have access to a pool of allowances, protecting them from potential exercise of market power by market participants holding allowances.

EPA could have changed the applicability of CAIR to exclude non-title IV EGUs and run the program without them. EPA chose not do so, for reasons discussed in Section VIII of the preamble and in Response to Comment Section XIII M. Excluding these sources and keeping the same retirement ratios (and the same SO_2 budgets), would achieve many, but not all of the highly cost effective reductions and could result in emissions leakage at these sources as generation (and thus emissions) shift from the EGUs covered by the cap, to EGUs not covered by the cap.

X.A.13 Comment:
Oglethorpe Power strongly supports trading and believes it is essential to allow States subject to the IAQR to participate in an interstate allowance trading program. However, any challenge to the SO_2 trading program proposed by EPA in the IAQR could create uncertainty regarding how trading ultimately will proceed. To address this concern, EPA should consider proposing for public comment, in its supplemental notice of proposed rulemaking on the IAQR, a potential alternative trading program that would involve allocation of new, non-title IV SO_2 allowances beginning in Phase I of the IAQR cap and trade program. Such alternative program should allow for the use of banked title IV SO_2 allowances, i.e., allowances of vintage years before 2010, the first year of IAQR Phase I, at a surrender ratio no greater than 1-to-1.

EPA suggests in the preamble to the IAQR that establishing the new SO_2 allowance trading program could make available to EGUs and non-IAQR States a substantial number of title IV allowances at low costs. However, EPA also acknowledges that transmission constraints make it unlikely that any substantial number of title IV allowances will be 'leaked' from IAQR States to non-IAQR States in the West. Oglethorpe Power agrees with this observation. To the extent such occurs, source-specific SIP SO_2 emission limits as needed can be adopted by the States to address any local nonattainment or other air quality concerns.

Response:
See response to Comment X.A.12 above, and response to Comment X.A.26 below, and see discussion in Section V of the preamble.

X.A.14 Comment:

Sunflower is a small business under the Small Business Regulatory Fairness Act (SBREFA). We recognize the political pressure to reduce emissions is strong, but the economic costs from unintended consequences can be significant. Sunflower has already installed the technology for achieving SO_2 reductions and SO_2 reductions. The current allocation of SO_2 allowances under title IV of the Clean Air Act fairly represents achievable emission rates as intended by Congress. The monetization of allowances as proposed by EPA will doubly impact clean coal-fired plants. We paid once to install the BACT technology. Now we will pay again by having to purchase allowances. Surely this is not what Congress intended.

Response:
Units covered under title IV that have installed BACT technology would be expected to have rather low emissions and thus have a surplus, or at the least, not have a significant deficit of allowances. In any event EPA has set its reduction levels to reflect highly cost effective controls.

Just because units were required to install controls that required by other programs does not mean that additional controls are not necessary in regions that continue to impact downwind nonattainment of $_{NOx\ or\ SO2}$.

See also response to Comment X.A.12 above, and response to Comment X.A.26 below, and see discussion in Section V of the preamble.

X.A.15 Comment:
In an effort to mesh the CAIR with the existing Acid Rain Program, EPA has proposed that for SO_2, States will not have discretion in their allocation approach. Instead, allowances for the CAIR will be based on the title IV SO_2 allowances. Only units that were listed or described in the 1990 CAA Amendments will be allocated allowances under CAIR. Thus, any unit that is affected by the CAIR that did not receive allowances under title IV will not receive allowances under CAIR and must acquire all of the allowances they need by purchasing them in the marketplace.

This approach perpetuates a permanent allocation of SO_2 allowances which, as EPA pointed out in the CAIR, does not provide for a periodic review, recalculation, and reallocation of allowances based on changes in the electricity market. Based on a historic baseline, permanent allocations do not reflect retirements or improvements in emissions. Instead, a permanent allocation rewards older units and takes away any incentive for these units to improve performance while at the same time penalizing newer units that are likely to be equipped with efficient controls by forcing them to purchase allowances from the market. This, obviously, is not sound public policy.

EPA is encouraged instead to use an updating system that periodically recalculates and reallocates allowances for the CAIR. Through such an updating system, allowances can be reallocated depending on changes in the power market. Such an approach could rectify allowance allocation fairness issues that exist in the current title IV allowance trading program with respect to low emitters, new plants, and other units that did not receive an allocation of SO_2 allowances under title IV.

Response:
See response to Comment X.A.12 above, and response to Comment X.A.26 below, and see discussion in Section V of the preamble.

Additionally, EPA disagrees with the assertion that permanent allocations take away incentives for older units to improve performance. In fact, permanent allocations, since they are one-time wealth transfers, would not impact the operating or fuel choice decisions of a unit operating in a least cost system. Since a cap and trade approach creates a value for allowances (which units realize by buying or selling on the market), sources would make sure to factor in the value of allowances in their decisions, regardless of their allocations. The allowance price in and of itself provides incentive to improve performance. A system of permanent allocations would also not encourage older units to stay online just for the purpose of retaining allowances. New units would need to purchase allowances, but to the extent that they are much cleaner than existing units (and need to meet NSPS) they would not be expected to need very many.

In contrast, an updating system (as suggested by the commenter), based on output (for example) would provide additional incentives for generating electricity, since the output would be rewarded with a greater number of allowances. Updating systems based on input would actually provide incentives for less efficient generation, since sources would be rewarded for the amount of fuel they burn.

X.A.16 Comment:
We object to EPA's determination not to allow the use of output-based methodologies for allocation of allowances. Use of output as a basis for allocation rewards and incentives the use of low- or non-polluting clean energy technologies. Indeed, we believe that output-based methodologies should be used for distribution of allowances between States and should be an available option for allocating allowances among sources within a State. Accordingly, we join in the comments of other parties that States should be permitted to use output-based methodologies for allocation of SO_2 allowances, and that States should not be required to use the title IV allocations in order to participate in the trading program.

Response:
See Section V of the preamble, response to Squire, Sanders, Dempsey for American Municipal Power, and response to Piper Rudnick (for AES Corporation), above.

Additionally, the use of an output-based allocation methodology, if not updated, does not provide incentives for behavior or for new generation. As discussed earlier, it only provides a one-time transfer amongst existing sources. Permanent allocations, either input or output based, since they are one-time wealth transfers, would not impact the operating or fuel choice decisions of a unit operating in a least cost system. Since a cap and trade approach creates a value for allowances (which units realize by buying or selling on the market), sources would make sure to factor in the value of allowances in their decisions, regardless of their allocations. The allowance price in and of itself provides incentive to improve performance.

As asserted in the preamble Section V, since emissions are under a cap, the choice of allocations (while having a distributional impact) would not be expected to impact the environmental performance or the total cost of this rule.

X.A.17 Comment:
Under title IV, allowances were allocated based on 1985-87 baselines using 1985 emission rates. These baselines are already seriously out of date, and by 2010 and 2015 the baselines will reflect market conditions 25 and 32 years out of date. This disadvantages newer units and high economic growth areas. Unfortunately, when EPA designed and Congress adopted the SO_2 allowance program, they did not adopt a mechanism for updating allowance baselines to reflect changes in generation and the marketplace. EPA has since recognized this as a problem. In the 1998 NOx SIP Call, EPA projected growth rates for 2007 when establishing the State budgets for the NOx SIP Call and EPA has proposed to update the new allowance program for mercury at regular intervals in the future.

Response:
See discussion in Section V of the preamble and other responses to comments with related issues in this section X.A of the Response to Comments document.

X.A.18 Comment:
Growth and Changed Markets: Under title IV, allowances were awarded based on an average heat input for 3 years, 1985-87. This heat input in mmbtus was multiplied by an emissions rate to determine the allowance allocation for each unit covered by title IV. Newer and cleaner units were awarded allowances based on multipliers that were much less than the multipliers for the high emitting units. For example, the Phase I multiplier for affected units was 2.5 lbs. Per mmbtus and 1.2 lbs. Per mmbtus for Phase II. Many newer and clean units had multipliers based on the lesser of their actual or permitted emission rate. These rates were sometimes as low as 0.2 and 0.3 lbs. Per mmbtus applied to clean units in Phase II.

A compounding factor that often penalized some newer units was the lack of 3 years worth of operating data. In those cases, allowances were awarded based on a calculated heat input based on an assumed 65 percent capacity factor with a multiplier based on the units allowable emission rate. In reality, the typical capacity factor of these low-emitting, higher efficiency units often exceeds 90 percent. The combination of the low capacity factor and lower emission rate multiplier resulted in newer units receiving proportionately fewer allowances than the older, higher-emitting units.

Proposed Rule does not allocate allowances to post-1990 unites or new units: It should be a matter of general agreement that sensible energy, environmental and economic policy dictates that newer, cleaner and more efficient units should be encouraged, especially for the replacement of older technology. However, EPA's proposal, in addition to penalizing clean units that were in operation before 1990, does not provide allowances for post-1990 units or for units not yet constructed. EPA's current SO_2 allowance surrender program will discourage construction of

new units through the penalties of an unfair allocation of allowances. While the overriding goal must remain emissions reductions from existing units, EPA can and should accomplish this goal without penalizing needed new base load coal plants. (The ability to finance a new, clean coal plant is further made difficult by EPA's proposal to allocate SO_2 allowances based on a fuel neutral' output-based formula and by EPA's proposed overly stringent mercury emission standards for new plants).

The Administrations Clear Skies Act (CSA) would have provided that a percentage of SO_2 allowances be set aside and available for both newer units not receiving allowances under the original Clean Air Act Amendments of 1990 (post-1990 units that did not receive title IV allowances) and for a limited number of units not yet built. Providing allowances for these units would remove an important barrier to the construction of new clean coal units and provide equity to the post-1990 units in operation. EPA should reduce the State budgets used for compliance with the IAQR by an appropriate percentage across the 29 State region and create a pool of allowances that EPA can allocate to post-1990 units and new units. Allocations could be based on the minimum requirements for new source operation, which would be lower than existing source allocation rates (i.e.BACT emission rates and design Capacity Factors).

Response:
See discussion in Section V of the preamble and other responses to comments with related issues in this section X.A of the Response to Comments document.

X.A.19 Comment:
EPA's Proposed SO_2 Allowance Allocation Methodology is Contrary to Sound Economic, Energy and Environmental Policy as it Penalizes the Newest, Cleanest and Most Efficient Coal Units in the Country and Presents Unnecessary Obstacles to Building New Clean Coal Units. Modest Measures could Address the Equity Problems.
FMEA's overriding concern is that the program, as currently designed, will penalize economic growth (by not recognizing the very substantial changes in the market since 1985) and will disadvantage the newest, cleanest and most efficient units in the country by perpetuating and severely aggravating historic inequities with the SO_2 allowance allocation program. EPA's proposed SO_2 allowance allocation methodology (based on title IV SO_2 allocations) does not adequately take into consideration the need to preserve fuel diversity as a means of assuring national energy security and reliable and affordable electricity. Congress designed the Clean Air Act to be a creative and dynamic approach to improving air quality. The long-term success of the CAA is predicated on newer, cleaner sources replacing older existing (dirtier) sources. Failure to provide allowances to post-1990 and new units going forward will impede construction of new, clean coal plants. This is contrary to the intent of the program while any regulatory bias favoring natural gas plants will raise both natural gas and electric rates while undermining energy security.

We recognize that fully updating the SO_2 allowance baseline to recognize today's changed market conditions would cause significant transfers for allowances from States with below average economic growth to States with above average economic growth. However, this should

not prevent EPA from finding a middle ground approach that would address the worst of the inequities of the title IV allocations that are so severely aggravated by the proposed allocation of SO_2 allowances under the proposed rule.

EPA could take a more modest approach to addressing the equity issues and do one of two things. First, EPA could create a pool of allowances from all 29 States (by reducing overall allowances by a percentage) for redistribution to post-1990 units and new units as well as to those units that already meet the goals of the program, the Phase I average emission rate. Those units that already meet or exceed the emission rate target of Phase I should not be forced to buy additional allowances in order to legally operate. It has been estimated that a pool as small as 5 percent of the allowances from the 29 States could accomplish this end, and should not represent a particular hardship for any State. Or, second, EPA could update a portion of the allowances, such as one half or one third of the allowances, moderating the impact on below-average growth States while addressing the equity issues of above-average growth States.

Response:
See other responses to comments with related issues in this section X.A of the Response to Comments document.

X.A.20 Comment:
IDEM appreciates USEPA's proposal to provide model trading rules that, if adopted within the constraints of the proposal, certainty and streamlining of the SIP approval process. IDEM understands the limitations that are required with a SO_2 trading program that is based on the use of title IV and USEPA's rationale for using title IV allowances. IDEM does have some concerns about the rigidity of the proposed program, the timing of the reductions and the level of control that USEPA has proposed.

Response:
As noted in the responses in this section, EPA believes that the merits of retaining the title IV framework outweigh concerns about flexibility in allocating allowances.

X.A.21 Comment:
LPPC notes that EPA's proposed approach to integrating the title IV Acid Rain allowance trading program with the IAQR SO_2 trading program raises a number of questions. Some of these questions relate to the consistency of the proposed approach with EPA's statutory authorities. For example, EPA needs to better explain how the proposed conversion ratios are consistent with title IV's definition of 'allowance,' which seems to provide that an allowance is an authorization to emit one ton of SO_2. Other questions relate to how the program will be implemented. For example, EPA needs to elaborate more fully how it proposes to have covered States reallocate already allocated Acid Rain Program allowances and how allowances would be allocated to new units. LPPC recommends that EPA address these and other outstanding issues in the supplemental trading rule.

A key element of the supplemental trading rule will be the provisions addressing the allocation of allowances. Although different allowance allocation methodologies may be appropriate for different pollutants, whatever methodology adopted must result in an equitable allocation of the control obligations to the covered facilities. While LPPC members have varying viewpoints on the different possible methodologies, all LPPC members agree allowances should be allocated only to affected EGUs.

Response:

See discussion in Section V of the preamble (and in Section IX of the preamble with regards to the definition of an "allowance") and other responses to comments with related issues in this section X.A of the Response to Comments document.

In the final rule, EPA is not proposing to reallocate already allocated Acid Rain Program allowances. Consistent with the Acid Rain Program approach, EPA is also not allocating allowances to new units.

Additionally, EPA would note that under the final rule, title IV allowances would be used for complying with the SO_2 CAIR program, and these allowances were generally allocated only to affected EGUs. EPA leaves States with the flexibility to decide how to allocate SO_2 allowances to sources. EPA's example allocation**,** however, does only allocate allowances to affected EGUs.

X.A.22 Comment:
EPA should set and implement an SO_2 cap and allowance trading program separate and distinct from the Acid Rain Program. As part of this program EPA should explore and provide output-based allocation methodologies for SO_2.

At 69 FR 32687, EPA has failed to justify the inclusion of an additional 250,000 SO_2 allowances in the SO_2 budget. There appears to be no reason allowing these additional emissions. We oppose inclusion of these additional allowances in the final budget. Such an inflation of the Transport Rule's SO_2 cap will only further hamper States' ability to attain the PM-fine standard.

Response:
EPA believes that CAIR SO_2 reduction would be best achieved through integration with the title IV program, as discussed in Section V of the preamble and in other related responses in this section.

EPA notes that the 250,000 SO_2 allowances in the SO_2 budgets are not "additional allowances". Rather they are Special Allowance Reserve - Section 416 allowances, which are part of the title IV program, and distributed through annual auctions. Since they are held for the auctions, these allowances are not initially allocated to sources, yet are part of the total allowances reflecting the title IV cap. These allowances would need to be included to fully account for the 8.7 million ton

cap in 2010, which would be reduced through the 2:1 and 2.86:1 retirement ratios. See also the "Regional and State SO_2 and NOx Emissions Budgets" Technical Support Document.

X.A.23 Comment:
OTR and IAQR NOx Allocations: EPA's proposal does not define how States within the Ozone Transport Region (OTR), but not within the IAQR will manage their NOx Budget Programs. For example, will allowances in such States be treated as identical 'currency' as IAQR allowances. NRG believes problems like this must be addressed within the IAQR in order to avoid decreasing, instead of increasing regulatory certainty.

OTR-affected facilities have already reduced NOx emissions in Phase 11 from 1999 to 2003. This creates an allocation disadvantage as their 50 percent reduction in allocations will be from a lower starting point than the other non-OTR States unless heat input is the criteria used. Even so, EPA must realize that OTR sources competing in the regional markets with non-OTR sources will, by virtue of the NOx Budget Program, have lower heat inputs (i.e., consumers of electricity generally purchase the lowest cost energy available and, therefore, the increased compliance costs imposed by the NOx Budget Program represent a disadvantage to OTR competitors) and will receive fewer allowances for this first distribution. To eliminate this competitive disadvantage, EPA should expand to 1996 to 2002 the time period within which to define a baseline heat input. Under no circumstance should allowances be determined based on historic emission levels. This would represent double jeopardy to OTR sources.

Allocation Process: EPA proposes the SO_2 allowance distribution follow the format of title IV using ratios applied to existing allocations to define future emission caps. NRG supports EPA's conceptual approach in this matter, but realizes there are inequities with this approach (e.g., the absence of allocations for new sources). NRG suggests EPA address these inequities within the IAQR by establishing 2010 and 2015 allocations for post-Acid Rain sources above the caps established by the planned ratio of 2:l and 3:l respectively.

Response:
See discussion in Section V of the preamble and other responses to comments with related issues in this section X.A of the Response to Comments document.

X.A.24 Comment:
If EPA decides, with strong objection from Associated, to a reallocation (causing redistribution) of the allowances to the State, Associated requests that the allocation of allowances be based on the average of the three (3) highest heat input years during the 1998-2002 time frame. Associated does not believe its 2002 annual heat input is consistent with its typical yearly system heat input based on previous year totals. Associated does not necessarily agree that the period used to determine SO_2 allowances must or should be the same base years as those used in determining NOx allowances.

Response:

EPA is not changing SO_2 allocations from the title IV allocations.

See discussion in Section V of the preamble and other responses to comments with related issues in this section X.A of the Response to Comments document.

X.A.25 Comment:
The SO_2 reductions in the proposed rule are premised on a regulatory extension of the Acid Rain Program under title IV of the CAA. The proposed rule would set statewide budgets for SO_2 equal to a State's title IV allowances reduced by 50 percent in 2010 and 65 percent in 2015, and would accomplish the emission reductions through tightened Acid Rain allowance surrender requirements. Using the Acid Rain Program to implement the IAQR creates two major problems. First, EPA is utilizing a program designed to address one problem (acid rain) to address a wholly unrelated problem (fine PM). By doing so, EPA is effectively reallocating the allowances to address a projected problem (in 2010 and 2015) on the basis of emissions and operational data that already are almost 20 years old. Second, EPA's proposed approach arguably raises legality issues in that the IAQR seeks to change congressional mandates regarding the use of Acid Rain Program allowances.

The Group believes that the solution to these problems is to create a new, independent program of SO_2 allowances that is designed specifically to address the problem of downwind $PM_{2.5}$. nonattainment. Nevertheless, if EPA insists on wrapping the IAQR into the Acid Rain Program EPA must address the allocation issues to ensure that the result is sound environmental, economic and energy policy that reaches the desired result of remedying significant contributions to downwind nonattainment.
EPA should create a new SO_2 budget trading program that is not based on the Acid Rain Program: The simplest approach to avoid the allocation issues raised by the Acid Rain Program is to start fresh with a new program that is intended to address significant contributions to downwind nonattainment with the $PM_{2.5}$ NAAQS. The Acid Rain Program was never intended to be the sole mechanism for achieving all SO_2 reductions in the country and is not properly tailored to address attainment with the NAAQS. Moreover, a separate program also will avoid potential legal challenges to the Agency's authority to redirect Acid Rain Program allowances to meet an unrelated goal. While EPA should consider the impact of a new SO_2 budget and trading program on the existing Acid Rain Program, EPA should create a new IAQR program independent of the Acid Rain Program to address the nonattainment issues raised by the proposed rule.

Response:
See Section IX of the preamble for discussion of the legal aspects of using title IV allowances for CAIR reductions.

EPA would is not proposing to use to the policy solution designed to address Acid Rain (a level of caps corresponding to 8.95 million tons in 2010 and later), to solve the problem of downwind nonattainment. EPA is in fact putting forth a new policy in the form of new and different/lower

effective caps to address this problem. The cap and trade program is a highly cost-effective mechanism (one that can be used in different programs) through which the new cap (designed to address downwind nonattainment) is implemented. Also, while choice of allocations under a cap and trade system have distributional consequences, they would not be expected to change the environmental benefits of the rule.

As discussed in Section V of the preamble, and in related responses in this section X.A of the Response to Comment document, EPA believes, for a number of reasons, that tying the SO_2 reductions in CAIR to the title IV Acid Rain program is very important.

X.A.26 Comment:
We believe there are serious legal and logistical complications from linking the title IV Acid Rain trading program and the proposed allowance trading program under CAIR. First, it is questionable whether EPA can make changes to this legislative program through regulatory mechanisms. More importantly, given that additional reductions that are needed, it makes no sense to take on the large bank of allowances created by a trading program which provided admirable, but insufficient reductions.

Finally, this program provides an opportunity to reward efficiency in allocation methodology. By providing an output-based methodology, there is an incentive for energy efficiency and fuel the incorporation of renewables into the fuel generation mix will. We recommend that EPA incorporate output based standards into allocation methodology.

Response:
While acknowledging commenters' concerns, EPA believes, for a number of reasons, that achieving the necessary SO_2 reductions for EGUs using title IV allowances represents a reasonable approach.

First, EPA believes that achieving SO_2 reductions for EGUs using title IV allowances is necessary in order to ensure the preservation of a viable title IV program, which is important for reasons discussed in Section IX of this preamble. Such reasons include the desire to maintain the trust and confidence that has developed in the functioning market for title IV allowances. EPA believes it is important not to undermine such confidence (which is an essential underpinning to a viable market-based system) recognizing that it is a key to the success of a trading program under CAIR.

The title IV program represents a logical starting point for assessing EGU emission reductions for SO_2, since it is the current effective cap on SO_2 emissions for Acid Rain units, which make up the large majority of affected EGU CAIR units. The current distribution of title IV allowances represents a market equilibrium, where entities have bought, sold and banked future vintage allowances to take positions in the forward market that best reflect their risk preferences. Firms' choices and actions regarding their title IV allowance positions have extended beyond the period starting in 2010, (when additional title IV allowances would need to be retired for CAIR). In fact,

in 2004, EPA auctioned off 125,000 Vintage 2011 title IV allowances, with firms paying over $16 million for these allowances (http://www.epa.gov/airmarkets/auctions/2004/04summary.html). According to the title IV allowance tracking system, almost 1,000 transactions (allowances moving to different accounts) involving over 25 million post-2009 allowances have taken place, as companies attempted to optimize their holdings while complying with the SO_2 requirements.

By requiring CAIR compliance for EGUs through the use of tighter retirement ratios of title IV allowances, EPA is building upon the existing market equilibrium for title IV allowances. For States choosing to participate in the trading program, the individual State budgets are satisfied as long as entities in the State retire title IV allowances at a 2:1 and then 2.86:1 ratio. Consequently, in such a case, the specific calculated State budget numbers would not be relevant. The actual State SO_2 budget numbers, as outlined in Section V, would be relevant in the cases where a State decides not to participate in the regional trading program for EGUs[91].

The treatment of SO_2 reductions differs from the setting of NOx budgets for CAIR, in part, because of this difference in starting points. There is no existing NOx regional annual cap, and no currency for emissions, on which sources have rely and continue to rely. Furthermore, Congress, as part of title IV of the CAA, decided upon the allocations of title IV allowances specifically for the control of SO_2. Moreover, Congress decided to allocate title IV allowances in perpetuity, realizing that the electricity sector would not remain static over this time period. Congress clearly did not choose a policy to regularly revisit and revise these allocations, believing that its allocations methodology for title IV allowances would be appropriate for future time periods.

Putting aside concerns of linkage to title IV (and recognizing that State SO_2 budgets are not individually binding in the case of participation in the region-wide EGU trading program (since the reductions are accomplished using trading ratios), there are conceptually numerous potential methodologies of dividing up the regional budgets among the States. Each of the alternate methods have certain shortcomings, many of which have been identified by commenters. Basing allowances on historic emissions, for instance, would penalize States that have already gone through significant efforts to clean up their sources. Basing allowances on heat input cannot accommodate States that have worked to improve their energy efficiency. Basing allowances on output would provide gas-fired units with many more allowances than they need, rather than giving them to the coal-fired units that will be incurring the greatest costs from the tighter caps. EPA did look at a number of budget number outcomes using alternate potential methods for allocating SO_2 allowances. These methods included setting budgets on the basis of historic emissions, heat input (with alternatives based on heat input from all fossil generation, and heat input from coal- and oil-fired generation only) and output (with alternatives based on all generation, and all fossil-fired generation). To do this analysis, EPA utilized heat input data from the files used to create State SO_2 budgets**,** (discussed in Appendix A of the "Regional and State SO_2 and NOx emissions Budgets Technical Support document"), electricity generation data

[91]This is described in greater detail in Section VII of the preamble.

(1999-2002) from the "generation_state.xls" file of EIA's Electric Power Annual (http://www.eia.doe.gov/cneaf/electricity/epa/epa_sprdshts.html), and average SO_2 emissions data (1999-2002), extracted from the "Data and Maps" section of the EPA Clean Air Markets website (http://www.epa.gov/airmarkets/).

As it turns out, allocating allowances based on title IV yields results for States that fall within a reasonable range of results obtained from using these alternate methodologies. In fact, calculating State budgets using title IV allowances yields budgets generally at or within the ranges of budgets calculated using the other methods in more than two-thirds of the States, (these same States account for about 80 percent of the total heat input in the region from 1999-2002). The comparison of SO_2 budgets based on title IV with those based on the other methods is provided in the table below.

		Alternate Methods for SO_2 allocations				
STATE	**Title IV**	**Average Emissions**	**Average heat input**	**Average Heat Input Coal + Oil**	**Average Output All**	**Average Output Fossil**
AL	4.4 percent	5.0 percent	4.3 percent	4.7 percent	4.7 percent	4.2 percent
DC	0.0 percent	0.0 percent	0.0 percent	0.0 percent	0.0 percent	0.0 percent
FL	7.0 percent	6.0 percent	7.7 percent	7.3 percent	7.2 percent	7.7 percent
GA	5.9 percent	5.2 percent	4.1 percent	4.5 percent	4.5 percent	4.2 percent
IA	1.8 percent	1.4 percent	1.9 percent	2.3 percent	1.5 percent	1.8 percent
IL	5.3 percent	4.7 percent	4.7 percent	5.2 percent	6.6 percent	4.4 percent
IN	7.0 percent	8.6 percent	6.5 percent	7.5 percent	4.6 percent	6.2 percent
KY	5.2 percent	5.8 percent	4.9 percent	5.8 percent	3.5 percent	4.5 percent
LA	1.7 percent	1.1 percent	3.3 percent	1.5 percent	3.4 percent	3.6 percent
MD	2.0 percent	2.7 percent	1.8 percent	2.0 percent	1.9 percent	1.7 percent
MI	4.9 percent	3.7 percent	4.2 percent	4.3 percent	4.1 percent	4.2 percent
MN	1.4 percent	1.0 percent	1.9 percent	2.2 percent	1.9 percent	1.7 percent

MO	3.8 percent	2.4 percent	3.6 percent	4.1 percent	2.9 percent	3.4 percent
MS	0.9 percent	1.2 percent	1.4 percent	1.1 percent	1.6 percent	1.6 percent
NC	3.8 percent	4.7 percent	3.7 percent	4.3 percent	4.5 percent	3.8 percent
NY	3.7 percent	2.7 percent	4.0 percent	3.4 percent	5.3 percent	3.9 percent
OH	9.2 percent	12.2 percent	6.4 percent	7.5 percent	5.4 percent	6.5 percent
PA	7.6 percent	9.5 percent	6.0 percent	6.9 percent	7.4 percent	6.1 percent
SC	1.6 percent	2.1 percent	2.0 percent	2.2 percent	3.4 percent	2.0 percent
TN	3.8 percent	4.0 percent	3.0 percent	3.5 percent	3.5 percent	3.0 percent
TX	8.9 percent	6.0 percent	15.3 percent	9.0 percent	13.9 percent	16.6 percent
VA	1.8 percent	2.3 percent	2.3 percent	2.5 percent	2.8 percent	2.3 percent
WI	2.4 percent	2.0 percent	2.5 percent	2.8 percent	2.2 percent	2.2 percent
WV	6.0 percent	5.8 percent	4.4 percent	5.2 percent	3.4 percent	4.5 percent
	100.0 percent	**100.0 percent**	**100.0 percent**	**100.0 percent**	**100.0 percent**	**100.0 percent**

In general, EPA believes, that while allocations of State budgets have distributional impacts to individual parties, under a cap-and-trade system, they would not impact the attainment of the environmental objectives or the overall cost of this rule.

All methods reviewed have strengths and weaknesses. The Agency believes that for SO_2, staying with the original approach of allocating allowances which Congress chose (and chose not to have update over time) is on balance the best approach to use for program equity, confidence, stability, and familiarity.

X.A.27 Comment:
EPA has not recognized utility growth since the original SO_2 allowance distribution under title IV of the 1990 CAAA:

EPA has been informed by court actions that it is important to properly take into account growth factors when distributing emission credits. If EPA is to circumvent the CAA through the

construction of a new formula for distributing SO_2 allowances to the States, it should evaluate growth through updated heat input values. Values associated with 2000-2003 may be appropriate.

EPA must provide allocations, which align with the long-term nature of the emission control system investments:

The strategic and financial planning process involved with the industry installing billions of dollars of new pollution control equipment is very complex. Forecasting the value of emission credits (sale or purchase) is difficult. If there is no certainty in the number of credits provided in later years, the economic analysis for such projects becomes speculative.

DPL strongly encourages that EPA allocate NOx and SO2 emission credits for a time period that aligns with the economic considerations of the air pollution control equipment required for this air quality improvement. A 30-year allocation consistent with the current Clean Air Act SO_2 allocation is appropriate and is necessary for utilities to determine the proper investment strategy.

Response:
EPA is not proposing to construct new formulas to allocate SO_2 allowances to States but will instead rely on the existing title IV allocations.

EPA shares the commenter's concerns that allowances need to be made available for making longer term compliance decisions. SO_2 reductions for CAIR will be done with title IV allowances and these are allocated well in advance.

While EPA is leaving States with flexibility regarding a number of aspects of SO_2 allocations to sources, we are requiring that they allocate allowances at least 3 years in advance. Our example allocations approach actually determines allocations of existing units (and those in operation long enough to be included through the updating mechanism) six years in advance.

EPA does not believe that allowances need to be allocated for a length of time corresponding with the life of pollution control assets. Experience with title IV, where allowances were allocated well in advance, has shown that the large majority of trades are of current vintage or near future allowances. Providing sources with the ability to bank allowances into the future provides additional compliance flexibility.

X.A.28 Comment:
Consumers Energy seconds UARG's comments with regard to allowance allocation for SO_2 under the IAQR. We believe that trading is essential to the success of this program, just as it is to the Acid Rain program. We share UARG's concern over the ability of EPA's proposed surrender ratios for Acid Rain allowances to go unchallenged. UARG has proposed reasonable back up strategies for EPA. We believe it would be prudent for EPA to incorporate those recommendations.

These concerns become magnified when we consider the possibility of surrendering Acid Rain allowances, granted to the EGUs by Congress under the Clean Air Act, to the States.

Response:
See discussion in Section V of the preamble and other responses to comments with related issues in this section X.A of the Response to Comments document.

EPA believes that it has a strong legal basis for its approach in getting SO_2 reductions using title IV allowances. EPA is not proposing to surrender Acid Rain allowances to the States.

X.A.29 **Comment:**
The IAQR will likely drive up the cost of title IV SO_2 allowances, potentially resulting in fuel switching and adverse economic impact to North Dakota.

The EPA's IAQR proposal for SO_2 is designed to drive additional scrubbing by reducing the supply of allowances. Since the SO_2 market is a national one, the allowance price will increase. Thus, even if North Dakota were not designated as a regulated State under the IAQR, the lignite coal users would be adversely impacted. In a State such as North Dakota, where more than 70 percent of all coal-fired capacity is scrubbed, the effect will be punitive and will otherwise drive marginal emission reductions through displacement of lignite by low sulfur, out-of-state coal. New lignite-fired generation would also be made uneconomic and the State's abundant lignite resources will not be developed.

By managing the title IV allowance market to drive emission reductions, the IAQR proposal would drive not only control technology investments, but also incentives for coal switching and coal production dislocations. Again - as under title IV implementation -further SO_2 reductions would work to the benefit of ultra-low sulfur Powder River Basin (PRB) coal producers at the expense of smaller coal producing regions This time, however, PRB would displace less high sulfur coal production in States with relatively larger and diverse economics (e.g., Illinois, Indiana, and Kentucky), and would displace more relatively low sulfur coal production in States with smaller and less diversified economies (e.g., North Dakota.) As such, the stakes in those areas are much higher.

Regardless of the proposed IAQR timeline, the title IV allowance market has already reacted to EPA's proposal with an unprecedented increase in allowance prices - up from $150/allowance last year to $280/allowance as of late-March 2004, One of our in-state plants has already decided to displace lignite with lower sulfur, out-of-state coal. This follows an earlier action by another plant to similarly displace lignite with lower sulfur out-of-state coal. Thus, of all EPA's proposals, the IAQR SO_2 proposal presents the most clear and immediate risk of adverse collateral industry impacts.

The IAQR proposal is much more likely over the proposed timeline to drive ultra-high SO_2 allowance prices and EGU retirement than it is to stimulate emission control retrofits. The

primary reason for this is logistics. The proposed timeline simply does not allow enough room in which to fit and schedule all of the planning, financing, and engineering work required. We believe any attempt to schedule the installation of emission controls at hundreds of plants simultaneously will cause volatized market prices for electricity, coal, and allowances, not to mention he dislocation of local employment and disruption of local economies in other States like North Dakota.

We urge the EPA to consider alternate mechanisms to achieve NOx and SO2 reductions. In particular, EPA should consider mechanisms that would recognize clean air stares and cleaner plants by requiring smaller emissions reductions and/or delaying compliance dates.

The initial concepts described in the model cap and trade program pose significant problems.

The LEC agrees with the advantages of the cap and trade approach over the command and control approach that EPA has identified. However, EPA should not create the SO_2 budget trading program based on the Acid Rain Program. The manner in which allowances were allocated to existing sources under the Clean Air Act Amendments in the Acid Rain Program raised numerous equity issues that penalize low emitters. Allowance allocations were based on 1985-1987 heat input and 1985 emission rates. Cleaner, newer units received a disproportionately lower number of allowances. Seventy percent (70 percent) of North Dakota's lignite capacity is scrubbed. North Dakota should not have to subsidize emission reductions by unscrubbed power plants in nonattainment States.

Response:
EPA notes that North Dakota is not among the States in the region covered under the final CAIR.

EPA analysis suggests that the price of a single title IV allowance would not see serious increases relative to a base case scenario once the CAIR program begins. Thus, units outside the CAIR region, submitting one allowance per ton of emissions, would not bear the same burden as units in the CAIR region, which would need to submit two and subsequently, 2.86 allowances per ton of emissions.

Allowing pre-2010 banked allowances to be used at a 1:1 ratio going forward (providing incentives for early reductions), causes these allowances would be highly valued in the years prior to the start of the program. Higher title IV allowance prices factor into units fuel/coal selection decisions. However, for units that have put on scrubbers and already have effectively reduced SO_2 emissions, the price of title IV allowances would be less significant driver in choosing fuels.

As described in the "Boilermaker Labor Analysis and Installation Timing" Technical Support Document, EPA believes that the installation of the necessary controls is feasible by the dates of the rule.

See other responses to comments in this section, regarding concerns about the equity of continuing to use allocations from title IV.

X.A.30 Comment:
For SO_2 allowances, EPA should consider establishing allocation retirement ratios that are varied on an output basis in order to account for unit efficiency.

Response:
Commenter has not provided enough detail on what exactly they are proposing.

X.A.31 Comment:
Of the 29 States included in the IAQR rule, Texas' average sulfur dioxide (SO_2) emission rate is the 5th lowest at 0.384 pounds per million Btu, which is substantially lower than the average SO_2 emission rate of 0.807 pounds per million Btu for all of the covered States. The emission reduction requirements included in the IAQR for Texas go beyond what we believe the State can technically achieve. Currently, the Energy Information Administration (EIA) estimates that Texas has the highest amount of scrubbed coal-fired capacity of all the States – over 9330 megawatts. On a percentage basis, approximately 45 percent of our coal-fired capacity is scrubbed. The IAQR rule would require our State to make an additional 65 percent reduction in SO_2 emissions – a requirement that we believe technically exceeds what can be achieved by scrubbing all of the coal-fired power plants in our State without fuel switching.

Currently, 60 percent of TXU's capacity is scrubbed. The proposed rule would require another 65 percent reduction in SO_2 emissions from TXU's units, which exceeds what can be achieved by installing scrubbers on all of our unscrubbed units and maximizing the performance of our existing scrubbers. This means that the proposed rule will force us not only to scrub all of our units to the maximum efficiency possible, but also to purchase additional allowances from other companies or fuel switch.

TXU believes improving air quality is important and we are willing to do our part, including installing scrubbers on all of our unscrubbed units. However, we do not believe it is fair for TXU to be forced to then buy additional allowances to achieve the same percentage reduction as others who have not already done as much scrubbing as we have.

Scrubbed units should receive some bonus allowances in the model trading program and the State budget should also reflect this bonus allocation.

Response:
In a cap and trade system, a market for allowances develops since there are buyers without enough allowances to meet their needs, and sellers with more allowances than they need. Units would make cost-effective compliance decisions, depending on their control costs and the price of allowances.

In 2002, for instance, according to EPA Acid Rain program ATS and ETS data, the commenter's units received more allowances than they needed to cover their emissions. Assuming that the commenter puts scrubbers on their units (as they noted they would in the comment) the commenter would be expected to have more allowances than they need to cover emissions through Phase I of CAIR. Maximizing the effectiveness of their existing scrubbers would provide still more excess allowances. This excess would allow the building up of a bank of allowances. Pre 2010 allowances could be used subsequently at a 1:1 ratio, while 2010-2014 banked allowances could be used subsequently at a 2:1 ratio. This could provide the commenter with a cushion in dealing with any possible shortfalls arising from the higher required retirement ratio in 2015.

This assessment also does not take into account that there are some opportunities for further reducing SO_2 emissions through coal-switching away from very high sulfur lignite.

X.A.32 Comment:
If EPA decides to allocate the allowances to the State, MEUEC requests that the allocation of allowances be based on the same process that is used for determining NOx allowances, the highest heat input year during the 1999-2002 time frame.

Response:
EPA is not proposing to allocate SO_2 allowances to States but will instead rely on the use of existing title IV allowances to achieve reductions. See discussion in Section V of the preamble and other responses to comments with related issues in this section X.A of the Response to Comments document.

X.B. Methodology for setting State-level NOx Budgets

X.B.1 Comment:
Associated supports weighting EGU budget allocations based on the different needs of coal and gas.

Response:
EPA in its final rule, is providing fuel adjustment factors for the setting of state NOx budgets. See discussion of fuel factors in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

X.B.2 Comment:
EPA's use of a 'Fuel Neutral' output based allocation of NOx allowances is counter to sound energy and economic policy.

Dow is particularly sensitive to any requirements that will lead to increased demand on limited supplies of natural gas and that will lead to unstable natural gas prices. Dow has actively supported the establishment of a sustainable energy policy that would encourage continued economic growth by ensuring a stable market for energy and raw materials. EPA's proposal to allocate NOx allowances based on a 'fuel neutral,' output basis is highly contrary to sound energy and economic policy. Dow supports EPA proposal to allocate NOx allowances based on the best of 3 years heat input from 1998-2002, although newer units (2003 and 2004) are not provided with allowances and should be. However, EPA's proposal to allocate allowances on a fuel neutral basis will provide excess allowances to gas units while penalizing coal units by failing to recognize the very substantial differences between the fuels. NOx emission rates are generally lower and much cheaper to control in gas units than coal fired generators. By shifting more allowances to gas units than needed, the compliance costs for coal fired units will be raised, increasing demand for natural gas and raising gas prices. This constitutes bad energy policy and will further raise consumer electric rates and natural gas prices.

Response:
EPA in its final rule, is providing fuel adjustment factors for the setting of state NOx budgets. See discussion of fuel factors in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

X.B.3 Comment:
The proposed NOx provisions in the proposed rule also create a potential disincentive for new plants because the State NOx budgets are based on units in operation between 1999 and 2002. If States adopt EPA's methodology for establishing the State budget in allocating NOx allowances, new sources (that come on line after 2002) would have to buy NOx allowances from existing sources in order to operate. While States could decide to control other sources to offset the emissions from these new sources, this would require a significant level of effort on the part of the State to develop alternative control programs, issue rules to control those sources, and develop

the needed documentation to demonstrate to EPA's satisfaction that the offsetting emission reductions took place. Such an effort, while laudable from a public policy perspective, would take additional time and resources from States. As a result, EPA's preferred approach for NOx also creates the potential to penalize the construction of new, cleaner sources.

EPA's proposed allocation formula for NOx State budget caps also discourages the construction of new coal plants by EPA's proposal to allocate NOx allowances based on a 'fuel neutral,' output-based formula which would force coal plants to compete directly with natural gas plants.

Response:
EPA in its final rule, is providing fuel adjustment factors for the setting of state NOx budgets. See discussion of fuel factors in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

X.B.4 Comment:
FMEA's overriding concern is that the program, as currently designed, will penalize economic growth (by not recognizing changes in the market since 1985) and will disadvantage the newest, cleanest and most efficient units in the country by perpetuating and severely aggravating historic inequities with the SO_2 allowance allocation program.

FMEA believes the program must take into account the need to preserve fuel diversity as a means of assuring national energy security and reliable and affordable electricity. Any policy that promotes fuel switching to natural gas will undermine sound energy, economic and environmental policy and will raise electric utility demand for natural gas, further driving up natural gas prices. EPA's proposed fuel neutral allocation of NOx allowances will penalize coal use and provide incentives for fuel switching to natural gas. Policies adopted in this rulemaking are likely to have as great or a greater impact on national energy policy and the cost and availability of electricity (and natural gas) to U.S. manufacturers as the proposed national energy legislation pending in the U.S. Congress.

EPA's stated preference to allocate NOx allowances based on a 'fuel neutral' output basis is highly contrary to sound energy and economic policy. EPA proposes to allocate NOx allowances based on the best of 3 years heat input from 1998-2002, which is appropriate, although newer units (2003 and 2004) are not provided with allowances and should be. EPA's proposal to allocate allowances on a fuel neutral basis will provide excess allowances to gas units while penalizing coal units by failing to recognize the very substantial differences between the fuels. NOx emission rates are generally lower and much cheaper to control in gas units than coal fired generators. By shifting more allowances to gas units than needed, the compliance costs for coal-fired units will be raised, increasing demand for natural gas and raising gas prices. This constitutes bad energy and economic policy, and will further raise consumer electric rates and natural gas prices.

Response:

EPA in its final rule, is providing fuel adjustment factors for the setting of state NOx budgets. See discussion of fuel factors in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

X.B.5 Comment:
EPA's use of a 'Fuel Neutral' output based allocation of NOx allowances is counter to sound energy and economic policy.

EPA's proposal to allocate NOx allowances based on a 'fuel neutral,' output basis is highly contrary to sound energy and economic policy. IECA supports EPA proposal to allocate NOx allowances based on the best of 3 years heat input from 1998-2002, although newer units (2003 and 2004) are not provided with allowances and should be. However, EPA's proposal to allocate allowances on a fuel neutral basis will provide excess allowances to gas units while penalizing coal units by failing to recognize the very substantial differences between the fuels. NOx emission rates are generally lower and much cheaper to control in gas units than coal fired generators. By shifting more allowances to gas units than needled, the compliance costs for coal-fired units will be raised, increasing demand for natural gas and raising gas prices. This constitutes bad energy policy and will further raise consumer prices for natural gas and electricity.

EPA should not recommend a preference for fuel neutrality in NOx allocation methods in their model allocation and trading rules. NOx allowance allocations must reflect the inherent differences in the cost of reducing NOx emissions in different fossil fuels. In establishing emission limiting standards and allowance allocation formulas, EPA should use 'fuel specific' input-based standards. The proper comparison and benchmark for new coal standards is improvement from existing coal emissions and the emission performance required to achieve the air quality standards of the Clean Air Act.

Response:
EPA in its final rule, is providing fuel adjustment factors for the setting of state NOx budgets. See discussion of fuel factors in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

X.B.6 Comment:
NOx allocations must be formulated in order to ensure appropriate fuel diversity.

Response:
EPA in its final rule, is providing fuel adjustment factors for the setting of state NOx budgets. See discussion of fuel factors in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

X.B.7 Comment:

NOx allocations: Similar to our position on S02, PacifiCorp believes that allowances awarded to sources covered under the cap and trade approach of the IAQR should be based on a lbs/mmBtu basis, adjusted to reflect inherent differences in emissions between natural gas and coal generation.

Response:
EPA in its final rule, is providing fuel adjustment factors for the setting of state NOx budgets. See discussion of fuel factors in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

X.B.8 Comment:
Although UJAE supports the overall thrust of EPA's Air Quality NoPR, we believe the proposal can be made better by balancing NOx allowance allocations.

Basing pro-rata allocation of NOx allowances on heat input alone penalizes coal-fired generation. UJAE recognizes that more NOx is derived from coal per Btu than from gas. Unless the NoPR is revisited, coal-generation will be driven to either over control or purchase additional allowances from gas-fired generators. This inequity must be remedied.

Response:
EPA in its final rule, is providing fuel adjustment factors for the setting of state NOx budgets. See discussion of fuel factors in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

X.B.9 Comment:
NOx budget allocations should be based on heat inputs that reflect different emission characteristics associated with different fossil fuels.

Although not proposed, EPA discusses the alternative for allocating NOx State budgets based on adjusting existing unit heat input data to reflect 'inherently higher emission rates' associated with coal and the 'greater burden' on cod plants to control emissions, at 32689, col. 1. DPC supports this approach. We believe CAA appropriate policy for allocating allowances should incorporate relative abilities of the source to mitigate the emission in question. Approaches based on 'fuel neutrality' automatically create market segments that must buy allowances and others that are in the position to sell. Thus, the market would be unnecessarily biased and skewed from the onset. The CAA should not be used to create 'uneven' markets, and in the process favor one fuel over another.

Response:
EPA in its final rule, is providing fuel adjustment factors for the setting of state NOx budgets. See discussion of fuel factors in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

X.B.10 Comment:
EPA Should Re-Calculate State NOx Budgets Based on Fuel-Adjusted Heat Input. Duke Energy supports comments previously received by EPA suggesting that the heat input data used to calculate each State's NOx budget be adjusted by fuel-type, and Duke Energy recommends that EPA revise the proposed State NOx budgets under the CAIR rule to reflect each State's share of the total fuel-adjusted regional heat input. The use of average historic emission rates by fuel type (coal, oil and natural gas) for the baseline years that EPA presents in the SNPR seems a reasonable approach for determining the appropriate fuel-specific adjustment factors.

The use of fuel-adjusted heat inputs is an equitable way of setting State NOx budgets because it reflects the fact that coal has inherently higher NOx emissions than oil or gas. Using unadjusted heat inputs is arbitrary, because it results in States with large amounts of oil and/or gas fired generation receiving a disproportionately large share of the regional NOx cap at the expense of sources in States that are dominated by coal. This would provide an unjustified economic gain to sources in oil- and gas-dominated States that would receive more allowances than needed, and an additional economic burden to coal-dominated States that will already be incurring large costs due to the fact that they will be making most of the required reductions under CAIR. And in addition to being more equitable, the use of fuel-adjusted heat input is environmentally neutral, due to the fact that the emissions from covered EGU's are capped.

Response:
EPA in its final rule, is providing fuel adjustment factors for the setting of state NOx budgets. See discussion of fuel factors in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

X.B.11 Comment:
NOx budget allocations should be based on heat inputs that reflect different emission characteristics associated with different fossil fuels.

Although not proposed, EPA discusses the alternative for allocating NOx State budgets based on adjusting existing unit heat input data to reflect 'inherently higher emission rates' associated with coal and the 'greater burden' on coal plants to control emissions (32689, col.1). We support this approach. We believe CAA appropriate policy for allocating allowances should incorporate relative abilities of the source to mitigate the emission in question. Approaches based on 'fuel neutrality' automatically create market segments that must buy allowances and others that are in the position to sell. Thus, the market would be unnecessarily biased and skewed from the onset. The CAA should not be used to create 'uneven' markets, and in the process favor one fuel over another.

Response:
EPA in its final rule, is providing fuel adjustment factors for the setting of state NOx budgets. See discussion of fuel factors in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

X.B.12 Comment:
NOx budget allocations should be based on heat inputs that reflect different emission characteristics associated with different fossil fuels.

Although not proposed, EPA discusses the alternative for allocating NOx State budgets based on adjusting existing unit heat input data to reflect 'inherently higher emission rates' associated with coal and the 'greater burden' on coal plants to control emissions, at 32689, col.1. Sunflower supports this approach. We believe CAA appropriate CAA policy for allocating allowances should incorporate relative abilities of the source to mitigate the emission in question. Approaches based on 'fuel neutrality' automatically create market segments that must buy allowances and others that are in the position to sell. Thus, the market would be unnecessarily biased and skewed from the onset. The CAA should not be used to create 'uneven' markets, and in the process favor one fuel over another.

Response:
EPA in its final rule, is providing fuel adjustment factors for the setting of state NOx budgets. See discussion of fuel factors in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

X.B.13 Comment:
NOx budget allocations should be based on heat inputs that reflect different emission characteristics associated with different fossil fuels. Although not proposed, EPA discusses the alternative for allocating NOx State budgets based on adjusting existing unit heat input data to reflect 'inherently higher emission rates' associated with coal and the 'greater burden' on coal plants to control emissions, at 32689, col.1. NRECA supports this approach. We believe CAA appropriate policy for allocating allowances should incorporate relative abilities of the source to mitigate the emission in question. Approaches based on 'fuel neutrality' automatically create market segments that must buy allowances and others that are in the position to sell. Thus, the market would be unnecessarily biased and skewed from the onset. The CAA should not be used to create 'uneven' markets, and in the process favor one fuel over another.

Response:
EPA in its final rule, is providing fuel adjustment factors for the setting of state NOx budgets. See discussion of fuel factors in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

X.B.14 Comment:
State Emission Budget Methodology for Existing Units Should Be Based Upon Heat Input.

MidAmerican supports EPA's approach of determining State NOx emissions budgets based solely upon 1999-2002 heat-input. EPA has requested comments on the possible use of various factors that would be established region-wide and based upon fuel type. A State's share of the cap

(e.g., its emission budget) should be determined by the amount of State heat input, as adjusted, in proportion to the total regional heat input. For example, factors could be calculated based on the average historic emissions rates (in lbs/mmBtu) by fuel type (coal, gas, and oil) for the years 1999-2002 at 1.0 for coal, 0.4 for gas and 0.6 for oil. MidAmerican supports such an approach as recognizing and supporting the need for fuel diversity.

Response:
EPA in its final rule, is providing fuel adjustment factors for the setting of state NOx budgets. See discussion of fuel factors in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

X.B.15 Comment:
Establish State NO, Budgets That Do Not Penalize Coal-Fired Generation

CAIR establishes a two-phased, cap-and-trade program with an annual NOx cap for affected units of 1.60 million tons in 2010 and 1.33 million tons in 2015. The SNPR proposes using updated heat input data to determine NO, budgets for 28 States and DC. GCA supports the use of heat input, adjusted appropriately, to allocate allowances. EPA has proposed that each State receive NOx allowances based on its pro rata share of heat input. At the same time, the SNPR points out the inequity if allowances are allocated simply on the basis of heat input alone: Commenters have also suggested adjusting the heat input data for existing units used to determine State budgets by multiplying it [heat input data] by different factors, established region-wide based on fuel type. The factors would reflect the inherently higher emissions rate of coal-fired plants, and consequently the greater burden on coal plants to control emissions. In contrast to allocations based on historic emissions, the factors would also not penalize coal-fired plants that have already installed pollution controls. GCA agrees that pro rata allocation of NO, allowances based on heat input alone penalizes coal-fired generation because coal-fired generators will be forced to either over-control or buy allowances from gas-fired units. This increases compliance costs for coal-fired generation and provides a financial windfall for gas-fired generation. GCA estimates that coal-fired generation would be penalized by approximately 160,000 allowances per year in Phase 1 and approximately 134,000 allowances per year in Phase 2. Assuming NOx allowances sell for $1400 per ton, this allowance shortfall translates into a penalty on coal-fired generation of $2.25 billion over a ten-year period. Therefore, GCA strongly urges EPA to remedy this inequity in the final rule. This can be accomplished in either of two ways: (1) adjust the baseline heat input to take into account the difference in NO, emission rates for coal versus natural gas and oil, or (2) establish State budgets and allocate NOx allowances to individual units based on their pro rata share of NO, emissions. The first approach would involve incorporating baseline adjustment factors into the final rule. Specifically, GCA recommends that EPA adopt factors of 1.0 for adjusting coal-fired heat input and 0.43 for adjusting gas and oil fired heat input. The same factors would be used to adjust heat input in both Phases 1 and 2. Attachments 2 and 2(A) [at docket number 1797, pp.3-5] explain how GCA derived these factors. For each State, the relevant adjustment factor (i.e., 1.0 for coal and 0.43 for gas/oil) would be multiplied by the baseline heat input for each fuel type to determine the adjusted baseline heat input for coal, natural gas and oil.

The adjusted baseline heat input is then used to calculate the NOx budget for each State. While EPA proposes to leave allowance allocations to individual units up to each State, GCA urges EPA to encourage States to adopt the same adjustment factors in allocating to individual units to avoid penalizing coal-fried generation relative to other generation within each State. As an alternative, EPA could establish State NOx budgets based on each State's share of total NOx emissions for the CAIR region. The baseline period would be the average annual NO, emissions for the period 1999 through 2002. States should be encouraged to allocate NOx allowances to affected units within each State using the same methodology (i.e., the ratio of each affected unit's NOx emissions to NOx emissions from all affected units multiplied by the State's budget). The adoption of either approach (adjustment factors for heat input or pro rata allocation based on emissions) in the final rule would remedy the inequitable allocation of NOx allowances to States in the proposed rule.

Response:
EPA in its final rule, is providing fuel adjustment factors for the setting of state NOx budgets. See discussion of fuel factors in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

X.B.16 Comment:
We would recommend that EPA alter its allocation methodology of the NOx tonnage cap. EPA should use different NOx emission rates for coal and gas-fired generation when setting State budgets. Under EPA's current method, States with significant gas-fired generation receive a disproportionate amount of the NOx caps.

EPA should provide NOx allocation methodology that does not effectively subsidize natural gas generation. States that have much of their historic heat input based on gas generation receive a disproportionate amount of the total NOx caps in the proposed rule. EPA seeks comments on using different emission rates, and we would support using different emission rates for coal and gas-fired sources in setting State budgets.

Response:
EPA in its final rule, is providing fuel adjustment factors for the setting of state NOx budgets. See discussion of fuel factors in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

X.B.17 Comment:
CAIR State Tonnage Cap Formula Should Be Fuel Specific: EPA raises in the supplemental notice one of TVA's comments on the January proposal. The proposed formula for setting NOx tonnage caps for States does not distinguish between primary fuel types, coal, natural gas, and oil. By failing to do this, the identified budgets result in disparate impacts on States, benefitting States with more natural gas-fired generating units and penalizing States with more coal-fired units. Gas fired combustion turbines are essentially given a subsidy since they are allocated allowances at rates above their current emission levels. All sources in the States with large gas-fired generations

benefit and this undermines the economic basis for cap and trade emission reduction programs. EPA suggests that it could use average historic emission rates by fuel for the years 1999 to 2002. TVA supports this.

Cap and trade economic theory is that emission reductions will be made at sources where it is most economical to make them, the reducing sources can then sell the allowances that this frees up to those other sources where reduction efforts exceed the average marginal cost, and thereby allow the reducing sources to recoup some of their expenditures. If some States have more allowances than they need to meet reductions goals, those allowances can be put into the market, competing with and replacing some of the allowances that reducing sources would otherwise offer. This changes the allowance prize-emission reduction relationship that would normally result and to the disadvantage of reducing sources.

Response:
EPA in its final rule, is providing fuel adjustment factors for the setting of state NOx budgets. See discussion of fuel factors in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

X.B.18 Comment:
To address the fuel-type and regional inequities caused by a straight heat input approach to determining State emission budgets, EPA should apply adjustment factors similar to those set forth in the Clear Skies bill: In determining State emission budgets under the CAIR, the goal should be equity. States should not be disadvantaged if their generation mix is predominantly is coal-based. Yet, the straight heat input approach elaborated in the proposed CAIR will have inequitable impacts. This approach will not only disadvantage coal-fired generation, but also the States with greater amounts of coal-fired generation. In the CAIR NPR, EPA proposed to determine each State's NOx budget based on its pro rata share of the average annual heat input during the period 1999 2002 for the affected States. Pro rata allocation of NOx allowances based simply on heat input penalizes coal-fired generation because coal emits more NOx per Btu than oil or gas. A simple pro rata allocation of NOx allowances on the basis of heat input thus results in coal-fired units receiving a smaller number of allowances than they are entitled to. This penalty occurs because, on a Btu basis, NOx emissions from coal-fired units are higher (a factor of two or more) than from gas-fired units. Put another way, gas-fired units 'need' only half the number (or less) of allowances on a Btu basis than coal-fired units need. This means that coal-fired generators and States with significant amounts of coal-fired generation are disproportionately impacted by the straight heat input approach.

To correct these inequities, LPPC recommends that EPA incorporate an adjustment for fuel usage. Specifically, EPA should multiply the heat input values by factors based on those developed in the Senate version (Chairman's Mark) of the Clear Skies legislation, e.g., 1.0 for affected coal fired units; 0.55 for affected oil- and gas-fired units until 2015; and 0.7 for affected oil- and gas-fired units for 2015 and thereafter.

Response:
In line with the views of a number of commenters, EPA has decided to use fuel adjustment factors in the determination of State NOx budgets, which is described in greater detail in Section V of preamble. The factors would reflect the inherently higher emissions rate of coal-fired plants.

Such an approach provides States with allowances more in proportion with their historical emissions. It provides for a more equitable budget distribution by recognizing that different States are facing the reduction requirements with different starting stocks of generation, and with different starting emission profiles. The fuel burned is a key factor in differentiating the types of generation.

EPA stresses that while it is deciding to set NOx budgets on a fuel-adjusted input basis, it is leaving States with the flexibility to decide on an approach to allocate NOx allowances to individual sources.

It appears that a number of commenters were confusing a heat-input fuel neutral approach and an output approach. In the NPR, SNPR and NODA EPA proposed a fuel-neutral heat-input approach for setting State budgets, not an output approach.

Also, while EPA is using a fuel-adjusted approach for developing State budgets, it does not agree with some commenters' arguments that different permanent allowance allocations (assuming no updating) would encourage different fuel choices. The economics of power generation dictate that generators selling power will seek to operate (and burn fuel) to meet energy demand in a least-cost manner. The cost of the power generated (reflecting the bid price per megawatt-hour) should include the market value of allowances to cover the emissions, whether the generator already owns sufficient allowances or needs to purchase additional allowances. With a liquid market for allowances, initial allowance allocations could be considered a sunk benefit or sunk cost for the generator, not impacting generators' behavior on the margin. Thus, the amount of allowances a generator receives would not be expected to result in increased reliance on natural gas, or in fact result in any changes in generators' choices for fuel consumption.

X.B.19 Comment:
The Allocation of IAQR NOx Budgets to States (or Allowances to Sources Directly) Should Take into Account Fuel-Specific and Technology-Specific Factors - Also, Budgets or Allocations Should Be Periodically Updated to Reflect Updated Heat Inputs, Fuels, and Technologies.

For determining each State's NOx budgets, the IAQR proposes to use the State's highest historical annual (1999-2002) EGU heat input from all fossil fuels combined along with fixed emission factors (0.15 lb/MMBtu for Phase I and 0.125 lb/MMBtu for Phase II). The proposed rule also seeks comment on alternatives such as using projected heat inputs or different emission rates.

The proposed fixed emission factors do not address the different emission rates that result from the various fossil fuel types (coal vs. oil vs. gas), control technologies employed (e.g. low- NOx burners in boilers, dry low- NOx burners or water injection in combustion turbines, SCR add-on controls), and the context of the controls (e.g. unit specific BACT limitations, or controls to meet a multi-unit emissions averaging plan or a regional emissions cap).

A more rational way to develop State NOx budgets would be to use emission factors reflecting the actual fuel used, the unit-specific control technology employed, and unit-specific limitations already required by a units air permit (e.g. BACT limits). Examples of unit-specific limitations are NSPS and BACT/LAER limits, and unit-specific SIP limits. Controls employed to meet multi-unit limitations (e.g. NOx SIP Call, acid rain NOx averaging plan, SIP averaging plan) would not apply as they do not reflect unit-specific limitations. Generic but fuel-specific emission factors would apply if there are no unit-specific limitations more stringent than the relevant generic factor.

Examples of Phase I emission factors to implement this comment would be:

-0.15 lb/MMBtu generic factor for coal-fired and oil-fired steam generating units (boilers), where no more stringent unit-specific factor exists.

-0.10 lb/MMBtu generic factor for gas-fired steam generating units (boilers), reflecting lower emission rates with gas combustion as compared to coal and oil combustion.

-0.05 lb/MMBtu typical unit-specific factor for simple cycle combustion turbines with dry low-NOx burners as BACT.

-0.02 lb/MMBtu typical unit-specific factor for combined cycle combustion turbines with SCR as BACT.

The resulting calculated 28-state or 30-state budget could then be adjusted pro-rata to achieve the target overall NOx cap. This method would insure that units with unit-specific limitations (e.g. BACT limits) are correctly reflected in determining allowances/ budgets while at the same time insuring that higher-emitting units are, in aggregate, responsible for achieving the target emission reductions. In return, the rules for each State's allocation of allowances to individual units should insure that such units with unit-specific limitations actually receive sufficient allowances to operate within their permit limits.

Alternatively, EPA should consider fuel-specific adjustment factors to baseline heat input such as those proposed in the Clear Skies Act bill. Section 45 1(2) of the bill would set baseline heat inputs multipliers by fuel type for each phase of the program as follows:

-1.0 multiplier for coal units, both phases of Clear Skies NOx Allowance Program;

-0.55 multiplier for oil and gas units, Eastern U.S., in Phase I of Clear Skies NOx Allowance Program; and

-0.8 multiplier for oil and gas units, Eastern U.S.,in Phase II of Clear Skies NOx Allowance Program.

For determining Phase II budgets/allocations, the process should be repeated, using updated data as the Phase II target year approaches. An appropriate time for the Phase II allocation would be six years before the Phase II target year.

EPA should also consider whether to implement and administer this program directly (like the current title IV acid rain program) rather than assigning NOx budgets to States, having States distribute the NOx allowances, etc. This may improve the overall efficiency and consistency of the IAQR NOx reduction program.

Response:
EPA in its final rule, is providing fuel adjustment factors for the setting of state NOx budgets. See discussion of fuel factors in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

Also, EPA does not have the legal authority to implement and administer the program directly (as suggested by the commenter) rather than through the States.

X.B.20 Comment:
EPA is proposing setting the emission rates based on heat input and a flat NOx emission factor. Using this process does not take into account the different emission rates from different type boilers. Cyclone boilers have a much higher NOx emission rate and even with selective catalyzed reduction may not be able to meet the emission limits specified in the IAQR. This fact was addressed in the Acid Rain regulations when a higher emission rate was allowed for cyclone boilers. Aquila recommends adjusting the baseline to account for boiler types and the different baseline emission rates.

Response:
In the setting of the NOx budgets, EPA is choosing to multiply historic heat input by adjustment factors based on fuel type. This is a relatively simple and straightforward approach that serves to recognize a large factor in differences in unit NOx emissions rates.

EPA recognized that there are a number of additional factors, boiler types among them, that can also influence NOx emission rates. EPA would note that different boiler types are generally distributed amongst the CAIR-region States, rather than being concentrated in a one or two States. Consequently, EPA would not expect that any particular State would find itself in a position of being severely disadvantaged in terms of allowances solely because of boiler types.

EPA would also point out that individual States have the flexibility to choose a method they deem most appropriate, given the characteristic of their particular State, of allocating NOx allowances.

X.B.21 Comment:
State Allowance Budgets Created from a Regional Cap Should be Created Based on an Output Based Calculation: The second and related issue is the creation of State NO, budgets and the allocation of allowances from the regional cap to the State budgets. EPA has continued its initial proposal of allocating to the States on an input basis. Calpine believes that this basis reflects a historical bias to the protection of existing inefficient infrastructure. An allocation to the States based on electrical output would signal EPA's interest in fuel efficiency and in achieving collateral environmental benefits through the reduction of other uncapped pollutants.

Response:
EPA in its final rule, is providing fuel adjustment factors to historic heat input for the setting of state NOx budgets. See discussion in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document - particularly the response to the FPL Group below.

X.B.22 Comment:
Establishment of State NOx Budgets– In its comments on the January 2004 proposed rule, CEG strongly recommended that the State NOx budgets in the CAIR be based on each State's prorated share of generation output and that EPA promote the concept of output-based allowance allocations to affected sources in its Model Trading Rule. There is increasing recognition by policymakers that output-based regulation is an important method of rewarding and encouraging efficiency. In fact, EPA considered recommending output-based allocation late in the development of the NOx SIP Call. A judgment was made at that time that it was too late in the process to change to an output-based approach, but EPA made the commitment to apply an output-based approach in the second round of the Section 126 trading program, 65 Fed. Reg. 2674, 2702-2703 (Jan. 18, 2000).

In 1999, EPA convened an Updating Output Emission Limitation Workgroup to work through perceived problems in implementing an output-based emissions trading program such as monitoring data availability and the treatment of combined heat and power systems. Based on the input received from this Workgroup, EPA published a guidance document for States participating in the NOx budget trading program under the NOx SIP Call entitled Developing and Updating Output-Based NOx Allowance Allocations (May 2000).

Several States including New Hampshire, Massachusetts, Connecticut and New Jersey adopted and are using output-based allocation of allowances in their State NOx allocations. These programs are proving effective and easy to administer.

Considering the clear policy benefits associated with an output-based approach, CEG strongly recommends that EPA finalize the State NOx budgets in the CAIR based on each State's prorated

share of generation output and that EPA promote the concept of output-based allowance allocations to affected sources in its Model Trading Rule.

In the supplemental proposal, EPA discusses a different approach for apportioning regionwide NOx budgets to the States than it proposed in the January 30, 2004 CAIR proposal. This approach involves adjusting the heat input data for existing units used to determine State budgets by multiplying it by different factors, established regionwide, based on fuel type. According to EPA, the factors would reflect 'the inherently higher emissions rate of coal plants, and consequently the greater burden on coal plants to control emissions.' The factors would be based on average emission rates (in lbs/MMBtu) by fuel type (coal, gas and oil) for the years 1999-2002.

CEG strongly opposes this methodology for apportioning regionwide NOx budgets to the States. As indicated above, CEG's preferred approach to the establishment of State budgets is an output-based approach that provides incentives for energy efficiency. In the event that EPA elects to adopt an allocation approach based on heat-input, then CEG urges EPA to do so on a fuel-neutral basis. Establishing State NOx budgets based on a fuel-weighted, heat-input basis is paramount to rewarding historically higher-emitting units with a relatively higher allowance allocation in the future, at the expense of inherently cleaner units that have been paying a premium price for their lower-emitting fuel. This is clearly not fair to owners/operators of electric generating units that have utilized cleaner fuels to produce electricity, nor is it in the public interest. Emissions from higher-emitting units represent a social cost (environmental externality) that needs to be internalized so that all electric generating units are operating on a level playing field.

Response:
EPA in its final rule, is providing fuel adjustment factors to historic heat input for the setting of state NOx budgets. See discussion in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document - particularly the response to the FPL Group below.

X.B.23 Comment:
We also question why EPA has not proposed to develop States' NOx budgets using output-based methodologies. Doing so is a logical extension of EPA's energy efficiency efforts to date. We urge EPA to adopt an output-based allocation for States NOx budgets in the final Transport Rule.

At 69 FR 32689, EPA indicates that other commenters have proposed that it should adjust heat input data based on certain factors that reflect the inherently higher emissions rate of coal-fired plants. We oppose this approach, and urge EPA not to adopt it. It is a poorly constructed concept that provides the most leeway to the highest emitting fuel, as well as to those States with the most coal-fired units. This in effect means that bigger polluters are subsidized. The NESCAUM States support a fuel-neutral approach.

Response:

EPA in its final rule, is providing fuel adjustment factors to historic heat input for the setting of state NOx budgets. See discussion in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document - particularly the response to the FPL Group below.

X.B.24 Comment:
FPL Group supports an output based allocation method for allowances: FPL Group agrees that EPA's CAIR proposal will achieve significant reductions of NOx and SO2 emissions. However, FPL Group believes that EPA's supplemental rule proposal has a serious shortcoming in that it continues to promote a heat input-based method of allocating emissions allowances to State budgets. Our experience under the Clean Air Act amendments of 1990 indicates that the heat input-based allocation method provides a disproportionate allocation of allowances to inefficient generating units, resulting in fewer allowances in the budgets of States that have cleaner, more efficient generating units.

FPL Group believes that an output-based emissions allowance allocation system would achieve a more balanced and equitable distribution of allowances throughout the electric generating sector. An output-based allowance allocation system:

- levels the playing field for all electric generation and is fuel neutral;

- recognizes and encourages efficient electric generating units;

- provides the opportunity to develop a more robust market-based trading program; and

- allows the allocation of allowances to non emitting generating such as nuclear, hydro and renewable energy sources.

These non-emitting energy sources are part of the solution to reducing pollutant emissions and should be rewarded for their contribution to clean energy and thus should be included in the allowance allocations.

Clearly EPA has previously recognized the value of utilizing an output-based allowance trading system. On January 18,2000 the Federal Register Publication (65 Fed Reg. 2674, 2702-2703) of the Final Rule on Section 126 petitions for purposes of reducing Interstate Ozone Transport included the statement that:

'...the Agency has committed to adopting an output-based allocation system for the updated allocations in the Section 126 Control remedy.'

Subsequently, in May 2000 EPA published a guidance document for States participating in the NOx Budget Trading Process to assist them in developing output-based NOx allowance allocations.

In today's rulemaking for the CAIR, the Docket includes a May 11 review version of the Supplemental Notice of Proposed Rulemaking (Docket No. OAR-2003-0053-1344)that includes a discussion of using the output-based method for allocating allowances. This output-based allocation discussion was not found in the June 10 published version of the Supplemental Notice.

FPL Group asks that EPA publish an additional supplemental notice proposal that includes the discussion of the output-based allocation method and solicits further public review and comment of this option.

FPL Group believes that the allowance allocation method may have significant impact on the NOx budgets for several States and should be fully vetted before the final rule is developed.

Response:
EPA recognizes that while the choice of allowance allocation method would make little difference in terms of regionwide emissions reductions, it would have an impact on the NOx budgets for several States.

EPA notes, that there numerous potential approaches in setting NOx budgets but that with a permanent setting of budgets, neither input, nor output based allocations would provide additional incentives for energy efficiency. All sources have incentives to reduce emissions (improving efficiency is a way of doing this) as a result of the cap and trade program, not because the choice of permanent allocation.

In choosing to adjust heat input by fuel factors, EPA recognizes that certain types of generation are facing the required reductions with much higher initial emission rates, based largely on the fuel they are burning.

Even with NOx budgets using fuel factors adjustments, EPA expects that States would receive more than enough allowances from their historic gas and oil-fired heat input to cover their projected gas and oil emissions. Under a fuel neutral heat input allocation, States would receive significantly more allowances from their historic gas and oil-fired heat input than they would need to cover their projected gas and oil emissions. EPA would also note that it is the coal-fired units that would bear the capital and operational burden of controlling for NOx, accounting for most of the reductions.

States have the flexibility to decide how to allocate NOx allowances to sources and can choose a pure output approach if they believe that is most appropriate given State policy.

X.B.25 Comment:
The nitrogen oxides budget included in the proposal for North Dakota is extremely small. Although research is currently underway, selective catalytic reduction (SCR) has not been demonstrated for lignite. We believe that a NOx budget which cannot be met with existing proven technology is inappropriate.

Response:
North Dakota is not among the States in the region covered under the final CAIR.

However, see also the EPA's response to comments in Section VI.B of the Response to Comment document - regarding the use of SCR for lignite units. EPA believes that, given the weight of experience (domestic tests in Texas and North Dakota as well as international experience), that SCR have been sufficiently demonstrated at lignite units.

X.B.26 Comment:
In addition, with the IAQR proposal's allocation of emissions on a State-specific basis, those States that are currently (and have been historically) the largest emitting States will still, more or less, be the largest emitting States once the proposed transport rule has been fully implemented. Those States will be better able to accommodate growth of new sources than will those States which have maintained strong regulatory programs in the past. A mechanism is therefore needed to achieve additional source specific emission reductions with resulting allowances to be redistributed to low emitting States so that they can either accommodate future growth or remove the allowances from the market.

Response:
It is not clear why the largest emitting States would be "better able to accommodate growth of new sources than will those States which have maintained strong regulatory programs in the past" and consequently, why allowances should necessarily be redistributed to low emitting States.

EPA's approach to budgets is outlined in Section V of the preamble. State NOx budgets would be based on historic heat input adjusted for fuel type. State Emissions after the implementation of CAIR would reflect the application of cost-effective controls throughout the CAIR region.

X.B.27 Comment:
SRP is committed to continue participating in dialogue with both EPA and other regional stakeholders to determine if the IAQR presents an opportunity to streamline and integrate existing regulatory requirements affecting Western utilities. In that regard, there are several issues that SRP will ask to have addressed should the IAQR be expanded.

Nitrogen Oxides: The IAQR should provide NOx allocations that take into consideration the air quality issues in the West. Consistent with the proposed Clear Skies Act, SRP believes that NOx reductions equivalent to the application of advanced combustion controls would be appropriate in establishing a Western NOx budget.

Response:
EPA notes that Western States are not included in the region covered under the final CAIR.

X.B.28 Comment:
If the EPA makes the decision to expand the rule to include the West, the Roundtable urges the Agency to recognize and design the program for the unique issues facing our region. Specifically, the rule should apply to the West only if it implements an SO_2 allocation methodology that will (1) recognize companies' expectations in their current SO_2 allowance allocations; and (2) protect generating units that were well-controlled for SO_2 prior to the 1990 Clean Air Act Amendments from unfairly low allowance allocations.

Response:
EPA notes that Western States are not included in the region covered under the final CAIR.

X.B.29 Comment:
The proposed EPA 'cap and trade' rule for NOx is similar to the existing NOx State Implementation Plan Call program for 22 States and serves only do preserve the status quo.

EPA's proposal for NOx budget allocations corresponds to the sum of that State's historic heat input amounts, multiplied by an emission rate of 0.15 pounds per million Btu (lbs/mmBtu) for 2010 and 0.125 lbs/mmBtu for 2015. Historic heat input is derived as the highest annual heat input during 1999-2002. This approach will permanently reward States with large emission budgets based on historically high emissions from inefficient generation. Basing allocations on heat input rewards fuel inefficiency and should be replaced with a method that is more effective in promoting greater efficiency and reflects the growth in renewable and cleaner emitting technologies.

In addition, the EPA proposal does not assure that all reasonable and cost-effective reductions are achieved. EPA's approach of applying achievable NOx limits from coal-fired electric generating units (EGUs)as allowable limits for all other types of EGUs assures that many gas and oil fired units will not be required to make significant reductions even though they are capable of doing so in a cost effective manner. This approach may actually impede efforts to achieve NOx reductions in the areas where they are necessary to achieve the ozone standard. With a regional 'cap and trade' program, allowances generated by the inherently clean units will be shifted to areas such as the Northeast where significant emission reductions have already been made and where additional reductions will be extremely costly.

For example, under the proposed rule, operators of natural gas-fired sources in Texas that already meet the standard for EGUs would actually be allowed to increase NOx emissions up to 2010. The large number of gas-fired facilities in Texas that are currently operating below the proposed standard and that could, with little expense, make significant emission reductions would have a huge number of allowances to sell to other States. Thus, operators of sources in Texas will be allowed to emit more NOx from EGU-facilities and will gain an economic benefit, at the expense of other States whose total NOx emissions are lower but have higher EGU emissions per unit of output.

Although operators of sources in Texas will need only approximately 66,440 tons of allowances after the affected sources are fitted with basic reasonable available control technology (RACT) controls, EPA proposes to issue 224,181 tons of allowances to the State. Pennsylvania estimates indicate that, under the EPA proposal, the operators of sources in Texas will benefit by receiving in excess of 110,000 windfall allowances per year with an estimated value in excess of $270 million per year.

The EPA proposal provides excess allowances that are not only an economic benefit for operators of sources in States such as Texas, but because the operators of the sources will be able to sell the allowances to operators of downwind sources with higher control costs, the public health and air quality benefits will be significantly reduced in downwind areas.

Response:
EPA notes that by implementing fuel adjustment factors, States (such as Texas) with significant gas generation (that generally do not need as many allowances to cover their projected emissions), would receive a relatively smaller State budget than they would under a fuel neutral input approach.

On the other hand, EPA disagrees with the commenter's statement that the allocation would somehow impact air quality. EPA does not believe that the choice of allocation method should impact sources' compliance decisions. Because allowances have value and can be bought and sold on the market, sources would reduce to emissions the point where the cost of reducing an extra ton of allowances would be equal to the value of an allowance. Such a decision does not depend on allocations.

See also other responses to comments with related issues in this section X.B of the Response to Comments document.

X.B.30 Comment:
NOx Budget and Allowance Issues, EPA should extend the baseline period for calculating State NOx budgets:

EPA proposes to set statewide NOx budgets by multiplying each state's highest annual heat input for Acid Rain Program units during 1999 2002 multiplied by an emission rate of 0.15lb/mmBtu for 2010 and 0.125lb/mmBtu for 2015.

The Class of '85 does not agree that State NOx budgets should be based uniformly on the same emission rates. Instead, EPA should set individual State NOx budgets that relate to the relative contribution from those States. If EPA nonetheless decides to set State budgets based on an emission rate multiplied by heat input, EPA should ensure that the proper baseline period is used to determine heat input.

EPA has determined that the 1999-2002 timeframe was selected to provide equity for generators and to compensate for abnormalities in generation due to weather, outages, new installations, etc. However, the Class of ‘85 urges EPA to consider whether a longer baseline period that extends to years prior to 1999 would more appropriately address the Agency's well-founded concern. For example, the steep NOx reductions required by the Ozone Transport Region (‘OTR' process in the 1999-2002 period added significant costs to OTR affected plants and had the effect of reducing generation compared to non-OTR facilities. Similar examples occur throughout the proposed IAQR States, such as where stringent local controls have been implemented to deal with NAAQS attainment issues, leading to reduced heat input during the 1999-2002 timeframe. The Class of ‘85 agrees that the use of the highest year of heat input for a State is fair, but believes that the slightly increased flexibility created by a 1996- 2002 time period might be more appropriate given the Agency's rationale.

For similar equity reasons, EPA should consider bringing the baseline up-to-date by including the year 2003 in the baseline timeframe. This would allow the budget determination to more accurately reflect levels of heat input in States that are currently experiencing growth in electricity demand.

Response:
See also other responses to comments with related issues in this section X.B of the Response to Comments document- particularly the response to the comment from NRG below.

X.B.31 Comment:
The NOx allocation mechanism is based on heat input and the highest one-year time period from 1999 to 2002,inclusive. NRG supports the use of heat input in determining allocations, however, we believe an expansion of the time period is needed lo account for unusual weather in the east, significant market and economic effects, and long-term outage impacts. For example in the Mid-Atlantic Region, locations served by NRG’s generating stations experienced unusually mild winters in 2000 and 2001 as well as cooler summer weather in 2002.

Response:
EPA wanted to use the latest data on heat input that was fully checked and available. EPA also believes using the latest 4 years of checked and accurate data would serve to adequately offset any single anomalous year for a particular State or region. Picking and extending time periods to accommodate anomalies in certain regions could very well bring in anomalies within other regions.

X.B.32 Comment:
The Ohio Utilities are strongly opposed to any allocation proposal that is based on ‘output.’ A minority of power industry stakeholders support a CAIR rule that allocates NOx allowances based on electricity output. To the extent spokespersons and commenters for this position have represented that these views have widespread support among power producers, the Ohio Utilities

emphatically disagree. Many industry stakeholders, including the Ohio Utilities, support heat input-based allocations as the most appropriate means of regulation under the Clean Air Act.

Although some power generators ostensibly support output-based allocations because they claim the proposal will 'level the playing field' or 'encourage efficient generation,' their preference for output-based allocations actually has little to do with environmental benefits and everything to do with economic self interest. It is no coincidence that many industry stakeholders supporting output based methodologies generally have substantial nuclear assets and, therefore, stand to receive a significant windfall from such an approach. If NOx allowances are allocated based on electricity output, companies with significant non-fossil assets will receive a windfall of NOx allowances which can be used to cover NOx emissions from coal fired units within their systems. Output-based allocations will enable these sources to simultaneously avoid the cost of controlling fossil-fuel emissions and impose additional costs of control on their competitors. The CAIR rule requires controls on emissions from combustion sources. Allocations for these combustion sources must be based on heat input.

Response:
EPA's NOx budgets are based on heat input, with fuel adjustment factors.

Also, the example "modified output" allocation method in EPA's model rule in fact uses heat input as the basis for existing units, thus not rewarding companies for existing nuclear or other low-emitting assets. The use of updating and modified output based allocations for new units would, in fact, encourage efficient generation. States, however, can select the allocation approach they feel is most appropriate.

X.B.33 Comment:
Page 4621 Budget Determination

Comments are requested on whether the NOx allowance budget should be based on prorated basis on average heat input during 1999-2002, pro-rated basis of emissions, or prorated on MW output. We recommend that the NOx budget allowance be determined by the average of heat input basis. This would be consistent with the previous title IV SO_2 budget programs from the Agency.

Response:
EPA's SO_2 budgets are based on heat input, with fuel adjustment factors.

X.B.34 Comment:
EPA asked for comments on how these budgets should be set; i.e. either on heat input or heat output. Virginia continues to support setting the caps or budgets based on a heat input value and an emission rate expressed in lb/million btu. Using strictly a percent reduction rewards facilities using high polluting fuels, and we think it is much better to set an emission limit and let sources choose the best way for them to achieve it.

Response:
EPA's NOx budgets are based on heat input, with fuel adjustment factors.

X.B.35 Comment:
AEP supports States having some flexibility in the allocation of NOx allowances. However, since electric generating utilities will be making significant expenditures to comply with IAQR/CAIR-required emission reductions, impacts associated with the cap and trade element of the program should be minimized through optimal incorporation of the existing infrastructure for emissions monitoring and compliance planning. Therefore, AEP supports a NOx allocation approach that provides for the free distribution of a permanent allocation of allowances to existing sources on a heat-input basis.

Response:
EPA's State NOx budgets are based on heat input, with fuel adjustment factors. States, however, can select the allocation approach they feel is most appropriate. Regarding existing infrastructure, a number of States have adopted output based allocations for the NOx SIP Call.

X.B.36 Comment:
Adjustment factors for fuel type should not be used in determining NOx State emission budgets:

EPA has requested comment regarding whether adjustment factors for fuel type should be used to determine NOx State emission budgets. The Coalition does not believe that EPA should incorporate adjustment factors by fuel type. Doing so is not necessary because the basic State budgets already take into consideration the fuel types used within each State.

Response:
EPA in its final rule, is providing fuel adjustment factors to historic heat input for the setting of state NOx budgets. See discussion in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

X.B.37 Comment:
CEG strongly recommends that the State NOx budgets be based on each State's prorated share of generation output.

Response:
EPA in its final rule, is providing fuel adjustment factors to historic heat input for the setting of state NOx budgets. See discussion in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

EPA would also note that an output standard, if it is one-time and does not involve updating of baselines, would not provide additional incentives for EGUs to upgrade the efficiencies of their units.

X.B.38 Comment:
As proposed the IAQR would have an adverse affect on economic development in lower income clean States. Growth could be hampered by the emission cap requiring electric generators to purchase rights to emit from other States. The associated costs of purchasing emissions would increase the cost of electric generation. EPA has requested comments on ways to allocate allowances. Entergy suggests that EPA work with affected clean States during final rule development. There are a variety of allocation methods that might be considered and appropriate. However, given the short timeline to comment on the proposed rule, States and affected sources within these States have not had adequate time to consider the merits of various methods. Some of these alternatives might include:

-Holding certain States whole at existing baseline levels as determined by some criteria of threshold impact level.

-Allocating emission credits on an output based standard which would include all generators of electricity including nuclear.

-Allocating emission credits using an adjustment factor for geographic area or portion of the model domain.

-Bonus allocation or allocation at existing levels for States showing borderline impact.
Entergy suggests that EPA work during the final rule development period with affected parties to consider the merits of alternative allocation schemes or criteria to determine whether baseline emissions are appropriate level of emissions.

Response:
EPA in its final rule, is providing fuel adjustment factors to historic heat input for the setting of state NOx budgets. See discussion in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

An output standard, if it is one-time and does not involve updating of baselines, would not provide additional incentives for EGUs to upgrade the efficiencies of their units.

X.B.39 Comment:
EPA proposes to allocate allowances to States on an energy input basis. This approach will penalize States where sources have already made changes to increase efficiency. EPA should allocate allowances to States on an output basis in order to avoid penalizing areas where energy efficiency improvements have been implemented and to encourage energy efficiency in all areas.

Response:

EPA in its final rule, is providing fuel adjustment factors to historic heat input for the setting of state NOx budgets. See discussion in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

EPA would note that, an output standard, if it is one-time and does not involve updating of baselines, would not provide additional incentives for EGUs to upgrade the efficiencies of their units.

X.B.40 Comment:
The EPA proposes to determine region-wide amounts of EGU NOx emissions by using historical heat input values and emission rates of 0.15 and 0.25 lb/MMBtu. Michigan would rather see an energy out-put model be used to determine the region-wide and State-specific budgets and allowances. This model would, in effect, reward the companies that are utilizing renewable energy sources and conservation techniques and would encourage new technology for energy generation. Because using the 'energy out' model encourages cleaner technology development, it encourages alternatives to coal and oil combustion other than the current move to natural gas as the solution to cleaner energy.

Response:
EPA in its final rule, is providing fuel adjustment factors to historic heat input for the setting of state NOx budgets. See discussion in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

EPA would note that, an output standard, if it is one-time and does not involve updating of baselines, would not provide additional incentives for EGUs to upgrade the efficiencies of their units.

X.B.41 Comment:
We urge EPA to develop incentives for States to promote energy efficiency, such as developing and implementing output-based allocations, and developing model language and incentives for States that implement components such as set-asides for renewable energy projects. We also encourage EPA to allocate allowances to States based on an output basis, rather than an input basis.

Response:
EPA in its final rule, is providing fuel adjustment factors to historic heat input for the setting of state NOx budgets. See discussion in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

EPA would note that, an output standard, if it is one-time and does not involve updating of baselines, would not provide additional incentives for EGUs to upgrade the efficiencies of their units.

In its discussion of the model rule in Section VIII of the preamble, EPA gives States flexibility regarding the use and size of set-asides (renewable set-asides were particularly mentioned). Also EPA's example allocation approach involves providing allowances to new units (after they have established an operating baseline) on a modified output basis.

X.B.42 Comment:
The NOx emissions limitations correspond to the sum of the affected States' historic heat input amounts, multiplied by an emission rate of 0.125 mmBtu for 2015 and 0.15 mmBtu for 2010. Historic heat input is derived as the highest annual heat input during 1999-2002. OTC States will be at a disadvantage, given that many of their sources are already more efficient than remaining uncontrolled sources outside the region. An output-based calculation is a more appropriate method to calculate emissions and would reward industries that have made changes to increase efficiency.

Response:
EPA in its final rule, is providing fuel adjustment factors to historic heat input for the setting of state NOx budgets. See discussion in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

EPA would note that, an output standard, if it is one-time and does not involve updating of baselines, would not provide additional incentives for EGUs to upgrade the efficiencies of their units.

X.B.43 Comment:
PSEG strongly recommends that the State NOx budgets be based on each State's prorated share of generation output.

Response:
EPA in its final rule, is providing fuel adjustment factors to historic heat input for the setting of state NOx budgets. See discussion in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

EPA would note that, an output standard, if it is one-time and does not involve updating of baselines, would not provide additional incentives for EGUs to upgrade the efficiencies of their units.

X.B.44 Comment:
Input-Based vs. Output-Based Rates: EPA proposes to derive the budgets for its cap and trade program from input-based emission rates (i.e., Lbs/mmBtu). Delaware believes that output-based rates (i.e., Lb/MWh) represent a better environmental approach because they take unit efficiency into account, thereby encouraging measures to improve efficiency.

Response:

EPA in its final rule, is providing fuel adjustment factors to historic heat input for the setting of state NOx budgets. See discussion in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

EPA would note that, an output standard, if it is one-time and does not involve updating of baselines, would not provide additional incentives for EGUs to upgrade the efficiencies of their units.

X.B.45 Comment:
Oglethorpe Power supports the two options proposed by EPA for determining alternate State EGU NOx Budgets.

EPA proposes two different matrices that could instead be used for determining alternate State EGU NOx budgets. The matrices are:

-Prorated emissions levels, with budgets based on reductions in emissions levels; or

-Prorated share of output, with budgets to be based on a lb/kWh output rate.

Provided the baseline were held firm at the 4 years proposed by EPA in the preamble, 1999, 2000, 2001 and 2002, Oglethorpe Power would support an emissions reduction standard based on prorated levels from actual historical emissions during the baseline period. Such an approach would reward those units that had in essence achieved early reductions in NOx prior to the promulgation of the IAQR rule, in fact prior to even the proposal of such rule. In addition, Oglethorpe Power would also likely support an energy output standard. Such approach would reward more efficient units and would be another incentive for EGUs to continue to upgrade the efficiency of their units.

Response:
EPA in its final rule, is providing fuel adjustment factors to historic heat input for the setting of state NOx budgets. See discussion in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document.

An output standard, if it is one-time and does not involve updating of baselines, would not provide additional incentives for EGUs to upgrade the efficiencies of their units.

X.B.46 Comment:
In the Transport Rule Supplemental Proposal, EPA proposes determining State NOx budgets based on historical heat input data (pp. 32688-32689). In the original Transport Rule proposal, however, EPA solicited comment on using two alternative methods: 1) pro-rated emissions levels (budgets based on reductions in emissions levels) and 2) pro-rated share of output (kilowatt hours (kwh)) (budgets based on their output (same pound/kwh rate)) (p.4621). The Transport Rule Supplemental Proposal is silent on either of those two different allocation methods. EPA should

have conducted a detailed analysis on both of these alternative allocation methods (including the possible impacts of each on existing State programs) and provided the results of this analysis in the form of a technical support document in order to allow for informed comment.

Response:
EPA in its final rule, is providing fuel adjustment factors to historic heat input for the setting of state NOx budgets. See discussion in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document, particularly the response to MDEQ below.

X.B.47 Comment:
In the proposed CAIR, EPA proposes to determine State NOx budgets based on historical heat input data (69 FR 32688-32689). In the original Transport Rule proposal, however, EPA solicited comment on using two possible methods: 1) pro- rated emissions levels (budgets based on reductions in emissions levels) and 2) pro-rated share of output (kilowatt hours (kwh)) (budgets based on their output (same pound/kwh rate)) (69 FR 4621). The June 10 Supplemental Proposal is silent on both of those two different allocation methods. EPA should have conducted a detailed analysis on both of these allocation methods (including the possible impacts of each on existing State programs) and provided the results of these analyses in the form of a technical support document in order to allow for informed comment.

Response:
EPA in its final rule, is providing fuel adjustment factors to historic heat input for the setting of state NOx budgets. See discussion in Section V of the preamble and other responses to comments with related issues in this section X.B of the Response to Comments document, particularly the response to MDEQ below.

X.B.48 Comment:
Within the supplemental proposal, the EPA proposes determining State NOx budgets based on historical heat input data. However, in the original January 30, 2004 proposed rule, the EPA requested comments on using two different possible methods. Why were the other possible allocation methods not analyzed and their impact on State allocations included in the May 5, 2004 supplemental proposal?

The MDEQ believes an energy output model, used to determine the region-wide and State model, would reward the companies that are utilizing renewable energy sources and conservation techniques, and would encourage new technology for energy generation. The MDEQ believes using the ‘energy out' model encourages cleaner technology development and promotes alternatives to coal and oil combustion rather than the current move to natural gas as the solution to cleaner energy. Using an energy out approach also rewards those EGUs that are achieving more efficient generating capacity. The emissions from an EGU are directly related to the electricity demand and energy output, and this approach better reflects this relationship. The

MDEQ requests that the EPA conduct further analysis of these possible allocation methods and their impact on State allocations.

Response:
For the setting of State budgets EPA proposed in the SNPR (consistent with the January NPR) that State NOx budgets be set based on heat input and State SO_2 budgets set based on share of title IV allowances. EPA decided to include only these preferred options to simplify the proposal (as there are almost an infinite number of alternative ways the State budgets can be determined) and to build upon an approach that is very similar to the approach successfully implemented under the Acid Rain Program. The numerous methods that could be used in setting NOx budgets, include input, output, emissions reductions, updating, permanent allocations, auctioning, utilizing fuel-adjustment factors, including emitters, subsets of emitters, all fossil, or all generators etc. There are a great many permutations of the above, too numerous to describe fully within this response.

A key consideration to keep in mind is that the methodology for determining each State's portion of the overall budget would not impact the overall amount of emissions under CAIR. The emission reductions and the environmental improvement as required by the rule would not be affected. Focusing on a few preferred options allowed EPA to concentrate staff time and resources on other provisions of the rule that ensure the environmental integrity of the program and those that would actually translate into environment results.

However, the rule must specify a method for distributing the allowances to States since that is how the overall reduction requirement of the rule is translated into the State-by-state requirements.

With a one-time budget allocation to the States there are not any associated incentives for behavior changes on the part of electricity generators. No approach, if budgets are only allocated once based on past behavior, would provide any incentives for more or less efficient future generation. The cap and trade system itself, regardless of how the allowances are distributed, provides the primary incentive for more efficient, cleaner generation of electricity.

X.B.49 Comment:
EPA indicated that the NOx allowances were changed based on additional information.

The NOx Budgets for each State are developed from information from electric power plants. This may not be sufficient if non-EGUs are incorporated into the allowance and trading programs. In States with large concentrations of industrial sources of NOx, such as petroleum refiners, chemical manufacturers, or smelters, these sources may be as large as EGUs for NOx emissions in those sections of their States. The NOx Budgets should have a mechanism to increase the budget if non-EGU sources are incorporated by regulation. In the absence of a mechanism to increase the budget for non-EGUs, the EPA should direct States to not include non-EGUs in their allowances.

Response:
EPA has set NOx budgets or caps collectively for States based on estimates of highly cost effective reductions from EGUs. The Agency then allocated budgets to States based on heat input. EPA has provided a mechanisim for a state to adjust its NOx budget if it chooses to regulate non-EGUs in order to comply with CAIR. See further discussion in Section VII of the preamble.

States participating in the model trading program have the option of using the opt-in provisions in the model trading rule to bring in non-EGU sources into the program (and the budgets would be incremented by an appropriately calculated amount of additional allowances). States can also bring SIP-call non-EGUs into the trading program, but cannot require additional reductions from such sources.

X.B.50 Comment:
In calculating the State NOx Phase I and Phase II budgets, DAQ notes that EPA seemingly has abandoned its proposal to use the highest heat input from 1999 -2002 (FR at 4618) in favor of average heat input for these years. While not completely explained, it appears that supplementing Acid Rain data with EIA data in the SNPR has eliminated the highest of 4 years heat input which was intended to provide an extra cushion for States with non-Acid Rain units. EPA should provide clarification.

Additionally, the SNPR does not further address alternative metrics or possible use of IPM heat input with regard to setting States' NOx budgets. EPA should provide further analysis of all reasonable alternatives that could be considered in determining States' NOx budgets in a subsequent technical support document, in a similar manner as the recently available CAIR/BART TSD.

Response:
EPA, is supplementing the existing Acid Rain heat input data, by incorporating heat input data from EIA. Through this process, EPA included the non-Acid Rain units in the calculation.

EPA never proposed to use the highest heat input in the determination of individual State budgets. In the January Proposal, EPA had initially used the average of Acid Rain heat input from 1999-2002 in setting the State NOx budgets, not the highest heat input.

The approach of creating an "extra cushion", using the highest of the 4 years of input rather than the average heat input would was used in setting the total NOx regional budget, not in the setting of individual State budgets.

X.B.51 Comment:
If EPA promulgates a final IAQR that includes further EGU NOx reductions that requires reductions beyond simply expanding the NOx SIP Call program to an annual program, Duke Energy supports the methodology EPA proposes to use to apportion the regional NOx budget to

the affected States, but urges EPA to adjust the proposed regional NOx budgets upward to account for sector growth. By not accounting for growth in the regional budgets, the 0.15 #/mmBtu and 0.125 lb/mmBtu levels that EPA has determined to be cost-effective and which EPA uses to set the 2010 and 2015 regional budgets, would actually result in EGUs being regulated to emission levels closer to 0.13 #/mmBtu and 0.10 lb/mmBtu in 2010 and 2015 respectively, well below EPA's cost-effective levels.

Response:
See responses to comments with related issues regarding accounting for growth in this section X.B of the Response to Comments document - particularly the responses to UARG and Ameren below.

X.B.52 Comment:
Scientifically, EPA's proposal is seriously flawed and underdeveloped. Examples of flaws in EPA's modeling include the failure to adequately justify NOx reductions on the basis of nitrogen replacement theory, and the failure to consider growth in heat input by 2010 and 2015.

Response:
See responses to comments with related issues regarding accounting for growth in this section X.B of the Response to Comments document - particularly the responses to UARG and Ameren below.

X.B.53 Comment:
EPA should consider growth in heat-input in establishing statewide emission caps in the proposed IAQR.: In the proposed IAQR, EPA proposes that NOx emissions limitations correspond to the sum of the affected States' historical annual heat input amounts, multiplied by an emission rate of 0.15 for 2010 and 0.125 for 2015. For the annual heat input values to use in this formula, EPA proposes to take the highest annual heat input for any year from 1999 through 2002 for each State in the IAQR region. See 69 Fed. Reg. At 4586/1, 461813, 4621/1-2, & 4622/1. EPA does not propose to project heat input to the implementation years of 2010 and 2015 and does not propose to account for growth in the IAQR. In the NOx SIP Call, however, EPA accounted for growth in heat input. See 67 Fed. Reg. 21868 (May 1,2002). MOG submits that the NOx SIP Call and the IAQR, as well as the Acid Rain Program, need to be as consistent and complementary as possible. MOG submits that consistency among these programs will help facilitate compliance and minimize unnecessary regulatory burdens of complying with multiple programs intended to achieve the same or similar air quality benefits i.e., reduce emissions from utilities of NOx and SO2. Indeed, EPA is proposing that the IAQR's annual NOx emission caps would supercede the NOx SIP Call ozone-season caps. See 69 Fed. Reg. 4566, 4586/1-2 (January 30, 2004). Accordingly, MOG urges EPA to account for growth in the IAQR. Moreover, EPA gives no explanation in the IAQR for its change in methodology. MOG urges EPA to explain why the Agency proposes not to account for growth in the IAQR and to allow an opportunity for interested parties to comment on EPA's explanation before promulgating the final IAQR.

Response:
EPA is in fact accounting for growth. Please see responses to comments with related issues regarding accounting for growth in this section X.B of the Response to Comments document - particularly the responses to UARG and Ameren below.

X.B.54 Comment:
EPA's refusal to take EGU growth into account in establishing statewide emission caps is unreasonable.
In its SIP call Rule, EPA imposed ozone-season emission caps for 2007, taking into account growth in heat input for affected units to the year 2007. Compliance was required for the EGUs and non-EGUs covered by the program by May 3 1,2004. Growth was considered and caps were adjusted, to ensure that emissions reductions would not be required due solely to the anticipated growth in electricity generation between the date of rule promulgation and the time when emissions reductions would be required. Although EPA's specific approach for taking growth into account was challenged by industry and some States, no one challenged EPA's rule accounting for growth.
Now, however, in proposing the IAQR and developing the 2010 and 2015 emissions caps for both NOx and SO2, EPA fails to provide for any growth in heat input. The effect of such an approach is to force additional emissions reductions at individual units, beyond the level contemplated in the IAQR, to offset any emissions increases that occur solely due to the growth in electricity generation, as reflected by the growth in heat input. EPA's approach unduly penalizes economic growth in an arbitrary and capricious fashion. If EPA provided for growth in the NOx SIP Call rule, it should do so in the IAQR, or provide a satisfactory explanation of why it omitted heat input growth in the IAQR proposal. As of today, EPA has done neither. The lack of a suitable explanation is unreasonable.

Assuming EPA revises its approach to account for the growth in electricity generation by 2010 and 2015, it should ensure that such approach is applied to all affected IAQR States in an equitable manner, so as not to unduly enrich one or more States at the expense of others. As one of the fastest growing States in the IAQR region, Georgia is especially vulnerable to an approach that either fails to account for growth or does so in a manner that does not reflect reality.

EPA should apportion the regionwide cap to the individual states in a manner that reflects true historical operating realities.

EPA proposes to apportion the regionwide cap to the individual States in proportion to their historic heat input, determined using the highest annual heat input for any year from 1999 through 2002 for each applicable State. According to EPA, this proposed approach provides a regionwide budget for 2010 that is approximately 37,500 tons more than the budget that would result from using the highest annual regional heat input for any of the 4 years and about 60,700 tons more than using the average regional heat input for the four year period. EPA notes that this 'cushion' provides for a reasonable adjustment to reflect that there are some non-Acid Rain Program units that operate in the affected States that will be subject to the new proposed budgets in the IAQR.

Oglethorpe Power supports EPA's method of resorting to each individual State's highest annual heat input for a given year in the applicable range when determining each State's budget. Such approach reflects reality more closely than averaging heat input across the region for a given year, or averaging heat input across the region for the entire four year period. Taking the highest annual heat input in the applicable range for each State more accurately reflects the actual operational history of EGUs in such State and is a more appropriate basis for determining statewide budgets, because it reflects more closely the actual operating history of each EGU in the State. In addition, as EPA knows, the distribution of budgets to the State is important in that it can have tremendous economic impacts on the State's sources. Should a State receive a disproportionately small share of the regionwide budget, there would be fewer allowances to allocate to its sources. Such an outcome would adversely affect compliance costs for sources within that State, as they are forced to either increase either their level of emission control relative to other sources in other States or become net buyers from such sources in other States that may have received a greater share of the regionwide cap.

Response:
EPA is in fact accounting for growth. Please see responses to comments with related issues regarding accounting for growth in this section X.B of the Response to Comments document - particularly the responses to UARG and Ameren below.

EPA believes that for purposed of determining State budgets, the average of the State's historic heat input is a more appropriate measure (than the single highest heat input), as it reflects typical operating conditions over time, rather than the occurrence of an extreme season or year.

X.B.55 Comment:
EPA must take heat input growth into account in establishing the emissions caps. EPA has chosen not to take heat input growth into account in establishing the emissions caps that States will need to satisfy by 2010 and 2015. The result of this omission is to make the caps much more stringent than if heat input growth had been taken into account. For example, for the 2015 NOx cap, EPA based the cap on an emission rate of 0.125 lb/mmBtu, and performed its cost-effectiveness analysis assuming this rate. However, because the emissions cap was calculated based on historical heat input levels, if growth is taken into consideration, the actual region-wide average emission rate that will need to be satisfied by 2010 is closer to 0.095 lb/mmBtu. EPA has not done a cost-effectiveness evaluation for this emission
rate.

Moreover, EPA has failed to explain why it did not take heat input growth into account in the IAQR, when EPA did so in the NOx SIP Call rule. This failure to explain is contrary to principles of administrative law and must be corrected.

Response:
EPA is in fact accounting for growth when it found the region-wide reductions to be cost effective. Please see responses to comments with related issues regarding accounting for growth

in this section X.B of the Response to Comments document - particularly the responses to UARG and Ameren below.

X.B.56 Comment:
EPA fails to provide an adequate explanation regarding its decision not to take heat input growth into account in establishing the statewide emissions caps for the proposed IAQR, even though EPA did take such growth into account in establishing those caps for the NOx SIP Call rule.

Response:
EPA is in fact accounting for growth. Please see responses to comments with related issues regarding accounting for growth in this section X.B of the Response to Comments document - particularly the responses to UARG and Ameren below.

X.B.57 Comment:
In discussing EPA's proposed methodology for calculating statewide NOx emission budgets, the preamble to the supplemental proposal States: The EPA also discussed in the January 2004 proposal a methodology used in the NOx SIP Call that applied State-specific growth rates for heat input in setting State budgets. With a methodology similar to that used in the NOx SIP Call, annual NOx budgets would be set by using . . . base heat input data, then adjusting it by a calculated growth rate for each jurisdiction's annual EGU heat inputs. The EPA is not proposing to use this method for the CAIR because we believe that the other methods that we are proposing (or taking comment on) are more reasonable due to the inherent difficulties in predicting growth in heat input over a lengthy period, especially for jurisdictions that are only a part of a larger regional electric power dispatch region.

69 Fed. Reg. 32689 col. 2. This passage fails to address the merits of taking growth into account and does not explain whether and in what way 'other methods' would do so. EPA also does not explain how failure to take growth into account can be justified in light of the principle that the emission controls assumed in calculating the emission budgets must be highly cost-effective in the future year in which compliance is required, given sources' anticipated level of utilization in that future year. This point is addressed in UARG's March 30 Comments at 49-50. For the reasons discussed there, EPA should establish statewide NOx emission budgets that are increased to account for future growth in electricity generation, as reflected by heat input growth, between the date of rule promulgation and the source compliance date.

Response:
EPA used the IPM model in determining that the region-wide proposed NOx reductions (and consequently the regionwide cap) under CAIR are highly cost effective. The IPM model projects future growth in demand, as part of estimating the least-cost approach of the power sector in meeting this projected demand and complying with the reduction requirements. Consequently, EPA's determination that the reductions are highly cost-effective already takes into account future demand growth across the different States. EPA calculation of cost effectiveness numbers are, thus, specifically based on future growth.

EPA once again notes that the choice of particular State budgets should not affect the achievement of the environmental goal of the CAIR program. State NOx budgets for the final rule are based on historical heat input data which is available and non-controversial. As noted in section V of the preamble, accurately projecting growth factors proved to be particularly challenging for the NOx SIP Call, with questions raised as to various methods' accuracy.

X.B.58 Comment:
If EPA decides to allocate the allowances to the State, MEUEC requests that the allocation of allowances be based on the same process that is used for determining NOx allowances, the highest heat input year during the 1999-2002 time frame.

EPA has ignored growth in heat input in calculating the statewide NOx emissions caps for the State of Missouri. EPA must include growth of heat input in the NOx cap determinations. Emission reductions should not be solely due to the anticipated growth in electricity use. It is bad public policy to be penalizing an industry for economic growth.

Response:
EPA is in fact accounting for growth. Please see responses to comments with related issues regarding accounting for growth in this section X.B of the Response to Comments document.

X.B.59 Comment:
In the State of Missouri, there are proposed coal-fired generation projects totaling around 1,800-2,000 MW of electrical output. The projected growth in natural gas power production has not occurred as predicted due in large part to the high cost of natural gas. Many natural-gas fired projects permitted in Missouri were never built. The utility industry has communicated that base-load generation is necessary for increased customer demand as well as future sale of electricity in the open market and coal-fired generation is the best available option. Therefore, this statement is apparently incorrect for the State of Missouri.

Response:
See response to Ameren comment below.

X.B.60 Comment:
EPA has ignored growth in heat input in calculating the statewide NOx emissions caps:

1. Ameren over the next 5 years has projected thru its planning process an annual growth rate of approximately 1.3 percent in heat input. Assuming EPA's 0.15 lb NOx/mmbtu limit in 2010 and no growth Ameren effectively must meet 0.134 lb NOx/mmbtu. Approximately an 11 percent penalty for growth.
2. Based on our current planning we are expecting a 1.5 to 2.0 percent load growth after 2010. Our current plans include adding generation that is on par with our current heat rate. Generation and heat input will thus grow proportionately. If you conservatively assume that a 1.5 percent growth between 2010 and 2015 with the EPA proposed rate of 0.125 this equates to 0.087 lb

NOx/mmbtu rate that Ameren must meet in 2015. This is a 30 percent emission penalty for growth.

3. EPA must account for growth in the NOx cap determinations. Stricter controls should not be imposed solely due to the anticipated growth in electricity use. It is bad public policy to be penalizing an industry for economic growth.

Response:
See response to Ameren comment below.

X.B.61 Comment:
Growth has not been considered in calculating state NOx Budgets for 2010 and 2015. On Page 32689 (69 FR No. 112 June 10, 2004) of this proposed rule EPA states 'The EPA is not proposing to use this method for the CAIR because we believe that the other methods that we are proposing (or taking comment on) are more reasonable due to the inherent difficulties in predicting growth in heat input over a lengthy period &'. Here EPA is referring to determining growth for each jurisdiction and applying that growth to a baseline heat input. From EPA's above statement it would appear that they are proposing some other method to factor in appropriate growth. However nowhere in this rulemaking has EPA suggested a growth methodology. If EPA believes that averaging the 1999 thru 2002 heat input factors in growth thru the year 2015 EPA is sadly misguided. In the case of Ameren:

a) Ameren over the next 5 years has projected thru its planning process an annual growth rate of approximately 1.3 percent in heat input. Assuming EPA's 0.15 lb NOx/mmbtu limit in 2010 and no growth Ameren effectively must meet 0.134 lb NOx/mmbtu. Approximately an 11 percent penalty for growth.

B) Based on our current planning we are expecting a 1.5 to 2.0 percent load growth after 2010. Our current plans include adding generation that is on par with our current heat rate. Generation and heat input will thus grow proportionately. If you conservatively assume 1.5 percent growth between 2010 and 2015, with the EPA proposed rate of 0.125 this equates to 0.087 lb NOx/mmbtu rate that Ameren must meet in 2015. This is a 30 percent emission penalty for growth.

If EPA thinks as it says in the original Clean Air Interstate Rule (CAIR) 'Furthermore, the majority of the growth (of heat input, or output) through 2010 is expected to be met by recently built natural gas units, with no SO_2 and very low NOx emission' (69 FR No. 20 January 30, 2004 page 4620), EPA has not looked at current and projected future natural gas prices. Most if not all units built to date that use natural gas are run for peaking only. This is not and will not be the preferred approach to new generation.

In order to provide clean, reliable, inexpensive power to our costumers Ameren must have the flexibility to choose the type of generation that best meets the needs of our costumers. EPA

should not be dictating the type of generation that should be built by arbitrarily ignoring growth. EPA needs to reconsider the growth issue by using a model like the Integrated Planning Model or using growth projections developed by the Energy Information Administration (EIA) or the Department of Energy (DOE).

Response:
EPA determined that the required NOx reductions are highly cost effective, taking into account future demand growth across the different States (see response above).

EPA recognizes that the effective NOx limit for the CAIR region in 2010 will be less than 0.15 lb per mmbtu, and lower still by 2015, as the entire region is expected to grow in population, economic output, electricity consumption, and consequently heat input. As the region grows, the effective rate (in lbs of emissions per mmbtu of heat input) corresponding to an effective emissions cap shrinks. (This is equally true of the NOx cap under the title IV program). However, through its IPM modeling, EPA specifically found the level of reductions corresponding to these lower rate limits to be highly cost effective.

EPA is not considering growth in its determination of individual State NOx budgets. State NOx budgets for the final rule are based on historical heat input data which is readily available and non-controversial. As noted in section V of the preamble, accurately projecting growth factors proved be particularly challenging for the NOx SIP Call, with questions and legal challenges raised as to various methods' accuracy.

EPA is not maintaining that new coal plants will not be built. In fact, our IPM forecast and that of DOE analyzing our rule, does show that new coal plants will be built. With high prices for natural gas, new base-load coal-fired generation becomes relatively more economic. However, EPA does believe that the majority of the growth in EGU heat input between 2002 (the final year of heat input data used) and 2010 will be gas-fired.

Rather than "penalizing for growth" as claimed by the commenter, the method EPA is finalizing in fact provides equivalent opportunities for growth to all States. It does not try to rely upon difficult-to-gauge forecasts of differences in State growth patterns to provide budgets on that basis.

X.B.62 Comment:
The proposed NOx provisions in the proposed rule also create a potential disincentive for new plants because the State NOx budgets are based on units in operation between 1999 and 2002. If States adopt EPA's methodology for establishing the State budget in allocating NOx allowances, new sources (that come on line after 2002) would have to buy NOx allowances from existing sources in order to operate. While States could decide to control other sources to offset the emissions from these new sources, this would require a significant level of effort on the part of the State to develop alternative control programs, issue rules to control those sources, and develop the needed documentation to demonstrate to EPA's satisfaction that the offsetting emission

reductions took place. Such an effort, while laudable from a public policy perspective, would take additional time and resources from States. As a result, EPA's preferred approach for NOx also creates the potential to penalize the construction of new, cleaner sources.

EPA's proposed allocation formula for NOx State budget caps also discourages the construction of new coal plants by EPA's proposal to allocate NOx allowances based on a 'fuel neutral,' output-based formula which would force coal plants to compete directly with natural gas plants.

Under the NOx provisions, EPA requests comments on using projected growth in 2010 and 2015 as the basis for making NOx allocations. Using projected growth would at least include new plants built before 2015 in the allocation.

Response:
See responses to comments with related issues in this section X.B of the Response to Comments document.

While EPA is determining the NOx State budgets, it gives States significant flexibility regarding the distribution of NOx allowances to sources. EPA's example allocations approach in fact, would provide new units with allowances - first from a set aside and subsequently through the updating mechanism.

X.B.63 Comment:
We oppose the EPA methodology used in the NOx SIP Call of projecting future growth as there were very substantial problems with the accuracy of projections employed by EPA. For example, the State of Georgia exceeded its 2007 projected generation growth in 2000. For updating NOx and SO2 allowances, we support the method proposed for updating allowances for mercury whereby EPA updates the allowance program at regular intervals in the future based upon actual market conditions, not projections. We believe a good first date for updating would be 2010.

Response:
See responses to comments with related issues in this section X.B of the Response to Comments document.

X.B.64 Comment:
The Illinois EPA does not support the use of growth factors derived from the IPM model and acknowledges U.S. EPA's efforts to develop a more equitable approach. However, U.S. EPA's Technical Support documentation does not adequately explain the methodology employed in this proposal. Consequently we are unable to understand how the heat input values used to calculate States' budgets were derived. We urge U.S. EPA to provide a more thorough discussion of its methodology, and provide another opportunity for States to comment on the accuracy of the calculations.

Response:

See responses to comments with related issues in this section X.B of the Response to Comments document.

EPA has provided additional discussion in the SNPR and the NODA, providing opportunities for comment.

X.B.65 Comment:
EPA's previous method of projecting heat input using IPM and growth factors was controversial, slowed the process, and may ultimately have been inaccurate. Using 1999 - 2002 emissions in this calculation is a good choice since it is tied to actual numbers.

Response:
EPA would note that it prevailed in a court case regarding the growth rate estimates for the NOx SIP Call. However, EPA is interested in using a simpler, less controversial method for CAIR.

X.B.66 Comment:
Pennsylvania strongly encourages EPA to establish budgets without growth factors to demonstrate that emission reductions from today's emission levels and not a hypothetical future emission level. Such a program would encourage innovation by the States in improving electric production efficiency rates and reducing growth in electric demand.

Response:
EPA concurs.

X.B.67 Comment:
EPA proposes to determine the region wide amount of EGU NOx emissions by using historic heat input and emission rates of 0.15 lb/mmBtu and 0.125 lb/mmBtu. EPA solicits comment on using heat input projected to the implementation years of 2010 and 2015 and/or different emissions rates. Under this approach, EPA takes comment on whether to use the same method for projecting heat input as used in the NOx SIP Call, or a different method. At this time, the TCEQ comments that EPA should use the historical approach because projected heat input can over-inflate caps. However, we will assess this issue again when we review EPA's proposed cap and trade rules and may revise this position at that time.

EPA solicits comments on options for implementing the heat input-based budget and the two different metrics in determining actual State budgets. One is to use projected levels. Alternatively, EPA states that it would be possible to use heat input or output as projected directly by IPM in the setting of budgets. This would have the benefit of being consistent with the methodology for determining cost. The TCEQ comments that EPA does not provide enough information to understand how this approach would relate to growth and urges EPA to provide clarification on this issue.

Response:

In its supplemental rule and NODA, EPA provided additional information on the methodology for the formation of State budgets.

X.B.68 Comment:
Historic Heat Input Should Be Used: EPA proposes to use historic heat input to establish the region-wide NO, reduction level, but it seeks comment on whether it should use heat inputs projected to 2010 and 2015. 69 Fed. Reg. 4619. Use of historic heat inputs would be consistent with the approach chosen by Congress for the SO_2 allowance method in title IV. TVA supports use of historic heat inputs. Projecting heat inputs always involves making assumptions with associated uncertainties and opens the final rule to question.

Response:
EPA concurs.

X.B.69 Comment:
The Allocation of IAQR NOx Budgets to States (or Allowances to Sources Directly) Should Take into Account Fuel-Specific and Technology-Specific Factors - Also, Budgets or Allocations Should Be Periodically Updated to Reflect Updated Heat Inputs, Fuels, and Technologies. Rather than using projected heat inputs for the implementation years (a process which has resulted in much litigation in the NOx SIP Call), the rule should use the latest historical heat input data. For Phase I, 1999-2002 heat input data are reasonable, but 2000-2003 should be used if data are available. For Phase II, using heat input years with a similar lead time would be appropriate. In this manner, the 28-state or 30-state budget would be maintained, but allocations would reflect the addition of new units, unit retirements, fuel switches, capacity factor changes, and similar factors.

Response:
EPA agrees with commenters about the potential difficulties with using projections of growth for the setting of budgets.

EPA, however, also has concerns about updating State budgets at regular intervals, as this would raise complications in State SIPs (which would not be clear on the total number of available allowances), could create undesired operating incentives, and might not provide adequate time for effective use of allowances as a longer term compliance option.

X.B.70 Comment:
The model is sensitive to the growth rate imposed. The expectation is that the growth in electrical generation capacity (and therefore demand) will be 1.5 percent per year. The Energy Information Administration (EIA) predicts about 1.8 percent. The higher growth rate seems to more accurately predict past demand rates, although the IPM assumes that all of this must be provided for by new EGU capacity. It is important to recognize that some new electrical demand can be met by energy efficiency and renewable resources that the model cannot account for satisfactorily.

Both EPA and OTC ran model runs exploring the effect of the increased growth rate on the model predictions. Interpretation of the results, however, depends on proper consideration in light of the efficiency and renewables factor mentioned above, and that the increased BTU heat input will have a tendency to make any caps appear to require much lower effective emission rates among the EGU sources (present and future) than would otherwise occur.

Accounting for growth pressures with increased generation, combined with progressive flow control, does put pressure on new generation to be significantly natural gas, although coal usage still increases from 50 percent share in 2010 to 55 percent in 2020, with a substantial amount of new pulverized coal coming on line. Under this scenario, in spite of 110GW new and repowered coal generation, the coal market share decreases by 3 percent over the IAQR, with a corollary increase in combined cycle gas, due to the overall increase in energy demand.

The increased natural gas fuel prices and the increased growth have a tendency to increase the number of existing coal facilities retrofitted with advanced pollution controls.

Response:
EPA acknowledges the informative analysis performed.

X.B.71 Comment:
EIA Plant Heat Input Data used in the Calculation of State Budgets spreadsheet (apr14shi.xls) does not accurately attribute emissions from facilities to the appropriate state: Upon review of the EIA Plant Heat Input Data it was discovered that several facilities owned or operated by FPL Group were incorrectly attributed to other states or contained inaccurate data. An attached spreadsheet (CAIR NODA FPL_Group_apr14shi.xls) provides corrected data for those facilities operated by FPL Group. Of specific concern was heat input data from the Wyman F. Wyman plant (Maine) attributed to the state of Florida and also to the state of Maine. The heat inputs from the North Jersey Energy Associates facility were incorrectly attributed to the state of Massachusetts. The Port of Stockton District Energy Facility in California has operated continuously throughout the historical years provided in the spreadsheet but only contained data for the first two years of the four year baseline. It is recommended that EPA review each generating facility to ensure that their heat input values are attributed to the appropriate state and that all facilities are accounted for.

Response:
The Port of Stockton District Energy Facility is a non-Acid Rain plant. Non-Acid Rain plant data were not used to calculate $_{SO2}$ budgets. The plant data were also not used to calculate CAIR $_{NOx}$ budgets since California is not included in the CAIR program. The EIA Plant Heat Input data has been updated to reflect the commenter's data.

The William F. Wyman plant annual heat inputs, which were reported for the Acid Rain program, were properly attributed to Maine and not Florida in the State Budgets. The plant heat input estimated from EIA data, in the file where the duplication error occurred, were only used if there

were no Acid Rain heat input data for the plant. The EIA Plant Heat Input worksheet has been corrected to delete the duplicate row that also located the plant in Florida.

The North Jersey Energy Associates location has also been corrected, and heat input budgets have been revised accordingly.

A number of similar duplication errors (duplicate plant row locating the plant in a different State in addition to a row with the correct location) were discovered for other plants, and the duplicate row has been deleted as shown in the table below. The EIA Plant Heat Input worksheet has been corrected, and heat input budgets have been revised. Revised plant level EIA heat input is available in the spreadsheet "Rev EIA Plant HI.xls," available in the docket.

Additional Duplicate Rows Deleted from EIA Plant Heat Input Worksheet

Incorrect State	Plant	ORIS Code	Impact
MI	Fitchburg	1601	None - No heat input during period.
MI	Georgetown Substation	7759	None - Used correct Acid Rain data.
NE	John S. Rainey Generating Station	7834	None - Used correct Acid Rain data.
NJ	Hunterstown	3110	Reduces NJ 1999 heat input
NJ	Mountain	3111	Reduces NJ 1999 - 2002 heat input.
NJ	Portland	3113	None - Used correct Acid Rain data.
NJ	Titus	3115	None - Used correct Acid Rain data.
NJ	Conemaugh	3118	None - Used correct Acid Rain data.
NJ	Seward	3130	None - Used correct Acid Rain data.
NJ	Shawville	3131	None - Used correct Acid Rain data.
NJ	Warren	3132	None - Used correct Acid Rain data.
NJ	Wayne	3134	Reduces NJ 1999 - 2002 heat input.
NJ	Keystone	3136	None - Used correct Acid Rain data.

X.B.72 Comment:
The State NOx budgets identified at 69 FR 32689 are not reflective of the average heat inputs included in the Excel Spreadsheet: Heat Input Data Used in the Calculation of State budgets, April 14, 2004 (Docket # OAR-2003-0053-1409). It appears that EPA failed to factor in heat inputs from non-acid rain units, that will be subject to the NOx cap-and-trade program, into the final budget values. It is our understanding that EPA is aware of this calculation error and will be issuing a correction to the State NOx budgets in the near future. Since the issuance of that correction will be after the close of the public comment period for the Supplemental Rule, and

since the budgets are a critical element of the overall NOx program, the Department requests that EPA accept comments on the revised budgets once they are published.

Response:
EPA issued a NODA with the corrections to the NOx state budgets, published in the FR on August 6, 2004, which was available for public comment.

X.B.73 Comment:
The NODA references new information placed in the docket concerning corrections to State NOx budgets. Specifically, the EPA is proposing to supplement the Acid Rain Program data to reflect heat input from non-Acid Rain units.
We have noticed in the document entitled 'EIA Plant Heat Input - Plants with a Generator Greater than 25 MW with Fossil Fuel Energy Source' that EPA has included heat input data from paper mills as part of this new information. First of all, we noticed that not all of the paper mills found in South Carolina are included on this list. Secondly, among those on the list, some are denoted as exempt. We are requesting clarification as to the basis for inclusion on this list, and, if included, the basis for exemption.

Response:
The plants included in the worksheet were plants which were listed in Energy Information Agency (EIA) electricity databases during the 1999 - 2002 period, and which have at least one generator with a nameplate capacity greater than 25 MW with fossil fuel as the primary energy source. Utility and non-utility (including industrial) generators were included.

The exemption flag, a "Y" in the column "F" field - "Exempt FERC Cogen (H and I $\leq$0.33) of the "Rev EIA Plant HI.xls" worksheet (available in the docket) is based on whether the plant is a FERC qualifying cogeneration plant, and the amount of electricity delivered to utilities in 1999 or 2000.

CAIR contains an exemption for FERC-qualifying cogenerators that do not sell more than 33 percent of the potential generating capacity to the grid. FERC-qualifying cogenerator plants were identified based on information in the 1999 and 2000 EIA-860B and 2002 EIA-860 databases. Potential exempt facilities were identified by calculating the ratio of annual sales to potential capacity [plant nameplate capacity times 8,760] for FERC-qualifying cogenerators in the 1999 and 2000 EIA-860B databases. Sales data were no longer available with consolidation to a single EIA-860 database after 2000. A plant was flagged as potentially exempt in the "Rev EIA Plant HI.xls" worksheet if the ratio did not exceed 0.33 in 1999 and 2000, and the plant was not subject to the Acid Rain Program.

EPA has revisited the list of non-Acid Rain plants and has flagged and also excluded from heat input budget calculations any industrial plant which while operating, did not deliver electricity to a utility in 1999 or 2000 (years for which the data are available from EIA). The CAIR budgets

only apply to plants which generate electricity for sale, and the industrial plants without sales should not have been included.

There are three South Carolina paper mills (NAICS code beginning with 32) which had generators with nameplates greater than 25 MW in the EIA database. Two were included in the "Rev EIA Plant HI.xks" worksheet, and one was excluded, the Georgetown Mill, because it did not have a fossil fuel as the primary energy source for the generators. Only the Stone Container plant (ORIS) heat input is included in the State heat input budget. The International Paper plant (ORIS)is a FERC qualifying cogeneration plant which did not sell more than one third of its potential generating capacity to the grid in 1999 and 2000, and the Georgetown Mill (ORIS 54087) did not deliver any electricity to a utility in 1999 or 2000.

X.B.74 Comment:
Commenter notes that it is generally unclear as to how EPA calculated the NOx budgets. In particular, it appears that the inclusion of non-Acid Rain units has resulted in a very minimal increase in the overall NOx budget. Some non-Acid Rain units at Acid Rain plants, for example, Chesterfield Unit 7, have been inadvertently omitted in the calculation of budgets. EPA should include data for these units and adjust CAIR region and Virginia $_{NOx}$ accordingly. In addition, EPA has incorrectly classified the Gordonsville facility as a cogeneration facility and has not included it in the budget. EPA should include the data for this unit and adjust CAIR region and Virginia NOx accordingly.

Response:
See response to Dominion's comment, below.

X.B.75 Comment:
EPA has revised (increased slightly) the state annual NOx caps proposed in the initial CAIR notice to incorporate the emissions from non Title IV units that are subject to CAIR. Dominion specifically raised this issue in our comments on the initial CAIR proposal, and we appreciate EPA's acknowledgment that it must account for the emissions from these sources in the NOx budgets. However, based on review of EPA technical support documentation, we have several questions and concerns about the process EPA used in addressing this issue: Although it is expected that the inclusion of non-Title IV units would not significantly increase the overall NOx budget (and the individual state budgets), we question the very minimal increase (only 407 tons or 0.025 percent of the total budget across the entire 29-state CAIR region) that resulted from this process. Yet, according to technical information EPA has provided, the inclusion of non-Title IV units added over 1.8 billion mmBtus of additional heat input (average over the 1999- 2002 period) for EGU's across the 29-state region. Accounting for EPA's removal of cogeneration units it assumes will not be subject to the rule reduces the additional heat input to approximately 1.2 billion mmBtu's, which represent an almost 6 percent increase from the aggregate heat inputs of all acid rain units. In Virginia, the addition of non-Title IV units, which as noted below does not include but should include Dominion's 232-MW Chesterfield Power Station Unit 7, coupled with the removal of cogen units that EPA anticipates will not be subject to CAIR results in an

increase in aggregate EGU heat input of over 58 million mmBtu's (14.6 percent increase in the total state aggregate heat input), but only a 4-ton (0.013 percent) increase in the state EGU NOx budget.

We believe, but have no way of confirming with the technical support information EPA has provided, that EPA may have inadvertently omitted some non-Title IV units that co-exist with Title IV units at the same facility or source. For example, it appears that the heat input from Dominions Chesterfield Power Station Unit 7 boiler, which is a non-Title IV unit that shares a common stack with Unit 8 (which is a Title IV unit) was not included in the baseline EGU heat inputs used in the process to set the NOx cap. This may have occurred because of EPA's apparent use of the EIA data at the plant level to determine heat inputs from non-Title IV units. From our analysis of the information and methodology explanation EPA has provided, it appears that EPA did not include any heat input from the Chesterfield Power Station since the facility is identified in the EPA data file3, which was compiled from an EIA database, as a Title IV facility. While the heat input data for the Title IV units at Chesterfield were captured by EPA through its use of the Acid Rain database for Title IV units, that database does not contain data for Chesterfield Unit 7. The annual heat inputs for 1999-2002 for Chesterfield Unit 7, based on fuel consumption, are as follows:

1999: 8,751,684 mmBtu

2000: 6,016,004 mmBtu

2001: 6,095,216 mmBtu

2002: 5,475,243 mmBtu

We request EPA include these data in its budget calculation process and adjust the CAIR region and Virginia state NOx caps accordingly, if as we surmise these heat input data were indeed omitted from the calculations.

It also appears that EPA has not included the heat input from the Gordonsville Energy combined cycle facility in Virginia, and has assumed the facility qualifies as a 'cogen exempt' facility. Dominion assumed ownership of the facility in 2003. The facility is now subject to Title IV and the NOx SIP Call, and would not qualify as a 'cogen exempt' facility under the CAIR rule. We request that EPA include the heat input from the Gordonsville Energy facility and adjust the NOx budget accordingly.

It is difficult to determine exactly how EPA has incorporated the non-Title IV units into its calculation of the NOx budgets and what other modifications may have been made to the data used to determine the initial budgets proposed last January. Given the uncertainties and concerns noted above, we request EPA provide a more detailed description of the methodology used to establish the proposed budgets. In our comments on the initial CAIR proposal, we urged EPA to

incorporate growth in the establishment of the NOx budgets and that EPA evaluate a number of forecast options to present for public comment in a supplemental notice. We note that this supplemental notice is silent on this issue, and we reiterate our request that EPA consider growth in establishing the CAIR NOx budgets.

Response:
See response to Dominion's comment, below.

X.B.76 Comment:
These comments address issues raised by EPA's revision of the State NOx budgets under CAIR. In our comments submitted last January in response to EPA's initial proposal of the CAIR (IAQR), Dominion noted EPA's omission of NOx emissions from non-Acid Rain units from the baseline statewide NOx emission inventory used to determine the State NOx emission budgets for electric generating units, and urged EPA to account for these emissions in the budget calculations since these units would be subject to the caps imposed under the rule. While we were pleased to see EPA's decision to include these sources and its subsequent revisions to the NOx budgets in the Supplemental Notice of Proposed Rulemaking (SNPR) published in June, we raised several concerns about the process EPA used in attempting to account for the non-Acid Rain units in our comments on the SNPR. Among these were (1) a relatively minimal increase in the overall regional budget (0.025 percent) and very small (4-ton or 0.013 percent) increase in the Virginia budget in spite of a more significant increase in heat inputs in the baseline due to the inclusion of the non-Acid Rain units; (2) that EPA may have inadvertently omitted some non-Title IV units that co-exist with Title IV units at the same facility, including Dominion's Chesterfield Unit 7 (in Virginia); (3) the misclassification of Dominion's Gordonsville combined cycle facility (in Virginia) as a 'cogen exempt' facility and its subsequent deletion from the heat input baseline to determine the Virginia budget; and (4) the difficulty to confirm the extent of these issues given the lack of detail in the technical support documentation EPA had provided in both the initial proposal and the SNPR.

In the Notice of Data Availability (NODA), EPA cites additional material it has since added to the docket to explain the methodology applied to incorporate non-Acid Rain units into the NOx budget calculations. In a July 23, 2004 memorandum cited in the NODA, EPA acknowledges an apparent continued failure to have properly included these units in the revised budgets established in the SNPR, and has published a further revision of the State NOx budgets for CAIR. Although this addresses, in part, one of the issues mentioned above, several of the issues raised in our SNPR comments have not been addressed in the NODA.

In the July 23rd memorandum, EPA explicitly states that 'the heat input data used to calculate State NOx budgets in the SNPR included updated Acid Rain Program [data] for 2002, but did not include the EIA heat input data that EPA had proposed to include as a supplement to the Acid Rain Program data' (emphasis added). Assuming, then, that the revised budgets published in the NODA do account for the increased heat inputs from the EIA non-Acid Rain units across the CAIR region, one would expect a subsequent increase in the regional NOx budget as well. Yet,

while there are differences in many of the State-specific budgets (both increases and unexplained decreases), the regional budget is identical to the budget published in the SNPR. At a minimum, EPA needs to provide detailed information explaining the changes to the state- specific budgets and its determination of the regional NOx budget, as well as a reasoned explanation as to why the regional budget did not increase from the SNPR proposal and still has only increased by 407 tons (0.025 percent) from the original CAIR proposal.
The 8 percent (2,571 tons) increase in the Virginia NOx budget published in the NODA addresses, to a large extent, the question raised in our SNPR comments regarding the minimal (4-ton) increase from the original CAIR budget as revised in the SNPR. However, a re-evaluation of all the information provided to date (which is still largely based on the April 14th spreadsheet information), indicates that EPA has not addressed the omission of specific units that we identified should have been included in the calculation of the Virginia NOx budget.

EPA has not rectified the omission of non-Acid Rain units that co-exist with Acid-Rain units at the same facility. EPA's calculations for Virginia do not include the heat input from Dominion's 232-MW Chesterfield Power Station Unit 7. This is a non-Title IV unit that shares a common stack with Unit 8, which is a Title IV unit. As we stated in our comments on the SNPR, we believe this omission results from EPA's use of EIA data at the plant level to capture heat inputs from non-Acid Rain units. Since the Chesterfield Power Station is identified in the EIA plant level database as a Title IV facility, EPA has not included any heat input from this facility in its aggregation of non-Acid Rain unit heat inputs for Virginia. We suspect the same unintended discrepancy may exist at other facilities in other states where non-Title IV units co-exist with Title IV units at the same facility.

The EPA calculations do not account for Dominion's recently acquired Gordonsville combined cycle facility. EPA continues to incorrectly identify this facility as a 'cogen exempt' facility.

Since the Chesterfield-7 and Gordonsville units meet the applicability requirements of CAIR, they will be subject to the State NOx budget and require NOx allowances should the Commonwealth of Virginia adopt and implement CAIR, or should EPA implement CAIR through a federal implementation plan (FIP). Therefore, the heat input from these units should be included in the State aggregate heat input that is used to determine Virginia's portion of the total, regional NOx budget. Once again, we urge EPA to adjust the Virginia budget to adequately account for Dominion's Chesterfield 7 unit and the Gordonsville combined cycle units.

There continues to be some confusion between the methodology applied in the initial calculation of the NOx budgets in the initial CAIR proposal and that used in subsequent revisions published in the SNPR and the NODA. EPA needs to better clarify the differences in approaches used to generate the various iterations of the proposed budgets.
Finally, we urge EPA to republish the unit- specific annual heat input data for the 4-year period (1999-2002) for all units, including non- Acid Rain units, that were specifically used in the statewide aggregation of heat inputs used in the determination of the regional and state NOx budgets in a more accessible and user-friendly format. The format provided in the April 14th

spreadsheet did not provide aggregate information specific to the CAIR region and included a mix of data from different sources for the same facility. This greatly complicated efforts to duplicate EPA's budget calculation methodology and to review the accuracy of the data specifically used to determine the proposed budgets.

Response:
The commenter interpreted the correction made in the NODA to imply that non-ARP heat input had been incorporated into the calculation of the total regional NOx budget. EPA did not propose calculating region-wide budgets that reflected non-ARP heat input. However, EPA proposed to calculate State budgets – the distribution of the regional budget – using both ARP and non-ARP heat input. The NOx regionwide budget presented in the NODA remains unchanged from that presented in the SNPR. The Regional NOx budgets in the SNPR are slightly higher than those in the NPR because of the use of updated ARP heat input data in calculating the regional budget. The SNPR notes this in its discussion of the NOx budgets. For this reason, the regional budgets in the SNPR and NODA are the same.

The commenter expressed concern that the regional budgets did not include heat input data from non-Acid Rain units. In the NPR, EPA calculated the regionwide budget by taking an approximation of regionwide heat input and multiplying the effective emissions rates of 0.15 lb/mmBtu of NOx in 2009-2014 and 0.125 lb/mmBtu of NOx in 2015 and beyond. Using the highest of recent years' Acid Rain Program heat input provided an approximation of the regionwide heat input, although it did not include heat input from non-Acid Rain sources. Multiplying the approximate recent heat input by 0.125 lb/mmBtu to develop a regionwide annual 2015 NOx cap could reasonably be expected to yield an average effective NOx emission rate (considering all EGUs potentially affected by CAIR for annual reductions, not only the Acid Rain units, and considering growth in heat input) somewhat less than 0.125 lb/mmBtu, on the order of about 0.12 lb/mmBtu or less. Likewise, multiplying the approximate recent heat input by 0.15 lb/mmBtu to develop a regionwide annual 2010 NOx cap could reasonably be expected to yield an average effective NOx emission rate for all CAIR units of about 0.15 lb/mmBtu or less. The EPA believes that the use of the highest annual heat input from Acid Rain Programs provides for a reasonable adjustment to reflect that there are some non-Acid Rain units that operate in these States that will be subject to the proposed budgets.

EPA has added the Chesterfield 7 and Gordonsville heat input provided by the commenter to the budgets. The Gordonsville qualifying facility cogeneration designation has also been changed. The designation was based on 1999, 2000, and 2002 EIA databases.

In addition the annual data have been presented in a different manner in response to the comments that the data were not clear, and that it was difficult to replicate the budget calculations. Plant heat input, both Acid Rain and Non-Acid Rain for the years 1999 to 2002 are provided in the "Plant 1999 to 2002 HI.xls" spreadsheet file, available in the docket. The file identifies at the plant level for each year the plant heat input used in the State heat input totals for each year, the classification of that heat input by Acid Rain or Non-Acid Rain (Plant Program

field), and the source of the heat input data (HI Data Source field). State total heat input summaries can be checked using this spreadsheet by filtering on plant program, State, and year.

EPA does not have the unit specific heat input data that the commenter requested for non-Acid Rain plants, or non-Acid Rain units at Acid Rain plants. Plant-level calculations were performed because the EIA data format prevented unit-level calculations for combustion turbines in all years, and for non-utility boilers prior to 2001.

X.B.77 Comment:
Among the documents that EPA released with the NODA is a memorandum that addresses calculation of statewide NOx emission budgets under CAIR. The memorandum contains revised state NOx budgets for Phase I and Phase II and a brief discussion of EPA's methodology in calculating those budgets. Unfortunately, the memorandum does not adequately explain or clarify EPA's calculation of the regionwide NOx budgets for CAIR. Based on information in the record, it appears that EPA has understated the appropriate size of the regionwide NOx budgets, as discussed below. UARG therefore urges EPA at a minimum to provide an adequate explanation of and rationale for its calculation of the regionwide budgets and to allow for public review and comment of that explanation, together with the supporting data, before taking final action in this rulemaking.

In the January 2004 preamble to EPA's original proposed rule, EPA discussed its NOx budget calculation by stating that it proposed to calculate a regionwide NOx budget for the states subject to CAIR by 'tak[ing] the highest annual heat input for any year from 1999 through 2002 for each applicable state' and summing the total. 69 Fed. Reg. 4618 col. 3 (January 30, 2004). The resulting regionwide NOx budgets in the original proposed rule were 1,600,392 tons for Phase I and 1,333,660 tons for Phase II. Id. At 4620 Table VI-10.

In its June 2004 Supplemental Notice of Proposed Rulemaking ('SNPR'), EPA seemed to explain its regionwide budget methodology differently. In the SNPR, EPA said that in calculating the January 2004 proposed budgets, it 'summed the average heat input from each of the applicable jurisdictions to obtain a regional total average annual heat input.' 69 Fed. Reg. 32688 col. 3 (June 10, 2004). EPA then said that it added heat input data for non-Acid Rain Program units and used updated heat input data for Acid Rain Program units for 2002. Id. At 32688-89. The regionwide budgets in the SNPR were 1,600,799 tons for Phase I and 1,333,999 tons for Phase II, representing an increase of only 407 tons for Phase I and 339 tons for Phase II, respectively, from the January 2004 version of the budgets.

In its July 23 Memorandum, however, EPA said that in the SNPR, the Agency in fact neglected to include non-Acid Rain Program units' heat input data in calculating State budgets. July 23 Memorandum at 1-2. Table 1 in that memorandum lists revised state budgets but retains, without explanation, the identical regionwide budgets that it proposed in the SNPR, i.e., 1,600,799 tons per year in Phase I and 1,333,999 tons per year in Phase II. The memorandum states that, 'as was

discussed in the SNPR, EPA is taking comment on the data and methodology used to calculate state emission budgets.' Id. At 2-3.

In light of this history and EPA's statements, UARG does not understand why the regionwide budgets stated in the July 23 Memorandum are not higher than the regionwide budgets in the SNPR, since EPA now says that the SNPR budgets failed to take account of heat input from non-Acid Rain Program units but that the July 23 Memorandum budgets do take account of those units' heat input. EPA may believe that the regionwide budgets in the SNPR already took account of non- Acid Rain units' heat input in an approximate way, based on its rationale from the original proposal that the methodology it said it was using at that time – i.e., taking the highest annual heat input for Acid Rain Program units for each state for the 4 years (1999-2002) and summing the total for the 28 states and the District of Columbia – provided a 'cushion' that compensated for EPA's failure at that time to explicitly account for the non-Acid Rain units' heat input. See 69 Fed. Reg. 4618 col. 3. Yet EPA did not provide any such rationale in either the SNPR or the July 23 Memorandum. In fact, the discussion in the SNPR and the July 23 Memorandum seems to signal a shift to a new methodology, one in which EPA apparently uses the average regionwide heat input over the four-year period rather than the 'sum of the highest year for each state' approach described in the January 2004 proposal.

In any event, it appears from heat input data that EPA made available in connection with the SNPR (and that the July 23 Memorandum cites) that the regionwide budgets should be higher than those stated in the SNPR and the July 23 Memorandum if the average regionwide heat input over the four-year period is used. EPA discussed its calculational steps in a May 2004 document entitled, 'State Emission Budget Calculation Technical Support Document for the Proposed Clean Air Interstate Rule – Supplemental Notice of Proposed Rulemaking,' OAR-2003-0053-1407, and an attached memorandum, 'Revised State Acid Rain and EIA Heat Input Totals – 48 States and the District of Columbia,' OAR-2003-0053-1408 (April 19, 2004). EPA also provided heat input data for Acid Rain Program units, non-Acid Rain Program units, and potentially exempt cogeneration plants in spreadsheets dated April 14, 2004. OAR-2003 0053-1409. Based on these documents,4 and following EPA's calculational steps as described by the Agency, it appears that average annual regionwide heat input in 1999-2002 was approximately 21,737,000,000 mmBtu, which would translate into 1,630,275 tons for the Phase I budget (at the proposed Phase I emission rate of 0.15 lb/mmBtu) and 1,358,563 tons for the Phase II budget (at the proposed Phase II emission rate of 0.125 lb/mmBtu). These regionwide budget totals are 29,476 tons more in Phase I and 24,564 tons more in Phase II than the respective regionwide budget totals in the SNPR and the July 23 Memorandum.

Particularly in light of the discrepancy between EPA's proposed regionwide budgets in the SNPR and the July 23 Memorandum and the higher regionwide budget levels derived from EPA's heat input figures as discussed above, UARG believes EPA has not provided an adequate or reasoned explanation of its determination of the regionwide budgets for NOx. EPA should provide an adequate, reasoned explanation of its determination for public review and comment before proceeding to final action in this rulemaking.

Response:
The commenter interpreted the correction made in the NODA to imply that non-ARP heat input had been incorporated into the calculation of the total regional NOx budget. EPA did not propose calculating region-wide budgets that reflected non-ARP heat input. However, EPA proposed to calculate State budgets – the distribution of the regional budget – using both ARP and non-ARP heat input. The NOx regionwide budget presented in the NODA remains unchanged from that presented in the SNPR. The Regional NOx budgets in the SNPR are slightly higher than those in the NPR because of the use of updated ARP heat input data in calculating the regional budget. The SNPR notes this in its discussion of the NOx budgets. For this reason, the regional NOx budgets presented in the SNPR and NODA are the same.

The commenter expressed concern that the regional budgets did not include heat input data from non-Acid Rain units. In the NPR, EPA calculated the regionwide budget by taking an approximation of regionwide heat input and multiplying the effective emissions rates of 0.15 lb/mmBtu of NOx in 2009-2014 and 0.125 lb/mmBtu of NOx in 2015 and beyond. Using the highest of recent years' Acid Rain Program heat input provided an approximation of the regionwide heat input, although it did not include heat input from non-Acid Rain sources. Multiplying the approximate recent heat input by 0.125 lb/mmBtu to develop a regionwide annual 2015 NOx cap could reasonably be expected to yield an average effective NOx emission rate (considering all EGUs potentially affected by CAIR for annual reductions, not only the Acid Rain units, and considering growth in heat input) somewhat less than 0.125 lb/mmBtu, on the order of about 0.12 lb/mmBtu or less. Likewise, multiplying the approximate recent heat input by 0.15 lb/mmBtu to develop a regionwide annual 2010 NOx cap could reasonably be expected to yield an average effective NOx emission rate for all CAIR units of about 0.15 lb/mmBtu or less. The EPA believes that the use of the highest annual heat input from Acid Rain Programs provides for a reasonable adjustment to reflect that there are some non-Acid Rain units that operate in these States that will be subject to the proposed budgets. Additional explanation of the regionwide budgets is provided in Section IV of the preamble.

EPA has revised the State heat input data based on corrections received from a number of commenters, and the annual data has been has been presented in a different manner in response to the comments that the data were not clear, and that it was difficult to replicate the budget calculations.

X.B.78 Comment:
Commenter notes that the dataset either does not include data or includes incomplete data for units at its Croydon, Richmond, and Fairless facilities, and provides annual heat input for units at the plants. The heat input data were reported to CAMD in quarterly reports, except for Croydon and Richmond 2002 data which are based on fuel use.

Response:
See response to Exelon Corporation's comment, below.

X.B.79 Comment:
Commenter submitted comments (dated 7/21/04) to EPA regarding the Agency's supplemental notice of proposed rulemeking (SNPR) for the CAIR rule. Our comments regarding the SNPR included a request that EPA update its 1999-2002 unit-level heat input database for Pennsylvania to reflect heat input data for thirteen (13) Exelon generating units that were either not included in EPA's unit-level heat input inventory, or for which incomplete data was presented.

In response to EPA's NODA, we have again reviewed the unit-level data used by EPA to set the state NOx budgets ('Excel spreadsheet: Heat Input Data Used in the Calculation of State Budgets, April 4, 2004; Support for CAIR SNR section II, Docket # OAR-2003-0053-1409') located at http://www.epa.gov/air/interstateairquality/technical.html and determined that EPA's inventory still needs to be updated to reflect the thirteen units for which Exelon previously submitted data in response to the SNPR.

We respectfully request that EPA update the Pennsylvania NOx budget to include the heat input data for the thirteen Exelon units presented in the below table. Updating the state NOx budget to reflect this data is very important to Exelon as unit contributions to the state NOx budget may very well be the basis for future unit-level allocations. Heat input data was obtained from quarterly emission data reports submitted to EPA in accordance with 40 CFR 75, except for 2002 data for Croydon and Richmond which was obtained from total annual fuel throughputs. For reference, the Croydon and Richmond units are combustion turbines and the Fairless units are steam boilers.

Response:
The units at the Croydon, Richmond and Fairless Plants are non-Acid Rain units. In developing the region and State budgets, EPA used EIA data to calculate plant annual heat input for non-Acid Rain units. EPA did not use data reported to EPA for NOx Budget Program purposes only because not all sources report on an annual basis, and because this data does not cover all states in the CAIR region. However, where commenters submitted annual heat input data for units that submit heat input data to EPA under part 75 that were not included in EPA's heat input totals, this data was included. In this case, heat inputs for the three plants were changed based on commenter's comments The State budgets were revised based on the commenter's changes and changes from other comments.

X.B.80 Comment:
In response to the NPR, the commenter expressed concern that the Agency's methodology for establishing regionwide and state budgets, which relies exclusively on Title IV data, will disadvantage non-acid rain EGUs as well as the states (like Pennsylvania) in which a disproportionate number of these non-acid rain facilities are located. In light of these concerns, the commenter requested that the Agency develop revised regionwide and state NOx budgets that clearly would account for non-Title IV affected facilities.

In response to the SNPR, the commenter generally supported EPA's consideration of non-Acid Rain unit heat input in developing NOx budgets, but asked for the opportunity to review and comment specifically on the unit level heat input values EPA has used in calculating the state budgets.

Response:
EPA proposed to include heat input from non-Acid Rain units in the calculation of State NOx budgets (the distribution of the regionwide NOx budgets to States). Non-Acid Rain heat input was calculated using EIA data on a plant wide basis, not a unit basis, as described in the memorandum "Revised State Acid Rain and EIA Heat Input Totals - 48 States and the District of Columbia" (Docket # OAR-0053-1408). Plant level heat inputs were provided in the docket spreadsheet (Docket # OAR-0053-1409).

For the NFR, EPA has revised the State heat input budget based on corrections received from a number of commenters, and the annual data has been has been presented in a different manner in response to the comments that the data were not clear, and that it was difficult to replicate the budget calculations.

Plant heat input, both Acid Rain and Non-Acid Rain for the years 1999 to 2002 are provided in the "Plant 1999 to 2002 HI.xls" spreadsheet file, available in the docket. The file identifies at the plant level for each year the plant heat input used in the State heat input totals for each year, the classification of that heat input by Acid Rain or Non-Acid Rain (Plant Program field), and the source of the heat input data (HI Data Source field). State total heat input summaries can be checked using this spreadsheet by filtering on plant program, State, and year.

X.B.81 Comment:
Commenter provides a list containing Acid Rain units for which heat input is missing and plants for which errors have been made in their location. Commenter notes that FERC Cogen Sales Ratio has not been calculated for certain facilities.

Response:
A review of the list of Acid Rain units with missing unit heat input data provided by the commenter showed that the missing years of heat input data corresponded to periods prior to the units' participation in the Acid Rain Program. In developing the region and State budgets, EPA used EIA data to calculate plant annual heat input for non-Acid Rain units, including units which are now Acid Rain but not Acid Rain during the applicable year. EPA did not use data reported to EPA for NOx Budget Program purposes only because not all sources report on an annual basis, and also to provide a consistent database for non-Acid Rain units across the region. Using the EIA data also resulted in the "missing" heat input data years for three non-Acid Rain plants.

Three plants in other States were incorrectly located in Massachusetts, one should have been included in the New Jersey totals, and the other two are located in Maine which is not included in the regional budget. The impact of the error is to increase the Massachusetts heat input totals in

each year by 6 percent, primarily due to the New Jersey error. The New Jersey plant was identified as an exempt cogeneration plant, and not included in the budget heat input, and the impact from the inclusion of the Maine plants alone (which occurred only in 1999) is insignificant.

A review of the 1999 and 2000 Non-Acid Rain totals showed that the summations with the existing data were correct. It appears that the commenter compared the total 1999 and 2000 EIA heat input in the EIA Plant HI worksheet for plants without an Acid Rain ORIS code to the values in the EIA NonAcid Rain HI worksheet. The values in the EIA NonAcid Rain HI worksheet for particular years, however, contain heat input from plants that are currently subject to the Acid Rain program, but were not in the particular year. For example the 1999 State NonAcid Rain total HI of 94,626,442 includes heat input from five plants which are now Acid Rain plants, but were not in 1999:

- Rumsford Power Associates - 55100
- Lowell Power, LLC - 54586
- Androscoggin Cogeneration Center - 55100
- Millenium Power Partners - 55079
- Indeck Pepperell - 10522

FERC Cogen Sales Ratios were not calculated for 1999, and should have been for the Lowell Power, LLC plant (54586) because of an error in a query of the EIA database. In 1999 the ratio for the plant should be 0.57 which would flag the plant as potentially exempt and remove it from the budget calculation. Indeck Pepperell (10522) was not included in the FERC Cogen Sales Ratio calculation because the generator type in the EIA databases did not indicate a FERC qualifying cogen. The Lowell Cogen plant (10802) was not included in the calculation because the EIA nameplate of the largest generator was 25 MW, and only non-Acid Rain plants with generators greater than 25 MWs were included in the FERC calculation Calculating the ratios for the Lowell Cogen plant with 1999 and 2000 data result in rations of 0 and 0.006, which would not flag the plant as exempt.

X.B.82 Comment:
DEP has been unable to replicate the NOx allocation shown on 69 FR 32689 using the state heat input found in the 'aprl4shi.xls' file and questions the accuracy of the NOx allocation. On July 20,2004 EPA staff confirmed that the NOx budgets included in the SNPR were calculated incorrectly. This raises further concerns about the overall accuracy of EPA's analysis and adds to our discomfort with the inadequate time given to the states to review the proposal. We believe that EPA should re-issue this SNPR for comment with corrected NOx budget numbers.

Response:
EPA issued a NODA with the corrections to the NOx state budgets, published in the FR on August 6, 2004. - which was available for public comment.

X.B.83 Comment:
The commenter notes that several Pennsylvania facilities that are currently monitoring in accordance with CFR Part 75 are listed as having zero heat input. The commenter notes that EPA used data from the Energy Information Administration to substitute for the missing data, and questions why EPA ignored certified heat input data that EPA has in its possession.

Response:
EPA used heat input data submitted by units in the Acid Rain Program as the primary source of heat input data for budget calculations. This data was supplemented with heat input data from EIA for non-Acid Rain plants. Because of the fact that EIA heat input data is reported at the plant level, as well as differences in the calculation methodologies between ARP and EIA heat input data, it was not possible to use EIA data to provide heat input information for non-Acid Rain units at plants that participate in the Acid Rain Program.

Among these omitted heat inputs was data submitted in accordance with CFR Part 75 from units that are part of the NOx budget trading program but not the Acid Rain Program. EPA did not include this data in its calculations for two reasons. First, this data is not available for all States in the CAIR region. Second, not all facilities report on an annual basis. However, annual data for these units was included when it was submitted by commenters. While the commenter does not specify specific facilities that are missing from heat input totals, or provide data, additional heat input data was added for units in Pennsylvania in response to comments from Exelon.

X.B.84 Comment:
In addition to UARG's comments on the NOx Emissions Budgets, TXU recommends that EPA consider setting the regional budget by utilizing each state's highest heat input year for the period from 1999-2002 based on the heat input from the non-Acid Rain units, as well as, the heat input from the Acid Rain units. TXU calculates that this would result in a baseline of 22,768,780,348 mmBtu, a Phase I budget of 1,707,659 tons, and a Phase II budget of 1,423,049 tons.

Response:
In the NPR, EPA calculated the regionwide budget by taking an approximation of regionwide heat input and multiplying the effective emissions rates discussed above. Using the highest of recent years' Acid Rain Program heat input provided an approximation of the regionwide heat input, although it did not include heat input from non-Acid Rain sources.

Multiplying the approximate recent heat input by 0.125 lb/mmBtu to develop a regionwide annual 2015 NOx cap could reasonably be expected to yield an average effective NOx emission rate (considering all EGUs potentially affected by CAIR for annual reductions, not only the Acid Rain units, and considering growth in heat input) somewhat less than 0.125 lb/mmBtu, on the order of about 0.12 lb/mmBtu or less. Likewise, multiplying the approximate recent heat input by 0.15 lb/mmBtu to develop a regionwide annual 2010 NOx cap could reasonably be expected to yield an average effective NOx emission rate for all CAIR units of about 0.15 lb/mmBtu or less. The EPA believes that the use of the highest annual Acid Rain unit heat input provides for a

reasonable adjustment to reflect that there are some non-Acid Rain units that operate in these States that will be subject to the proposed budgets. For this reason, EPA believes it is not necessary to include non-Acid Rain Program heat input in the setting of the regionwide NOx budgets.

X.B.85 Comment:
Also, TXU requests that EPA conduct a more in- depth evaluation of what non-Acid Rain units meet the qualifications of an electric generating unit as defined in the proposed rule. The memorandum from David Sellers of Perrin Quarles Associates, Inc (Docket # OAR-2003-1408) raises questions, in our minds, regarding the use of the Energy Information Administration data.

Response:
In response to a handful of comments on the EGU classification of certain non-Acid Rain units, EPA revisited its list of cogen units that were listed as EGUs for the purposes of estimating heat input. 8 plants in Texas that had been classified as affected cogeneration for heat input calculations in the SNPR, but did not actually sell electricity to the grid in the heat input data years, were reclassified as exempt for the final rule. These plants are identified in the heat input data in the docket, in the spreadsheet "Rev EIA Plant HI.xls."

X.B.86 Comment:
We support EPA's proposed approach to allow compliance with the annual emission caps imposed by the IAQR to be deemed sufficient to comply with the ozone-season NOx emission caps of the NOx SIP Call.

In determining the state-specific NOx budgets, the proposed rule does not include the emissions from non-Title IV sources in the NOx baseline. EPA attempts to justify this omission by its use of the highest heat inputs over a multi-year period for Title IV sources to determine the state NOx baselines. Yet, EPA considered non-Title IV sources in the development of the NOx SIP Call budgets even though the state NOx baselines were determined using the highest heat inputs over a 2-year period, and then applied growth factors in an attempt to account for additional generation growth. EPA has not accounted for growth in the development of the IAQR budgets, as noted above, and has not accounted for the non-Title IV sources. To the extent that EPA has determined that emission reductions from these sources are 'highly cost-effective', the emissions from these sources should be included in the baseline used to set the state budgets. If necessary, EPA should issue a data information request to obtain this information and adjust the budgets accordingly in the SNPR.

Response:
EPA recognizes that it employed a growth factor in the NOx SIP Call. There, EPA determined the amount of the regional emissions reductions and budgets by applying a growth factor to a historic heat input baseline. The D.C. Circuit, after first remanding that growth methodology for a better explanation, upheld it. West Virginia v. EPA, 362 F.3d 861 (D.C. Cir. 2004). See 67 FR 21,868 (May 1, 2002).

For CAIR, as described above, EPA developed a target level for the proposed NOx regionwide cap based on recent historic heat input and assumed emission rates of 0.125 lb/mmBtu and 0.15 lb/mmBtu for 2015 and 2010, respectively. The EPA evaluated these target NOx emissions levels using IPM, which indicated that those target caps – in conjunction with expected electricity demand for 2015 and 2010 – would result from higher heat input levels and lower average emissions rates (about 0.11 lb/mmBtu and 0.14 lb/mmBtu for 2015 and 2010, respectively) than the amounts assumed in developing the target NOx caps. Most importantly, IPM indicated the cost levels associated with those projected 2015 and 2010 average NOx emission rates, and EPA has determined that those cost levels are highly cost-effective.

For the final rule, EPA revised its analyses to reflect the 2009 $_{\text{initial NOx}}$ control phase, and determined that the final CAIR requirements are highly cost-effective. EPA's methodology, in which the CAIR emissions reductions are predicted to be cost-effective under conditions of projected electricity growth that, in turn, projects heat input growth, in effect accounts for heat input growth.

X.B.87 Comment:
EPA indicates at 69 FR 32689 that it has updated Acid Rain Program data for 2002 subsequent to its analysis for the January 2004 NPR. EPA indicates that the updated data were included in the calculation of the new budgets proposed in the SNPR. The states have not been provided enough time to fully analyze the updates and the data differences, as well as subsequent policy implications. EPA should provide a detailed explanation as to what has changed, as well as additional time to analyze the changes. EPA's new heat inputs in the Technical Support Document reflect that, for non-Acid Rain sources, EPA has filled in some heat-input rates as zeroes, and others as blanks without any apparent explanation as to why it has done so. The states need an explanation of these heat inputs in order to understand how EPA has used the data to support its policy determination. The states are not able to provide meaningful comment without the supporting rationale and adequate time to review the underlying data.

Response:
The updated Acid Rain Program for 2002 represents a more recent download which had completed data for Acid Rain Units. With the SNPR, EPA made all relevant data, including supplemental EIA data used for non-Acid Rain sources available in the docket for review. (See Docket # OAR-2003-0053-1409), and on the Agency website. Use of the EIA data was discussed in a docket memorandum (OAR-2003-0053-1409). For the final rule, data was revised in response to comments. Updated State, plant and Acid Rain unit heat input data used for the final rule is available in the docket.

X.B.88 Comment:
We also want access to, and time to review and reconcile EPA's data on which it revised the NOx and SO2 budgets, as well as the technical analysis for EPA's proposed highly cost-effective threshold discussed above. A number of our member states have attempted to replicate this data and have been unsuccessful. If calculation errors exist, we request that a correction to the state

NOx budgets be issued and that EPA republish the revised budgets, provide an analysis of the implications, and reopen the docket to accept comments on the revisions.

Response:
EPA issued a NODA with the corrections to the NOx State budgets, published in the FR on August 6, 2004, which was available for public comment.

X.B.89 Comment:
The TCEQ supports the supplementing of Acid Rain data with annual heat input data from the US. Energy Information Administration for non-Acid Rain units.

Response:
In the final rule, EPA has apportioned regional budgets to States using Acid Rain Program heat input data supplemented with U.S. EIA heat input data for non-Acid Rain plants.

X.B.90 Comment:
IDEM agrees that USEPA should be consistent across the various programs (Acid Rain, NOx SIP and CAIR) in terms of the definitions of EGUs and cogeneration units. Under the NOx SIP Call, it was determined that Indiana only had one cogeneration source that was classified as an EGU. IDEM has some concern with the supporting information that USEPA has collected. In a spreadsheet titled, 'EIA Plant Heat Input - Plants with a Generator Greater than 25 MW with Fossil Fuel Energy Source', USEPA identifies several steel mills, a refinery and a university in Indiana as being 2002 860 FERC COGEN. Only one of the identified sources is identified as being an exempt cogenerator. However, in looking at the background information from the FERC, it appears that none of the sources identified sold any electricity to the grid. IDEM would appreciate any clarification the USEPA can provide on the classification of these sources.

Response:
EPA has revisited the list of non-Acid Rain plants and has flagged and also excluded from heat input budget calculations any industrial plant that while operating, did not deliver electricity to a utility in 1999 or 2000 (years for which the data are available from EIA). CAIR budgets only apply to plants that generate electricity for sale, and the industrial plants without sales should not have been included. This reevaluation exempts 7 industrial plants in the State of Indiana, and these plants are identified in the heat input data in the docket.

X.B.91 Comment:
CenSARA states have had difficulty recreating the emission budgets proposed in the CAIR. It is requested that EPA provide an example calculation.

Response:
The calculation of State NOx and SO2 budgets in the final rule is discussed in detail in the document "Regional and State $_{SO2}$ and NOx Emissions Budgets."

X.C. Approaches for establishing non-EGU emissions reductions requirements

X.C.1 Comment:
Part 75 or appropriate alternative monitoring, reporting and record keeping requirements should apply to non-EGU sources participating in the CAIR program: To the greatest extent possible, Part 75 monitoring, reporting and record keeping requirements should be applied to source types participating in the CAIR program. Given that many Part 75 requirements (i.e., CEMS) are not feasible for all source types, the CAIR should provide that those sources be required to use appropriate alternate monitoring, reporting and record keeping measures.

Response:
EPA agrees that States must require Part 75 monitoring and reporting of all EGUs subject to CAIR emission reduction requirements and for reductions from non-EGUs require Part 75 as well in nearly all cases. This is further discussed in section VII of today's preamble.

X.C.2 Comment:
This proposal offers two alternative methodologies for calculating the 2010 and 2015 emissions reductions from non-EGUs which can be counted toward satisfying the CAIR (32693), yet EPA offers little explanation or analysis demonstrating the practical implications of these different methodologies. Further, this presents a new provision not offered in the proposed rule. Because EPA has not provided sufficient analysis and there is no time available for separate analysis and examination, the commenter feels it is inappropriate to propose an alternate methodology for calculating emission reductions at this time. If EPA believes this is a significant provision, it should be proposed as a separate rulemaking with adequate analysis.

Response:
EPA has considered this comment and addresses this subject in section VII of today's preamble.

X.C.3 Comment:
The proposed restrictions on non-EGU emission reduction credit discussed above are not the only way in which EPA proposes to discriminate against giving credit for non-EGU reductions. For non-EGUs, the supplemental proposal describes several 'more stringent requirements both for developing baseline emission rates and for projecting future emission levels.' EPA has not justified these requirements, which are intended to force states that are subject to CAIR, and that consider achieving some of their CAIR reduction obligations from non-EGU source categories, to develop and use extremely (and probably unrealistically) conservative emission baselines and emission reduction estimates for those source categories. At a minimum, EPA should not impose on states the second of two alternative emission reduction calculations described at 69 Fed. Reg. 32694 col. 3-32695 col. 1. That approach would use the lower of (1) historical baseline or (2) estimated 2010 (or 2015, as the case may be) baseline emissions. It would be arbitrary for EPA to require use of a historical baseline where that baseline is lower than a reasonable and technically supported future-year baseline.

Response:
EPA has considered this comment and addresses this subject in section VII of today's preamble.

X.C.4 Comment:
EPA says that it will require states that rely on reductions from controls on non-EGUs to commit in their Transport Rule SIPs to replace the emission reductions attributable to any Transport Rule SIP measure if that measure is subsequently determined to be required in meeting any other SIP requirement related to adoption of control measures (e.g., RACM or RACT). EPA's intent is to ensure that states don't substitute controls for non-EGUs for controls on EGUs in order to meet the Transport Rule caps. EPA's preferred approach is that states only control EGUs to meet the caps in the rule. A better way to ensure that there are reductions from non-EGUs, such as large industrial boilers and stationary internal combustion engines, and ensure that EGUs are controlled as well is to expand the Transport Rule to include these sources and change the caps accordingly.

Response:
EPA has considered these comments. Eligibility of non-EGU reductions for SIP approvability is discussed in section VII of today's preamble. Control options are discussed in section IV of the preamble.

X.C.5 Comment:
The commenter supports the flexibility to control sources other than Electric Generating Units (EGUs) that can make cost-effective reductions. States should have the flexibility to determine whether to cap those sources.

Response:
EPA agrees that States should have the flexibility to choose which sources to control and has suggested a mechanism that will result in highly cost-effective controls. The need for caps is discussed in Section VII of the preamble. EPA believes caps are an important part of achieving certainty in achieving emission reductions, particularly in a regional program where States are relying on one another to make reductions to improve air quality.

X.C.6 Comment:
The commenter recommends new language to allow non-EGU's to elect to be included in the IAQR SIP packages.

Response:
EPA has included an opt-ins provision in the model rule and it is discussed in Section VIII of the preamble.

X.C.7 Comment:
Budgets for states choosing to control non-EGU source categories.: The preamble to the proposed rule, at 69 Fed Reg 4588-91, describes the methodology used to prepare the emissions inventories for all sectors used by EPA in its analysis of the proposed rule. Conspicuous in its absence is

consideration of budgets for states choosing to control non-EGU emissions sources. The commenter believes that this analysis should be conducted.

Response:
EPA has set NOx budgets or caps collectively for States based on estimates of highly cost effective reductions from EGUs. The Agency then allocated budgets to States based on heat input. EPA has provided a mechanisim for a state to adjust its NOx budget if it chooses to regulate non-EGUs in order to comply with CAIR. See further discussion in Section VII of the preamble.

X.C.8 Comment:
EPA requests comments on whether States that elect to control non-EGUs to meet their $_{NOx\ or\ SO2}$ budgets should be required to establish emission caps for those non-EGU sources. The commenter believes that the only way to ensure that the overall budget is being met is to establish caps on the sources that will be controlled to meet the budget, even if those sources are non-EGUs.

Response:
EPA has considered this comment and has included a provision in today's rulemaking generally requiring caps on non-EGUs that are controlled to meet a State's budget. This is discussed in Section VII of the preamble.

X.C.9 Comment:
The commenter does not support the requirement that states cap the emissions from non-EGUs even if no controls are required under this proposal. The EPA has requested comments (69 Fed. Reg. 4627) on whether to require States that choose to control sources other than EGUs to cap those sources. The commenter opposes the requirement that States cap the emissions from non-EGUs if emission reductions are required for those sources under this proposal. This could have a negative impact or disincentive on existing cogeneration and new cogeneration units if cogeneration units are included in the controlled source category and a negative impact on non-EGUs as a source category. Cogeneration units have been shown to be more efficient in the use of fuels than EGUs. Cogeneration units, in general, are of more recent construction and this result in more expensive reductions than comparable reductions from other sources. This is especially true if there are no links to the NOx SIP Call and in states where non-EGUs are already achieving reductions during the ozone season under state programs. As previously discussed, the cost of controls for non-EGUs is higher and more difficult to achieve than for EGUs. By placing a cap on emissions from non- EGUs, units will be forced to either purchase allowances (which may not be an option for non- EGUs under the proposed rule) or put on controls creating a negative economic environment. EPA has noted this in the preamble to IAQR stating, 'the cost of compliance for non-EGUs will increase.' 69 Fed. Reg. 4610. This will create a no win situation for non-EGUs increasing cost of compliance with no viable trading or control alternatives. Capping the emissions should not be done by source category but by a single cap for all sources that will be controlled, the commenter suggests no State caps for emissions from non-EGUs, and urges the

EPA to adopt a trading mechanism, except for trading regions that have more stringent emission requirements, where both EGUs and non-EGUs currently subject to the SIP Call would remain subject to it, while EGUs subject to the IAQR would be issued non-ozone season allowances. These allowances could be used at any time for compliance under both programs, while non-ozone season allowances could only be used outside the ozone season.

Response:
The need for caps on non-EGUS is discussed in Section VII of the preamble; today's action requires source category caps on emissions from non-EGUs that a State requires as part of its CAIR reduction obligation in most cases. The portion of the comment relating to non-EGUs in the NOx SIP Call is addressed in Section IX of the preamble.

X.C.10 Comment:
The commenter opposes the requirement that states cap the emissions from non-EGUs even if no controls are required under this proposal. The EPA has requested comments (69 Fed. Reg. 4627) on whether to require States that choose to control sources other than EGUs to cap those sources. The commenter opposes the requirement that States cap the emissions from non-EGUs if emission reductions are required for those sources under this proposal. This could have a negative impact or disincentive on existing co-generation and new co-generation units if co-generation units are included in the controlled source category and a negative impact on non-EGUs as a source category. Co-generation units have been shown to be more efficient in the use of fuels than EGUs. Co-generation units, in general, are of more recent construction and this results in more expensive reductions than comparable reductions from other sources. This is especially true if there are no links to the NOx SIP Call and in states, like Texas, where non-EGUs are already achieving reductions during the ozone season under state programs. As previously discussed, the cost of controls for non-EGUs is higher and more difficult to achieve than for EGUs. By placing a cap on emissions from non-EGUs, units will be forced to either purchase allowances (which may not be an option for non-EGUs under the proposed rule) or put on controls creating a negative economic environment. EPA has noted this in the preamble to IAQR stating 'the cost of compliance for non-EGUs will increase.' 69 Fed. Reg. 4610. This will create a no win situation for non-EGUs increasing cost of compliance with no viable trading or control alternatives. Capping the emissions should not be done by source category but a single cap for all sources that are to be controlled. The commenter suggests no State caps for emissions from non-EGUs, and urges the EPA to adopt a trading mechanism as recommended by ACC, except for trading regions that have more stringent emission requirements, where both EGUs and non-EGUs currently subject to the SIP call would remain subject to it, while EGUs subject to the IAQR would be issued non-ozone season allowances. These allowances could be used at any time for compliance under both programs, while non-ozone season allowances could only be used outside the ozone season.

Response: See response to Industrial Energy Consumers of America (IECA) (OAR-2003-0053-1427) comment above.

X.D. General

X.D.1 Comment:
As with EPA's methodology for determining which areas contribute significantly to downwind nonattainment, the Agency employs an overly broad approach to setting statewide and regional NOx and SO2 budgets that unreasonably ignores the causes of downwind nonattainment. Under its approach, EPA sets the emission budgets for the states without reference to the impact of those states' individual contribution to downwind nonattainment. For example, EPA's proposed SO_2 budget simply would be a uniform reduction of each affected states' Acid Rain Program allowances by 50 percent in 2010 and 65 percent in 2015. For NOx, the proposal would set state budgets based uniformly on each state's highest annual heat input for Acid Rain Program units during 1999-2002 multiplied by an emission rate of 0.15 lb/mmBtu for 2010 and 0.125 lb/mmBtu for 2015. [[(p.5)]]

EPA's Proposal fails to tie its state emission budgets directly to the analysis of significant contribution. Once EPA determined which states are significant contributors to downwind nonattainment, EPA divorced the air quality analysis from the determination of the state and regional budgets. This approach adversely impacts states in several ways. [[(p.5)]]

EPA should set statewide budgets that are based on actual contribution, not based on questionable economic assumptions of what levels of controls could be achieved regionally. EPA should set individual state budgets at levels that remedy the transport problem to the extent EPA determines is necessary. For example, consider the EPA Acid rain data base SO_2 emissions in 2002. Seven states affected by the proposed IAQR are currently emitting less than the highest emitting 13 states affected by the IAQR will be emitting after a 65 percent reduction in SO_2 emissions. [[(p.6)]] [[(See Docket Number 0995, p.6, for the example of this issue)]]

It appears from this simple analysis that it is unfair to require the same percentage reductions from all affected states. [[(p.6)]]

It is not appropriate to allow states to own a disproportionate share of the geographic airshed emission rights. Not only are the states of Minnesota, Kansas, Arkansas, Mississippi, and Louisiana cleaner in terms of emission rates and tons, but those tons are spread out over very large geographic areas. Some consideration should be given to the actual portion of the airshed contained by a state. As an example look at the 2002 Acid Rain Data showing tons SO_2 emitted per square mile of airshed. [[(p.6)]] [[(See docket number 0995, p.6, for the example looking at the 2002 Acid Rain Data showing tons SO_2 emitted per square mile of the airshed)]]

In pursuing a one size fits all regional approach, EPA allows a larger share of the emissions rights to be allocated in smaller geographic areas where the nonattainment areas exist, therefore exacerbating the problems. [[(p.7)]]

Response:

Please see Section II.C of the Response to Comment Document, which addresses comments regarding uniform control remedies.

X.D.2 Comment:
EPA Should Use A Relative-Contribution Approach To Setting State And Regional Budgets: The Agency employs an overly broad, sweeping approach to setting statewide and regional NOx and SO2 budgets that ignores the causes of downwind nonattainment. Under its approach, EPA sets the emission budgets for the states without reference to the impact of those states' individual contribution to downwind nonattainment. EPA's proposed SO_2 budget could require a uniform reduction of each affected states' Acid Rain Program allowances by 50 percent in 2010 and 65 percent in 2015. For NOx, the proposal would set state budgets based uniformly on each state's highest annual heat input for Acid Rain Program units during 1999-2002 multiplied by an emission rate of 0.15 lb/mmBtu for 2010 and 0.125 lb/mmBtu for 2015. [[p. 7]] [[See docket number 0776, pp. 7-9 for extensive discussion of this issue.]]

Response:
Please see Section II.C of the Response to Comment Document, which addresses comments regarding uniform control remedies.

X.D.3 Comment:
EPA's proposal fails to tie its state emission budgets directly to the analysis of significant contribution. Once EPA determined which states are significant contributors to downwind nonattainment, EPA completely separated the air quality analysis from the determination of the state budgets. Instead of using the air quality analysis to determine what reductions were needed, EPA began working backwards from what appears to be a predetermined regionwide budget. By setting state budgets independent of a state's significant contribution, EPA may have set state budgets that require stringent reductions in NOx and SO2, where a lower level of reductions would reasonably remedy that state's contribution to downwind nonattainment.

By treating all states the same when setting statewide budgets, EPA has overlooked significant differences in both the impact of those states on downwind receptors, as well as, the existing level of control in each state. EPA should set statewide budgets based on sound science not based on preconceived notions of what levels of controls could be achieved regionally. EPA should set individual state budgets at levels that remedy the transport problem to the extent EPA determines is necessary. It makes no sense for EPA to impose on all affected states the same level of emission reduction, with no linkage whatsoever to air quality impacts or the differing characteristics of the individual states.

Response:
Please see Section II.C of the Response to Comment Document, which addresses comments regarding uniform control remedies.

X.D.4 Comment:

Clean states should get fair treatment in the form of allowance allocations:

- Allowance allocation factors based on geographic area or significance of contribution.

-Bonus allocation for states showing borderline impact. [[(p.3)]]

Response:
Please see Section II.C of the Response to Comment Document, which addresses comments regarding uniform control remedies.

X.D.5 Comment:
Applicability of the proposed rule is determined by the contribution of upwind emissions to downwind nonattainment. State budgets are based upon cost effectiveness of controls. This disconnect between level of control not being related to the level of impact results in state budgets which are not related to the problem being addressed. This result flies in the face of the long recognized principle of equal protection. [[(p.2)]]

Response:
Please see Section II.C of the Response to Comment Document, which addresses comments regarding uniform control remedies.

X.D.6 Comment:
There is a fundamental disconnect in the proposed rule between the extent of contribution of a state to downwind receptors and the level of control required of the state. State emissions budgets are based upon cost effectiveness of controls and have no relation to extent of contribution. This disconnect results in state budgets which are not related to the problem being addressed.

Response:
Please see Section II.C of the Response to Comment Document, which addresses comments regarding uniform control remedies.

XI. Emissions Inventories

XI.A. Deficiencies with base case emissions

XI.A.1.
Comment:
Several commenters stated that the emission inventory used for the 2001 base year for the NPR ("2001 Proxy") was not sufficient for the rulemaking, primarily because it was developed from a 1996 modeling inventory by applying various adjustment factors. Commenters suggested that (1) more up to date inventories were now available and should be used; (2) the most recent Continuous Emissions Monitoring (CEM) data or throughput information should be used to derive a 2001 EGU inventory; and (3) EPA should use the 2001 MOBILE6 and NONROAD2002 models for estimating on-road mobile and nonroad engine emissions, respectively.

Response:
EPA believes that the base year for modeling should be as recent as possible, given the availability of nationally complete emissions estimates and ambient monitoring data. At the time that modeling for the NPR was initiated, the 1996 National Emissions Inventory was the latest complete inventory available. For the analyses of the final rule, EPA has used a base year inventory developed specifically for 2001. The base year inventory for the electric utility sector now uses measured CEM emissions data for 2001. The non-EGU point source and stationary-area source sectors are based on the final 1999 NEI data submittals from State, local, and tribal air agencies. This inventory is the latest available quality-assured and reviewed national emission dataset for these sectors. The 1999 data for non-EGU point and stationary area sources were projected to represent a 2001 inventory using state/county-specific and sector-specific growth rates. The on-road mobile inventory uses MOBILE version 6.2 and the non-road engines inventory uses the Draft NONROAD2004 model, both with updated input parameters to explicitly estimate 2001 emissions without need for any adjustment factors. For more detailed information, refer to the NFR EITSD.

XI.A.2.
Comment:
Several commenters had questions concerning the specific adjustments made to create the 2001 Proxy inventory from the 1996 inventory. One commenter asked for clarification on how the emission inventories were adjusted to make them consistent with previous model-ready files, and stated that the adjustments for mobile sources were flawed because the base year was adjusted to reflect MOBILE6, but the future cases were not. One commenter asked whether the 2010 Base-1 or the 2010 Base-2 inventory projection was used for the interpolation to create the 2001 Proxy inventory. One commenter stated that the 2001 Proxy was developed for a different geographical domain and a different universe of sources than the proposed IAQR.

Response:

At the time that the air quality modeling for the NPR was begun, EPA already had gridded model-ready emissions inventory inputs available for a 1996 base year and for 2007 and 2020 projection years from modeling efforts for the Nonroad Rule. Those projection year inventories were consistent with the 1996 base year in that the non-EGU point and the area source sectors for the future years had been developed by applying growth and control factors to each individual source in the base year to produce the future year data, and the on-road and non-road sectors were developed from the same emission model versions for all 3 years. We applied model-ready inputs, adjustment ratios and interpolations directly to the previously existing gridded files to produce gridded files representing the 2010 and 2015 years. By this process we maintained a consistent methodology of estimating emissions across years that used the same point source locations and stack parameters across years, which avoided the creation of air quality modeling differences across years that might be partially due to methodology differences, rather than expected emission changes. Note that the approach for projecting EGUs was not based on applying adjustment factors. Rather, future year emissions for EGUs were projected from the IPM model.

The 2010 Base-1 and 2010 Base-2 inventories were different only in the EGU sector, due to the updates and revisions made to the IPM model inputs after the State-by-State culpability proposal modeling was started. Thus, there was only one 2010 Base inventory for non-EGU point sources and stationary area sources, and this single 2010 future base case and the 1996 base year inventory were used for the interpolation to produce the 2001 Proxy inventory for those two sectors. The EGU sector emissions for the 2001 Proxy were developed by applying State- and pollutant-specific adjustment factors to each EGU record in the 1996 model-ready files. The adjustment factors were developed as the ratio of actual State total emissions for EGUs in 2001 (as determined from 2001 CEMs) to the State total emissions for EGUs as found in the 1996 model-ready files. The application of such adjustment factors to the 1996 file therefore produced the actual 2001 State total EGU emissions in the Proxy, although the spatial distribution of those emissions within each State did maintain the 1996 distribution.

The adjustment factors to produce the 2001 Proxy for the on-road sector from the 1996 file were developed as the ratios of State total emissions for 2001 to State total emissions for 1996, which were both produced from consistent runs of the MOBILE6.2 model. Such ratios therefore captured the relative change in emissions from 1996 to 2001 from EPA's most up-to-date model. Contrary to the commenter's assertion, both the 1996 file and the existing future year files had been previously adjusted to simulate MOBILE6 emissions, before MOBILE6 had been fully programmed. Application of the MOBILE6.2-derived 1996-to-2001 adjustment factors to the 1996 file therefore produced a 2001 Proxy file that maintained consistency with the existing future year files, but also captured the EPA's latest understanding of factors affecting vehicle emissions across time.

EPA disagrees with the comment that the 2001 Proxy was developed for a different geographic domain and a different universe of sources than the proposed IAQR. The Proxy was developed to

provide complete coverage for all criteria air pollutant emission sources in the contiguous 48 States.

XI.A.3.
Comment:
One commenter suggested that the effort to acquire base year emissions data for Iowa was inadequate; that the 2002 CERR was the first federal requirement for States to submit emission inventories to EPA; and that EPA should have used the 2002 CERR-required emission inventory submittals. Another commenter suggested that the base year emissions inventories for the CenSARA States did not receive the same level of effort as the NOx SIP Call states.

Response:
The 1996 NEI inventory used as the basis for the 2001 Proxy was not the result of EPA efforts expended for the NOx SIP Call. The point sources were developed from the annual State submittals which have been required for many years before the CERR for any point sources emitting greater than 100 tons per year of $_{SO2, NOx}$, PM, or VOC, regardless of NAAQS attainment status or inclusion in the NOx SIP Call area. The on-road and non-road sectors were developed using EPA's national models, and the models were run for all States at the same time, with the same effort. Further, the 1996 inventory was used for three major national EPA rulemakings over the past 5 years (Tier II, HDDV, and Non-road), with opportunity for review and comment provided for each.

For the final rulemaking analyses, EPA has used the latest national models and datasets for EGUs, on-road, and non-road sectors. The non-EGU point and stationary area sectors were developed from State submittals for 1999. The 2002 CERR data were not finalized in time for use in the CAIR air quality modeling.

XI.A.4.
Comment:
One commenter stated that the 1996 emission inventory used as the basis for developing the 2001 Proxy inventory for Kansas for both non-EGU point sources and stationary area sources had overstated NOx emissions, which could have an impact on the State's significance determination. Another commenter stated that EPA's NPR finding that Kansas was a significant contributor to downwind States' nonattainment was due to incorrect emissions input data. Commenters suggested that a second round of air quality modeling using updated emission inventories be completed by EPA.

Response:
EPA agrees with the suggestion that a second round of air quality modeling be performed using updated emissions inventories. The base year emissions inventory used for the final rule analyses

for non-EGU point sources and stationary area sources is based on state, local, and tribal air agencies submittals to the 1999 NEI. These 1999 emissions values were grown to represent year 2001 emissions in order to match the available emissions estimates for the other sectors and the available ambient monitoring data. NOx emissions in Kansas for 2001 in this latest inventory as compared to the inventory used for the proposal are lower by 50,000 tons for the area source industrial natural gas combustion sources, and are lower by an additional 50,000 tons for point source natural gas pipeline compressor stations.

XI.A.5.
Comment:
One commenter noted that NOx and SO2 emissions in North Dakota had gone down substantially for both EGUs and other sources between 1996 and 2002, and urged EPA to use 2002 emissions for North Dakota. Another commenter noted that the 2001 emissions data described by EPA in the August 6, 2004 NODA for non-EGU point sources in North Dakota was substantially higher than the emissions estimates in the State's files for 2001.

Response:
For the NPR, EPA used a 2001 Proxy inventory which was based on 1996 emission inventory submittals for non-EGU sources, but contained an accurate state total emission tons for EGUs for 2001, although the spatial allocation of these state EGU emissions was still based on the 1996 inventory. As described in the August 6, 2004 NODA, EPA revised the 2001 inventory (as well as all future projection year inventory sectors based on 2001) using state emission inventory submittals for non-EGU point sources for 1999, and plant-specific EGU emissions for 2001. EPA adjusted the 1999 non-EGU emissions to represent the 2001 modeling year using economic growth factors, as described in the EI TSD. Air quality modeling was re-done using this revised 2001 and related future year inventories for both the individual state contribution modeling and for the overall cost and benefit analyses of the rule. EPA then received comment on the NODA from the State of North Dakota supplying specific data for non-EGU emission estimates for the 2001 inventory year. These data showed that non-EGU emissions for 2001 were 26,787 tons for SO2 and 12,610 tons for NOx, as opposed to 66,176 tons SO2 and 7,450 tons NOx as estimated for the NODA inventory. EGU emissions as presented in the 2001 NODA inventory were accurate. Due to the decrease in 2001 non-EGU SO2 estimates, EPA revised the 2010 base projection for North Dakota and re-ran the contribution modeling for North Dakota. The full national cost-benefit analyses model run was not re-done. EPA believes that although the emissions differences were important for the single-state contribution assessment, that they are not large enough to alter the conclusions of the cost-benefit analyses.

XI.A.6.
Comment:
Arkansas identified an error in SO_2 emissions for a facility in their State, and requested that EPA use the corrected values to determine whether Arkansas should be included in the rule.

Response:

EPA revised the SO_2 emission estimate for the single facility identified from 34,350 tons to 1 ton for 2001 based on the specific information submitted. EPA then revised the 2010 base projection for Arkansas and re-ran the contribution modeling for Arkansas. The full national cost-benefit analyses model run was not re-done. EPA believes that although the emissions difference was important for the single-state contribution assessment, that it is not likely to alter the conclusions of the cost-benefit analyses.

XI.A.7.
Comment:
One commenter noted differences in emissions totals between the 2001 inventory EPA used for the final rule and their State 2002 Periodic Emissions Inventory (PEI) when compared for major source sectors, and that the 2002 PEI provides a more accurate picture of emissions for the 2001 baseline modeling year than what EPA has used, which commenter stated was largely grown from a 1996 inventory. The commenter also suggested that a 2002 inventory to be prepared by LADCO by mid-October should replace the CAIR 2001 inventory.

Response:
EPA disagrees with the comment that the inventory that EPA used for the CAIR final modeling was largely grown from a 1996 inventory. As described in EPA's August 6 NODA, the EGU, highway, and non-road sector emissions presented in the NPR were replaced with emissions estimates calculated specifically for 2001 using the latest available model versions and data inputs. The NODA also describes that the non-EGU point source and area source sector emissions used for the NPR were replaced with emissions based on the States' 1999 inventory submittals, grown to 2001. The EI TSD contains full details. The 1999 State inventories were used because they were the most up-to-date inventories available at the time that had been compiled by EPA at the national level and made available to the States and the general public for review and comment. They were grown to 2001 to match the middle year of the three-year period for which EPA had a complete and quality-assured ambient monitoring data set. EPA is not dismissing claims that Wisconsin's 2002 PEI inventory may show differences when compared to EPA's national modeling inventory representing 2001. However, because no specific replacement emissions data were provided to EPA by the commenter, EPA maintained the 2001 emissions as described in the NODA for modeling of the final rule analysis.

XI.A.8.
Comment:
One commenter noted that $PM_{2.5}$ emissions in the 2001 Proxy inventory were about 30,000 tons each for Ohio and Pennsylvania, but they were each about 80,000 tons in the 1999 NEI. Such large reductions in a two-year period were questioned.

Response:

The EPA agrees that the 2001 Proxy inventory was too low. The 2001 Proxy inventory for all States was based upon a projection of the 1996 NEI. The 1996 NEI and its projections to 2001, 2010, and 2015 as used for the proposal modeling did not include the condensable portion of PM in the $PM_{2.5}$ emissions for point and stationary area sources. The 1999 NEI, which is used as the basis for the modeling done in support of the final rule, does include these condensable PM emissions. The differences noted by the commenter reflect a combination of the inclusion of condensable emissions in the 1999 NEI and updates to point source emission between 1996 and 1999 NEI.

XI.A.9.
Comment:
Commenters stated that the EPA failed to develop an accurate and comprehensive ammonia emission inventory from soil, fertilizer, and animal husbandry sources.

Response:
The 2001 Proxy inventory included ammonia emission estimates based upon submittals to EPA from State agencies for the 1996 NEI. The 2001 inventory used for the analyses for the final rule includes a new national county-level ammonia inventory developed by EPA using the latest emission rates selected based on a comprehensive literature review, and activity levels as provided by the US Census of Agriculture for animal husbandry. The 2001 inventory from fertilizer application sources was compiled from State and local submissions to EPA for 1999,augmented as necessary with EPA estimates, and grown to 2001 using state/county-specific and category-specific growth rates. With regard to background soil emissions of NH3, EPA believes that the current state of understanding of background soil ammonia releases and sinks is insufficient to warrant including these emission sources in modeling inventories at this time.

XI.A.10.
Comment:
One commenter stated that the inventories did not include ammonia emissions from mobile sources, and that EPA should act swiftly to adopt an appropriate representation of gasoline-engine ammonia emissions into the modeling inventories.

Response:
EPA disagrees. The inventories used for both the NPR and final rule included ammonia emissions from mobile sources, as calculated from EPA's MOBILE6.2 model. The MOBILE6.2 model uses an ammonia emission factor for 3-way catalyst vehicles of 102 mg/mile, which is in good agreement with the tunnel study emission estimates (which represent only steady-state driving conditions) that were cited by the commenter. Furthermore, more recent work than that cited by the commenter and funded by EPA and the Coordinating Research Council at the University of California, Riverside show, for a variety of newer technology vehicles under

numerous driving cycles, ammonia emissions lower than the 102 mg/mile used in MOBILE6.2. MOBILE6.2, thus, does not underestimate ammonia emissions from new technology vehicles as the study cited by commenter claims but, if anything, may overestimate them.

XI.A.11.
Comment:
One commenter stated that EPA had assumed a control efficiency of 23 percent for the Ozone Transport Commission (OTC) Architectural and Industrial Maintenance (AIM) Rule, when consultation with the OTC would have provided a more defendable control efficiency.

Response:
The NPR provided the assumptions and resulting emissions data that EPA was using for analyzing the proposed rule. Adjustments to the inventories and a second round of modeling have been made to account for all comments which provided specific and defendable revisions to the inventories. However, the commenter provided no alternative assumption for the control efficiency of the OTC AIM Rule.

XI.A.12.
Comment:
One commenter stated that EPA had changed the source of its point source data without identifying the change nor providing justification for it. Specifically, the commenter claims that EPA changed to using 2001 heat input data from EIA form 767, rather than heat input data from EPA's own 2001 Emission Tracking System (ETS).

Response:
EPA disagrees with this claim. The 2001 inventories for both the proposal and final rulemaking modeling use the ETS data for NOx and SO2 emissions. Heat input data was not used to estimate $_{NOx\ or\ SO2}$ emissions for any EGUs.

XI.A.13.
Comment:
One commenter stated that the NODA lacked sufficient information for adequate review; that the 1999 NEI was undergoing changes as late as February 2004; and that the quality and content of the new 2001 inventory is not clear. They also noted that they were not able to locate any information or a summary of differences between the new 2001 inventory and the old 2001 proxy inventory, both of which were used to develop the proposed rule.

Response:
The NODA provided full detail of the new 2001 inventory platform including the actual inventory files with all details needed for modeling. State summaries of the final 2001 inventory were provided in the NODA and State summaries for the 2001 Proxy were provided in the NFR Air Quality Modeling TSD which could be used to compare the two inventories.

XI.A.14.
Comment:
Locally mandated Part D emission controls must be included in the base case analysis for nonattainment areas that EPA plans to designate for $PM_{2.5}$ and ozone. The analysis of air quality in the proposed rule discusses both the inventories and design values used in analyzing base case air quality. The preamble at 69 Fed Reg 4589 states with respect to inventories that 'the future base case scenarios generally represent predicted emissions in the absence of any further controls beyond those State, local, and Federal measures already promulgated plus significant other measures expected to be promulgated before the final form of today's rule. Any additional local control programs which may be necessary for areas to attain the annual $PM_{2.5}$ NAAQS and the ozone NAAQS are not included in the future base case projections.'

Many local control programs, including RACT, LAER, and new source emissions offsets for $PM_{2.5}$, and RACT, LAER, vehicle inspection and maintenance programs, rate of progress emissions controls, and new source emissions offsets for ozone, will be mandated as a result of Part D requirements for addition (sic) reductions. Accordingly, MOG submits that EPA should include these local controls in any analysis of future base case control strategies. It is not reasonable for EPA to assume that these local control programs will not significantly impact the attainment status of many of the areas that the EPA analysis predicts future nonattainment. MOG supports the technical comments filed by UARG in this matter on this issue and urges EPA to include the effect of local controls in base case analyses.

Response:

Overview:
In projecting baseline 2010 emissions, EPA did not attempt to forecast the incremental amount of local control that would result in the future from mandated controls under Part D of the Clean Air Act in connection with implementation of the $PM_{2.5}$ and 8-hour ozone NAAQS. There are two main reasons:

- First, we cannot reliably forecast the extent of new local controls required (beyond those previously required in those areas for other NAAQS such as the 1-hour ozone standard). Pertinent statutory interpretation issues remain to be decided in future rulemakings. Also, a number of these requirements involve case-by-case analyses by states will be conducted as part of the state planning process for $PM_{2.5}$ and 8-hour ozone nonattainment areas. These uncertainties are especially large for Part D subpart 1 requirements for $PM_{2.5}$ and 8-hour ozone areas, and exist to a lesser extent for subpart 2 requirements for 8-hour ozone areas. We do not think that it would be prudent public health policy, in determining upwind state control responsibilities, to assume controls in nonattainment areas that may not be mandated.

- Second, with respect to the more specific requirements for 8-hour ozone areas subject to subpart 2, many of these requirements already have been met by areas implementing the

1-hour ozone standard, as explained below. These controls are reflected in the base case except where necessary information was lacking (i.e., recently adopted SIP requirements for sources other than EGUs). In addition, many downwind receptors are projected to have pollutant levels substantially in excess of the NAAQS in 2010. As a result, we believe that the impact of subpart 2 requirements for 8-hour ozone areas is adequately captured in our CAIR base case and that our findings are valid concerning the receptors remaining in nonattainment in 2010.

With regard to the comment on nonattainment requirements for new sources, we assumed that new sources would be well controlled where our analysis assumed new sources.

Uncertainties

There is great uncertainty at this point in time regarding the extent of additional local controls that mandatory control provisions of Part D will require for the $PM_{2.5}$ and 8-hour ozone NAAQS. As noted above, these uncertainties as especially large for $PM_{2.5}$ areas and for 8-hour ozone areas subject only to subpart 1. For the reasons below, we cannot reliably forecast the extent of mandated local controls that will ultimately be required in each nonattainment area SIP.

First, rules interpreting the act's mandatory control requirements for $PM_{2.5}$ and 8-hour ozone areas have not yet been promulgated. For the $PM_{2.5}$ NAAQS, EPA has not yet proposed implementation rules interpreting the Clean Air Act requirements that apply to state plans under Part D. For 8-hour ozone, EPA has proposed multiple options for interpreting statutory requirements for state plans under part D. Subpart 1 of Part D of the Clean Air Act provides EPA with substantial discretion on interpretation of statutory requirements such as reasonable further progress (RFP) and reasonably available control technology (RACT), and compliance dates for any required controls. Even for ozone nonattainment areas subject to subpart 2, which has more specific requirements than Subpart 1, there are key matters of statutory interpretation (e.g., involving rate of progress requirements) to be resolved in a future rulemaking.

A second cause of uncertainty is that the statute calls for states to determine (subject to EPA approval) reasonably available control technology (RACT) and reasonably available control measures (RACM) in the context of each SIP; these determinations involve area-specific considerations.

Subpart 2 mandatory control requirements

For subpart 2 8-hour ozone nonattainment areas, where statutory requirements are more specific, there is good reason to believe that explicit consideration of subpart 2-mandated requirements for 8-hour ozone areas (e.g., vehicle inspection and maintenance programs) would not have altered our base case predictions of downwind receptors in nonattainment in 2010.

Specified measures: The classification rule for 8-hour ozone nonattainment areas (see April 30, 2004 Federal Register) generally classified former 1-hour nonattainment areas either at the same level, or at a lower classification, than they have for the one-hour ozone standard. As a result, 8-hour areas in the East have no new statutorily specifically controls under subpart 2 (e.g., inspection and maintenance programs) except in a handful of counties (e.g., where the 8-hour boundary is broader than the 1-hour boundary). Entirely new nonattainment areas in the CAIR region are either subpart 1 areas or subpart 2 marginal areas, which do not have specified rate-of-progress or statutorily specified control measures.

RACT: For moderate and above areas, Subpart 2 is more specific than Subpart 1 concerning requirements for reasonably available control technology (RACT). Subpart 2 moderate 8-hour ozone nonattainment areas generally were 1-hour nonattainment areas classified as moderate or above. Therefore, these areas were required to meet subpart 2 reasonably available control technology requirements previously. Under the 1-hour ozone standard RACT also was required statewide throughout the 12-state Ozone Transport Region. As a result, we expect that the impact of RACT for 8-hour ozone areas is largely captured in the CAIR base case. We further note that we cannot more precisely estimate the impact of RACT for Subpart 2 8-hour areas because there are issues regarding previous RACT determinations to be decided in the phase 2 8-hour ozone implementation rule, and because RACT involves future state determinations that may vary by area.

ROP: In addition to specified measures (such as inspection and maintenance programs), Subpart 2 requires a 15 percent rate-of-progress reduction in VOC emissions for areas classified as moderate or above. There are several moderate areas in the CAIR region; none are classified higher than moderate. EPA will decide in a future rule whether or not areas that previously met this requirement for purposes of implementing the 1-hour ozone standard should be viewed as having already met this requirement.

Even if EPA were to adopt the most stringent interpretation – that all moderate-or-above areas must achieve another 15 percent reduction over six years – we believe that base case emissions reductions are likely to achieve most or all of the required reduction for most cities. The actual determination of reductions needed to comply with the 15 percent requirement will be done in a detailed manner through the SIP process. However, our current estimate for analytical purposes only is that of 11 subpart 2 moderate areas in the CAIR region, five would need no further reductions beyond the base case if they were required to achieve a 15 percent VOC reduction over six years. A sixth moderate area, Dallas may also need additional VOC reductions under this interpretation, but no States are covered in CAIR based on a linkage with counties in the Dallas area. For the remaining five areas, our analysis estimates the following additional reductions in VOC emissions to achieve a 15 percent reduction: Sheboygan – 400 tons, Milwaukee – 800 tons, Chicago – 1,700 tons, Cleveland -- 3,000 tons, and Providence – 8,200 tons. (See attached Memorandum from E.H. Pechan & Associates.) Note that if EPA were to adopt the statutory interpretation that areas that previously met the 15 percent requirement did not need to do so again for 8-hour purposes, then the additional estimated reductions would be

required only in Cleveland and Sheboygan. In any event, based on sensitivity modeling we do not believe VOC reductions of this magnitude would alter the receptors in residual nonattainment in 2010. (See "Attachment: Analysis of Potential Impacts of ROP on Ozone in Five Cities to Support Response to Comments."

Even if our conclusion were incorrect, and all six cities would attain as a result of 8-hour RFP reductions, this would not alter our conclusions about the states subject to CAIR. All upwind states are linked to other nonattainment receptors as well as those in these six cities.

For the reasons above, we believe that the impact of subpart 2 requirements for 8-hour ozone areas is adequately captured in our CAIR base case and that our findings are valid concerning the receptors remaining in nonattainment in 2010.

New source requirements

The commenter also advocates consideration of requirements that apply to certain new sources and source modifications in nonattainment areas: LAER (lowest achievable emission rate) and new source emission offsets.[92] In general (except as explained below for EGUs) we cannot predict whether or where a source will construct or modify. We also cannot predict from which area offsets will come. Therefore, we did not consider LAER and offsets in estimating 2010 baseline emissions. The following describes our analytical approach to growth for EGUs and non-EGUs. Had we made assumptions concerning LAER and offsets, we do not believe they would have altered our conclusions regarding 2010 residual nonattainment and CAIR requirements for the following reasons:

- For EGUs, the IPM model analysis does predict construction of new sources. New unit projections are made for each IPM sub-region. For purposes of air quality modeling, these new units are located in States that are part of the IPM sub-region, based on the States share of existing generation. New coal-fired EGUs were assumed to have SCRs and scrubbers. New combined cycle units were assumed to have SCR. Our analysis assumes that most new EGUs locate in attainment areas, where offsets are not required. IPM does not make any projections with regards to modification of existing sources that may trigger NSR.

- For non-EGUs, we do not have a sophisticated tool like IPM for assessing emissions. As will be the case for attainment demonstrations for the 8-hour and $PM_{2.5}$ NAAQS, our analysis assumed emissions growth at the existing non-EGU facilities according to the projected economic growth for that industry sector and state. It would be speculative to try to predict the effects of new source review. Also, our experience is that many new

[92] As we stated at 69 FR 23986, the major NSR program is a growth measure and is not specifically designed to produce emission reductions. Instead its purpose is to allow new source growth to occur without interfering with an area's ability to attain.

sources and modifications fall below the major new source review applicability thresholds, or adopt restrictions on their emissions to avoid increases above the thresholds.

- Conclusion

We believe that we have dealt with the mandatory controls issues raised by the commenter in a rational manner given the considerations above. We would further note that the main programs affecting 2010 emissions – such as acid rain rules, state regulations on power plants, NOx SIP Call, Tier II motor vehicle standards, heavy-duty diesel rule, non-road engines rules – are reflected in our base case projections.

XI.B. Deficiencies with approach to future EGU emissions projections

XI.B.1.
Comment:
The technical analysis used to support the conclusion that Massachusetts significantly contributes to $PM_{2.5}$ nonattainment in downwind counties appears to be flawed.

EPA used EGU emissions from version 2.1 of the IPM model for its runs because results from a later version of the IPM model (Version 2.1.6) were not available at the time EPA did the model runs to determine interstate contributions. EPA notes (69 F.R. 4589) that updates applied to the IPM model between versions 2.1 and 2.1.6 include the incorporation of several state-mandated emissions caps. EPA concludes that an examination of the EGU emissions from the two different versions indicates that the EGU differences are 'generally minor' and 'have not affected the content of this proposal.' (69 FR 4589)

For the most part, EPA's characterization of the difference in emissions from the two versions of the model as 'generally minor' appears to be accurate based on a review of the emissions of NOx and SO2 for each state under each version of the model listed in Tables IV-1 and IV-2 (69 F.R.4590). However, for Massachusetts it is not the case that the differences in emissions are minor with respect to NOx, as shown in Table IV 2. Massachusetts NOx emissions go from 27,800 tons in version 2.1 to 10,400 tons in version 2.1.6, a reduction of more than 62 percent. These significant reductions in NOx emissions are likely attributable to year-round NOx caps imposed on the largest EGUs in Massachusetts multi-pollutant power plant regulation, 310 CMR 7.29, adopted in 2001. Failure to model the reduced NOx emissions calls into question the validity of EPA's conclusion that Massachusetts is a significant contributor to nonattainment in New Haven and, if a lower threshold of 0.0l ug/m3, is adopted, New York as well.

Response:
Updated modeling using IPM has been completed for the final CAIR. As part of a routine model update to IPM and in response to comments from various parties, EPA has updated the inventory of EGUs, made revisions to several model assumptions, and various State rules, regulations, and NSR settlements to best reflect available data and information. Along with new economic and emissions modeling reflecting these updates, EPA has done air quality modeling. These new results best reflect what EPA projects to occur in the future with and without CAIR.

XI.B.2.
Comment:
Several tables were provided which showed Missouri having significant contributions to downwind counties for either ozone or fine particulate. It was not apparent if the analysis considered the reduced impact expected as a result of the Missouri State NOx SIP regulation, 10 CSR 10-6.350 as amended by the Missouri Air Conservation Commission in April of 2003. This rule will have a significant effect by decreasing Missouri NOx emissions and transport, both intrastate and interstate. If the modeling was not adjusted to take into account the reduced

emission levels expected as a result of State regulations, the commenter recommends adjusting the modeling accordingly to determine if the impact remains present.

Response:
A summer NOx regulation for Missouri is included in EPA modeling of the power sector, and emissions reflect this. For additional information regarding the State rules and/or regulations included in EPA modeling, see the documentation report for the Integrated Planning Model of 2004 in the final CAIR docket and on EPA's website.

XI.B.3.
Comment:
Regarding the EPA emissions inventory and modeling used to establish the NOx cap, the commenter questions whether EPA used the Missouri State NOx SIP regulation, 10 CSR 10-6.350 as amended by the Missouri Air Conservation Commission in April of 2003. This regulation will have a significant effect by decreasing Missouri NOx emissions and transport, both intrastate and interstate. If the modeling was not adjusted to take into account the reduced emission levels expected as a result of State regulations, the commenter recommends adjusting the modeling accordingly to determine if the impact remains present.

Response:
Results from the Integrated Planning Model indicate that summer (ozone season) NOx are lower than the cap set forth in Missouri's State rule under the base case scenario, which includes existing federal and State rules and/or regulations. IPM does not include the Missouri State cap explicitly, but includes Missouri in the NOx SIP Call. EPA used emissions data that represent a conservative (lower) assessment of emissions in Missouri, which still impacted a downwind nonattainment area. The next update of IPM will include explicit modeling of Missouri's State rule.

XI.B.4.
Comment:
A commenter disagrees with EPA's comments that there is an insignificant difference between the initial data for modeling and the updated input model. EGU v21 input was used in the zero out modeling. Since the time of this modeling a more updated database was compiled and reported in the proposed IAQR rule. This updated input database is v216 of the Integrated Planning Model. The commenter provided a table depicting the percent differences between v21 and v216. The emissions used in the v21 modeling were 4.3 percent less for SO_2 and 3.4 percent greater for NOx than the new updated input database for the U.S.

North Dakota's modeled SO_2 input database is 7.0 percent higher than the updated v216 input database and similarly 4.0 percent higher for NOx. Modeling the most recent emissions database could have an effect on the zero-out modeling results on Cook County, which is the receptor nonattainment area identified by EPA's modeling to possibly be impacted by emissions from North Dakota. It is possible that the significance level of 0.15 ug/m3 vs. 0.10 ug/m3 would not be

an issue for North Dakota if the more updated model inputs were utilized. North Dakota's impact on the nonattainment area would certainly be diminished.

If EPA were to use 0.10 ug/m3 as the significance level, the commenter recommends that an updating of the zero-out modeling should be performed utilizing the updated input database (v216).

Response:
The commenter believes that various differences in emissions estimates for North Dakota will have an impact on zero out modeling. New emissions and air quality modeling has been done for the final CAIR that reflects the best and most recent data available, and North Dakota was not found to contribute to downwind nonattainment. See final CAIR preamble for further discussion.

XI.B.5.
Comment:
Specifically, it appears that some errors or discrepancies may exist in the NOx and SO2 emission inventories, particularly as they pertain to utility emissions. For example, the 2010 inventory for Minnesota does not account for substantial emission reductions that will be occurring at several Twin Cities power plants through the voluntary reduction project underway by Xcel Energy. The 2010 inventory may also fail to account for reductions at two Minnesota refineries that are taking place though federal enforcement actions. In any case, EPA needs to review the inventories used in its analysis and share that information with stakeholders so that the commenter can be sure that this rule is based on accurate data.

Response:
Updated modeling using IPM has been completed for the final CAIR. As part of a routine model update to IPM and in response to comments from various parties, EPA has updated the inventory of EGUs, made revisions to several model assumptions, and added various State rules, regulations, and NSR settlements to best reflect available data and information. Along with new economic and emissions modeling reflecting these updates, EPA has redone air quality modeling. These new results are intended to reflect what EPA projects to occur in the future with and without CAIR. In Minnesota, EPA incorporated the Metropolitan Emission Reduction Proposal which requires various repowerings and retrofits of Xcel Energy units. EPA incorporated these updates based on available data. However, EPA has discovered that there may be some discrepancies in emissions between the MERP as agreed to by Xcel and Minnesota and how EPA implemented the MERP in IPM. Nonetheless, EPA has concluded that although differences may exist, they are not large enough to impact EPA's test for Minnesota's significant contribution to a downwind nonattainment area, and is therefore finalizing CAIR with Minnesota as part of the program.

As noted above, the discrepancy in emissions from several Xcel facilities in Minnesota is expected to result in somewhat lower 2010 Base Case NOx and SO2 emissions compared to what EPA used in the modeling of Minnesota's contribution to $PM_{2.5}$ nonattainment in downwind

States. Emissions of NOx are expected to be 16,500 tons lower and emissions of SO2 are expected to be 5,900 tons lower than we modeled, according to a recent EPA analysis. These reductions translate into a 4.6 percent reduction in total statewide NOx and a 4.3 percent reduction in total statewide SO2 emissions in Minnesota in 2010. In view of these reductions, we performed two analyses to estimate whether the lower emissions would drop Minnesota's downwind contribution below the PM2.5 significance threshold of 0.2 $\mu g/m^3$. EPA's zero-out modeling for Minnesota shows that Minnesota's maximum contribution is 0.21 $\mu g/m^3$ to Cook County, Illinois. Our analyses of the effects of the emissions changes on the maximum contribution are as follows:

- Analysis 1: We reduced the maximum PM2.5 contribution by the larger of the percent reduction in NOx and SO2 emissions (i.e., the 4.6 percent reduction in NOx). The maximum PM2.5 contribution after making this adjustment is 0.2 $\mu g/m^3$.

- Analysis 2: We reduced the sulfate and nitrate portions of the maximum PM2.5 contribution by the corresponding reductions in SO2 and NOx emissions. Specifically, the sulfate portion (including sulfate, ammonium, and particle-bound water) was reduced by the 4.3 percent reduction in SO2 emissions and the nitrate portion was reduced by the 4.6 percent reduction in NOx emissions. We then recalculated the maximum contribution using these lower components. The result is that the adjusted maximum PM2.5 contribution is 0.2 $\mu g/m^3$.

Thus, our analyses indicate that Minnesota makes a significant contribution to $PM_{2.5}$ nonattainment, even after considering the emissions reductions which result from Xcel's comments.

XI.B.6.
Comment:
The commenter has a primary concern related to the emissions inventory used for conducting the modeling that provides the foundation for the IAQR. For example, the inventory did not take into consideration the SO_2 emission reductions to be achieved with the installation of scrubbers at the TVA Kingston Steam Plant in Roane County. It is believed that EPA's modeling analysis for East Tennessee, particularly Knox County, would likely be much different if planned scrubbers at Kingston are taken into account.

Response:
The National Electric Energy Database System (NEEDS) is the inventory of electric generating units that EPA uses for modeling applications with the integrated planning model (IPM). NEEDS includes basic geographic, operating, air emissions, and other data on all the generation units that are represented by model plants in IPM. This comment is based on the January 2004 CAIR proposal. IPM modeling for the CAIR proposal used the 2003 version of NEEDS, which contained all control retrofits that EPA was aware of at the time that version was developed.

In developing the 2004 update of NEEDS, EPA included all controls that the Agency was aware of and expected to be online by the end of 2006. The Agency solicited and received direct feedback from TVA in April 2004 regarding their electric generation units – including information on current and future pollution controls through the end of 2006 – in an effort to model TVA's units as accurately as possible. The feedback provided by TVA did not include scrubbers on the Kingston units. Because TVA's direct feedback did not include scrubbers on the Kingston units through the end of 2006, and as far as the Agency is aware there is no legally enforceable limit currently in place requiring scrubbers on these units, EPA did not include scrubbers on these units in NEEDS 2004. A description of the method EPA used to assign controls to existing plants in NEEDS 2004 is in "Documentation Summary for EPA Base Case 2004 (v.2.1.9) Using the Integrated Planning Model, October 2004" available in the CAIR rulemaking docket and on EPA's website.

XI.B.7.
Comment:
In reviewing the emissions inventory and modeling Technical Support Document as well as other emissions modeling files, the commenter discovered that the North Carolina Clean Smokestacks Act (CSA) compliance plan was not modeled appropriately in the 2010 base case model run. To ensure that the applicable compliance plans are modeled correctly in any future modeling work done for the IAQR or other EPA analyses, the commenter is providing the May 30, 2003 report, Implementation of the Clean Smokestacks Act. This report contains Duke Energy and Progress Energy's compliance plans for both NOx and SO2 budgets. In particular, EPA modeling should reflect that the CSA cap may not be met by the use of emissions allowances.

For example, the commenter questions whether the apparent anomaly noted in footnote 17 of North Carolina's recently filed CAA Section 126 petition may have resulted in part from the incorrect modeling of North Carolina's projected power plant emissions data for facilities covered by North Carolina's CSA.

Response:
Updated modeling using IPM has been completed for the final CAIR. As part of a routine model update to IPM and in response to comments from various parties, EPA has updated the inventory of EGUs, made revisions to several model assumptions, and added various State rules, regulations, and NSR settlements to best reflect available data and information. Along with new economic and emissions modeling reflecting these updates, EPA has done air quality modeling. These new results best reflect what EPA projects to occur in the future with and without CAIR. In North Carolina, EPA incorporated the Clean Smokestacks Act based on available data and believes that the Act has been adequately reflected in IPM.

XI.B.8.
Comment:

There is a discrepancy between the values listed in the preamble and the PM results for IAQR. On page 4579, the USEPA states 'this proposal would result in emissions reductions of 3.6 million tons SO2 (40 percent) and 1.5 million tons NOx (49 percent) by 2010, and 3.7 million tons SO2 (44 percent) and 1.8 million tons NOx (58 percent) by 2015.' These reductions appear to be based on the values on Table III-1 on page 4586 of the preamble. But the baseline emissions for 2010 and 2015 do not match the IPM results for IAQR, especially for NOx. From the IPM results, the NOx baseline emissions for 2010 and 2015 are both 2.6 million tons, not the 3.1 and 3.2 million tons listed in the table.

New modeling runs should be performed with EGUv216 emissions to more accurately model transported contributions. On page 4589, the preamble describes how the results from IPM version 2.1.6 was used to determine future nonattainment status but version 2.1 was used to perform 'zero-out runs.' In Table IV-1, the difference between EGUv21 and EGUv216 for New Jersey is 4,000 tons, for Ohio is +279,400, and for Pennsylvania is +183,200. Because Ohio and Pennsylvania had lower much lower numbers in EGUv21, the zero-out runs would under-estimate the transported contribution of SO_2 from these two states. On the other hand, because New Jersey's emissions in EGUv21 was much higher, the models would over-estimate contribution from New Jersey, The USEPA needs to be consistent regarding the set of numbers to use.

Response:
The discrepancy between the data that the commenter refers to is attributable to an error by the commenter. The baseline power sector emissions in the table referred to by the commenter and the emission levels projected under CAIR for the power sector (from modeling done is support of the January 1004 CAIR NPR) result in the emission reductions that are stated in the NPR preamble. These numbers are correct. It is unclear what the commenter is referring to when mentioning the '2.6 million tons.' New modeling has been done for the Final CAIR using an updated version of IPM and the emissions numbers are somewhat different from the CAIR NPR. Please see Final CAIR preamble for further discussion.

XI.B.9.
Comment:
EPA should remodel impacts using the appropriate emissions inventory. EPA used the EGU emissions from the previous IPM version (v.2.1) to determine interstate contributions. Updates applied to the IPM between versions 2.1 and 2.1.6 include the update of coal and natural gas supply curves and the incorporation of several state-mandated emissions caps and New Source Review settlements. EPA asserts that the emissions difference between v2.1 and v2.1.6 were minor. However, the commenter notes that the difference between the two versions for North Dakota is 11,300 tons of SO_2, which is 7 percent of the EGU v2.1.6 SO_2 emissions total (Table W-1). Notwithstanding the arguments made above for excluding North Dakota from the IAQR, the LEC believes EPA should run the IPM with the updated version 2.1.6, including North Dakota emissions for year 2002, which are substantially less than year 1996. The commenter suspects that the impact may be below the 0.10 ug/m3 alternate impact level being considered. Based on emission data maintained and published by the North Dakota Department of Health,

SO_2 and NO, emissions from EGUs and all sources have gone down substantially since 1996 as shown in the tables below.

Response:
Updated modeling using IPM has been completed for the final CAIR. As part of a routine model update to IPM and in response to comments from various parties, EPA has updated the inventory of EGUs, made revisions to several model assumptions, and added various State rules, regulations, and NSR settlements to best reflect available data and information. Along with new economic and emissions modeling reflecting these updates, EPA has also redone air quality modeling. These new results best reflect what EPA projects to occur in the future with and without CAIR. See Final CAIR preamble for further discussion.

XI.B.10.
Comment:
EPA goes on to explain that future year 2010 and 2015 Base Case EGU emissions were in essence based on surrogate data from an earlier versions of the Integrated Planning Model run (v2.1) since results of IPM v2.1.6 were not available when the modeling to determine interstate air quality contributions were started. EPA asserts that the emissions difference between v2.1 and v2.1.6 were minor. However, the commenter notes that the difference between the two versions for North Dakota is 11,300 tons SO_2 which is 7 percent of the EGU v2.1.6 SO_2 emissions total (Table IV-1).

It is imperative that EPA uses actual individual source 2001 emissions in developing the 2001 database, and uses the most recent IPM model that includes updates of coal and natural gas use and incorporates state-mandated reductions and New Source Review settlements.

Response:
Updated modeling using IPM has been completed for the final CAIR. As part of a routine model update to IPM and in response to comments from various parties, EPA has updated the inventory of EGUs, made revisions to several model assumptions, and added various State rules, regulations, and NSR settlements to best reflect available data and information. Along with new economic and emissions modeling reflecting these updates, EPA has also redone air quality modeling. These new results best reflect what EPA projects to occur in the future with and without CAIR. See Final CAIR preamble for further discussion.

XI.B.11.
Comment:
EPA projects that Florida's SO2 emissions from EGUs in 2010 will be 59 percent less than in 2001 (without implementing the transport rule), and moreover, Florida's SO2 budget in 2010 is 20,000 tons less than its projected emissions. This presumably means that Florida sources will not have to make any SO2 reductions in 2010. Under the proposal, however, Florida will have to reduce its SO2 emissions by 2015 by approximately 53,000 tons, and its NOx emissions by over 46,000 tons by 2010 and over 74,000 tons by 2015, to meet the EPA budgets. Because EPA does

not divulge its basis for the 2010 and 2015 Florida emissions projections, the commenter is unable to evaluate the accuracy of the data. The commenter believes that it is highly unlikely, however, that EPA's data for Florida reflects accurate emission inventories.

Response:
Updated modeling using IPM has been completed for the final CAIR. As part of a routine model update to IPM and in response to comments from various parties, EPA has updated the inventory of EGUs, made revisions to several model assumptions, and added various State rules, regulations, and NSR settlements to best reflect available data and information. Along with new economic and emissions modeling reflecting these updates, EPA has also redone air quality modeling. These new results best reflect what EPA projects to occur in the future with and without CAIR. See Final CAIR preamble for further discussion.

XI.B.12.
Comment:
In developing the IAQR, EPA has conducted IPM and other modeling runs that provide the technical underpinnings of what the proposed reductions will do environmentally and economically. EPA then analyzes the results with certain other assumptions and constraints in mind, that may or may not be part of the model. Such modeling and technical analyses are critical to making an informed decision about the adequacy of this or any other rulemaking. Therefore, the 'nuts and bolts' inputs to the models - assumptions including fuel prices, heat input, inventories and other data - have to be carefully considered as they can have a significant impact on the projected outcomes of implementing the
program.

The IPM cannot account for all important considerations, such as pollution control technology advancements, energy efficiency and alternative energy improvements, and price changes associated with commitments to meet upcoming requirements.

Some of the assumptions used in design and constraint of the IAQR program - and the analysis supporting the program - underestimate the timing and extent of reductions achievable. Some of these assumptions directly affect the prediction of the model, such as the growth rate and underlying prices of natural gas, others affect how the model is used, such as in the case of labor constraints placed on the installation of controls, length of the SIP and permitting processes, etc.

The commenter has also used the IPM model to perform several runs with different assumptions. In this process the commenter learned more about what the model can and cannot do, and how the assumptions used to set up and interpret the model can affect the recommended outcome. The commenter is convinced that the IPM is a very powerful tool, and do not raise these issues because the commenter wish to refute or object to its use; but, as with all models, it is not without its limitations.

The commenter should recognize that the IPM simulations of the emission caps likely overstate the cost to respond to the lower emission targets. One recent review of economic research on technological change indicates that both the cost and performance of supply and demand side technologies would likely improve compared to standard reference case assumptions (Sanstad, 2001). Consistent with this perspective, one of EPA's own studies underscored this likelihood. In responding to a Senate request for analysis of the so-called four pollutant legislation (with different but still significant emission targets), the EPA Office of Air and Radiation found that electric generation costs declined by 25 percent by the year 2015 when substituting modest changes in cost and performance of both supply and demand-side technologies (Environmental Protection Agency, 2001). To the extent that this more dynamic representation is not captured in the IPM simulations, costs are more likely overstated. Hence, the cost of these policies should be adjusted for the greater and quicker adoption of supply and demand side technologies that would occur in response to the price signal that accompanies the adoption of these caps.

EPA should not reinvent the wheel - in establishing a whole new, unproven, inventory for the purpose of this proposed program. It is important that EPA use inventories that follow EPA protocol for development and have been thoroughly vetted by states (FR Vol. 69 No. 20 pg. 4622).

There are several inventories that fit this bill, including: the 1996 Base Case, 1999 NEI, Title IV, NOx SIP Call. These are all superior alternatives to the 2001 proxy inventory used for predicting emission reductions - and presumably budget allocation - under the IAQR. The inventory was developed for a geographic scope and source sectors which differ than those covered by the IAQR.

Some may argue that emission inventory inadequacies should delay the rule until states have developed and EPA has incorporated the most up-to-date inventory possible. The commenter does not agree with a delay in the rule promulgation for the purposes of refining inventories. As mentioned above, adequate inventories already exist for almost all states affected.

Response:
Updated IPM and air quality modeling has been completed for the Final CAIR. As part of a routine model update to IPM and in response to comments from various parties, EPA has updated the inventory of EGUs, made revisions to several model assumptions (such as costs of pollution controls), and added various State rules, regulations, and NSR settlements to best reflect available data and information. Along with new economic and emissions modeling reflecting these updates, EPA has also redone air quality modeling. These new results best reflect what EPA projects to occur in the future with and without CAIR. As with any projection or forecast, EPA is publishing modeling results for today's action that best reflect what EPA believes will occur in the future, and are not to be interpreted as an exact prediction of what the future will be. It is to be used as a very thorough guide. The assumptions and models used for these projections is based upon extensive research, fact checking, and robust science. EPA recognizes that, to a certain extent, economic, emissions, and air quality modeling have limitations. However, EPA

believes that the data and tools used for the Final CAIR are some of the most robust and sophisticated to ever be used for any EPA regulatory action. See Final CAIR preamble for further discussion.

XI.B.13.
Comment:
Page 4589, Column 2, Line 13 - 'Specifically, the future base case scenarios include the effects of the LNDE, as proposed, the HDDE standards, the Tier 2 tailpipe standards, the NOx SIP Call as remanded (excludes controls in Georgia and Missouri), and Reasonably Available Control Techniques (RACT) for NOx in 1-hour ozone nonattainment areas.'
The commenter disagrees with the assumption that no control on utility boilers in Missouri is the appropriate level for the future base cases. The statewide NOx trading rule (10 CSR 10-6.350) requires utility boilers greater than 25 MW to meet emission limits between 0.18 lb NOx/MMBTU and 0.68 lb NOx/MMBTU. This rule has been supplied as part of Missouri's State Implementation Plan and should be considered when developing these inventories.

Page 4589, Column 3, Line 10 - 'Future year 2010 and 2015 Base Case EGU emissions used for the air quality modeling runs that predicted ozone and $PM_{2.5}$ nonattainment status were obtained from version 2.1.6 of the Integrated Planning Model (IPM) (http:www.epa.gov/airmarkets/epa-ipm/index.html).'

Since EPA is using the IPM analyses to determine if a state has a significant impact on a downwind area, then it would seem logical to use (at least, in part) these analyses to set the appropriate tonnage caps for the upwind state. This would eliminate a legitimate concern over establishing a cap using a dated representation of the utility industry in the United States (EPA Title IV database). This approach would be similar to the NOx SIP Call and could include utility industry growth in the last 10-15 years. As with the NOx SIP Call, any data used to project emission growth must be examined closely to ensure it passes the 'reality test'. Specifically, the growth of heat input from the utility sector in Missouri detailed by the NOx SIP Call was underestimated to a significant degree. This was due to apparently incomplete or inadequate information used in the projections. The commenter's concerns remain focused on fair and equitable treatment for Missouri sources.

Response:
Updated modeling using IPM has been completed for the final CAIR. As part of a routine model update to IPM and in response to comments from various parties, EPA has updated the inventory of EGUs, made revisions to several model assumptions, and added various State rules, regulations, and NSR settlements to best reflect available data and information. Along with new economic and emissions modeling reflecting these updates, EPA has also redone air quality modeling. These new results best reflect what EPA projects to occur in the future with and without CAIR. It should be noted that IPM is the tool that EPA uses to for projected emission

and economic impacts for the power sector. Power sector emissions data, along with emissions data from other sectors, is then fed into air quality modeling, which determines a States contribution to a downwind nonattainment area. The Final CAIR sets State budgets that can be met through a regional cap and trade program, which EPA believes is the most cost-effective way to achieve the significant emission reductions required under CAIR. A State can choose not to participate in the regional trading program. In addition, the Final CAIR does not incorporate growth factors for setting the caps. Historical heat-input data is used to calculate the caps. See Final CAIR preamble for further discussion.

XI.B.14.
Comment:
Unlike it did in the NOx SIP Call rulemaking, EPA has not accounted for electric generation growth in the development of the 2010 and 2015 emission caps. EPA has requested comment on whether EPA should consider growth, and subsequently whether EPA should use the results of the IPM projections for unit generation heat inputs in 2010 and 2015, or whether the method applied in the NOx SIP Call could be used.

The commenter believes that EPA must account for generation growth to ensure that emission reductions would not be required due solely to anticipated growth in electric generation between the baseline year during which the rules are promulgated and the year when the reductions would be required. Failure to address growth will result in 'effective' emission rates in 2010 and 2015 that would be less than the 0.15 lb/mmBtu and the 0.125 lb/mmBtu rates upon which the 2010 and 2015 NOx caps, respectively, have been based and upon which EPA's cost-effectiveness analysis is based.

However, the commenter has reservations about the use of EPA's IPM modeling analysis to estimate future growth. The commenter's concerns involve IPMs assumptions in EPA's base case that new build is almost exclusively natural gas through 2015. For example, there appears to be no new coal build through 2015, yet the commenter's industry is planning to build new coal as evidenced by permit applications and recently issued air permits. In comparison, EIA's latest long-term projections add both coal and gas for new build through the same forecast period (although primarily after 2010), and more additional capacity than IPM to meet a higher projected demand. The effect of an IPM projection versus a forecast that assumes additional coal capacity would be to reduce the projections of heat inputs. The commenter notes, for example, that EPA's IPM sensitivity run assuming higher natural gas prices, electricity demand and SCR costs projects more additional capacity with coal and less build with gas than the IPM IAQR base run. This results in a corresponding 4.6 percent higher heat input (aggregate) projection in 2010 and 5.9 percent higher in 2015 relative to the IPM 2003 base case and the IAQR Base Run, and differences in projected growth rates over the 2005-2010 timeframe of about 8 percent (base case) versus 11 percent (higher gas case), and about 16 percent versus 21 percent over the 2005-2015 timeframe. While these statistics include all generation (including generation that would not be subject to the IAQR), they nevertheless demonstrate the sensitivity of growth projections to model input assumptions. The commenter recommends that EPA examine a number of forecast

options including EIAs latest forecast and present an evaluation for public comment in the Supplemental Notice of Proposed Rulemaking (SNPR) the Agency plans to release in May.

The commenter's review of the IPM model run outputs (parsed files) revealed several discrepancies regarding existing control technologies at several of the commenter's facilities (units). The commenter included this information as an attachment to its comments. The commenter is still in the process of reviewing the IPM model information, and may provide additional comment during the SNPR comment process.

Response:
Updated modeling using IPM has been completed for the final CAIR. As part of a routine model update to IPM and in response to comments from various parties, EPA has updated the inventory of EGUs, made revisions to several model assumptions, and added various State rules, regulations, and NSR settlements to best reflect available data and information. Along with new economic and emissions modeling reflecting these updates, EPA has also redone air quality modeling. The method used for establishing the CAIR caps was based on what EPA believes to be highly cost-effective emission reductions achievable in the CAIR affected region. These new results best reflect what EPA projects to occur in the future with and without CAIR. IPM projections indicate that future growth will be met, in part, be new coal-fired capacity. In addition, EPA uses reasonable projections for electricity demand growth, and also has done a sensitivity using revised assumptions base on EIA information. See Final CAIR preamble and the Final CAIR Regulatory Impact Analysis for further discussion.

The NEEDS is the inventory of electric generating units that EPA uses for modeling applications with IPM. The NEEDS includes basic geographic, operating, air emissions, and other data on all the generation units that are represented by model plants in IPM. This comment, regarding discrepancies in existing control technologies at the commenter's units, is based on the January 2004 CAIR proposal. IPM modeling for the January 2004 proposal used the 2003 version of NEEDS, which contained all control retrofits that EPA was aware of at the time that version was developed.

In March 2004, EPA received feedback from Dominion regarding their units, and the Agency incorporated that feedback into the 2004 update of NEEDS. EPA's modeling for the final CAIR, which used NEEDS 2004, reflects all of the information shown in the commenter's attachment. The NEEDS 2004 is available in the CAIR docket as well as on EPA's website. Documentation for the 2004 update is also in the docket and on EPA's website, see "Documentation Summary for EPA Base Case 2004 (v.2.1.9) Using the Integrated Planning Model, October 2004." See Exhibit 3-15 in the Documentation Summary for a description of how controls are reflected for units affected by NSR settlements.

XI.B.15.
Comment:

Clean Air Minnesota voluntary Minnesota emission reductions of $_{SO2, NOx}$ and VOCs were not given consideration in USEPA CAIR culpability analysis: The emissions signal from Minnesota in 2010 is being overstated in EPA CAIR modeling. The reductions under commitment for implementation by 2010 should be modeled.

Response:
Updated modeling using IPM has been completed for the final CAIR. As part of a routine model update to IPM and in response to comments from various parties, EPA has updated the inventory of EGUs, made revisions to several model assumptions, and added various State rules, regulations, and NSR settlements to best reflect available data and information. Along with new economic and emissions modeling reflecting these updates, EPA has done air quality modeling. These new results best reflect what EPA projects to occur in the future with and without CAIR. In Minnesota, EPA incorporated recent agreements with State utilities to either repower or retrofit certain units. EPA incorporated these updates based on available data and believes that these agreements in Minnesota have been adequately reflected in IPM.

XI.B.16.
Comment:
Data used in the National Electric Energy Data System (NEEDS) is inaccurate and misrepresents current inventory of generating resources: A review of the methodology and data provided for the NEEDS records identified several problems. The use of the 1995 data as a baseline for the electrical generating units identified several required changes to unit efficiency, operating capability, plant type, and pollution control equipment for most of the units owned or operated by the commenter. Data elements within NEEDS are nearing 10 years old and do not reflect the current fleet of generating resources in use today. Required changes to the NEEDS records for the commenter's units were submitted by the commenter in an attached NEEDS spreadsheet (CAIR NODA Changes to NEEDS.xls) and identified in red text.

Of particular concern to the commenter is newer units which have not been accounted for in the NEEDS spreadsheet and which would have major impacts on forecasted emissions for current and future years. EPA has identified the requirement by DOE to maintain confidentiality of many data elements, including unit heat rates, as the primary reason for use of the 1995 and prior data.

Response:
In developing NEEDS 2004 (this is the NEEDS version published in the NODA and used in the final CAIR analysis, on which the commenter's comments are based), EPA endeavored to obtain the best available information on electric generating units. A description of the data sources and assumptions that form the basis for NEEDS 2004 is in the "Documentation Summary for EPA Base Case 2004 (v.2.1.9) Using the Integrated Planning Model, October 2004" available in the CAIR rulemaking docket and on EPA's website.

The Agency used information reported in AEO 2004 as the basis for the heat rates in NEEDS 2004. For plant type and capacity, the Agency used information reported in DOE form EIA-860

from 2000 and 1998, and information in RDI's NEWGen Database 2004. The capacities in NEEDS 2004 are the summer dependable capacities. Pollution control equipment for NOx and SO2 in NEEDS 2004 is primarily based on information in EPA's Emission Tracking System as of 4th quarter 2003, and DOE form EIA-767 for 2001. Some pollution control information is from supplemental data sources (see Exhibit 4-2 in the Documentation Summary). PM control equipment in NEEDS 2004 is based on PM control equipment in NEEDS 2003.

For the specific generating units that the commenter identified in the spreadsheet attachment submitted with their comments, the differences identified by the commenter would not have a significant impact on the CAIR modeling. The units listed are primarily low-emitting units (mostly gas, some non-fossil). Very little coal capacity would be affected by the changes. In a few cases, NEEDS 2004 lists post-combustion NOx control equipment in error. However, EPA used appropriate NOx emission rates in its CAIR modeling for those units

XI.B.17.
Comment:
Regarding the EPA emissions inventory and modeling used to establish the NOx cap, the commenter questions whether EPA used the Missouri NOx Rule, 10 CSR 10-6.350 as amended by the Missouri Air Conservation Commission in April of 2003. This rule will have a significant effect by decreasing Missouri NOx emissions and transport, both intrastate and interstate. Therefore, the commenter requests the EPA remodel based on the Missouri NOx Rule.

The commenter firmly believes that the environmental and health benefits of the TDF provision should be considered by EPA in the final IAQR Rule.

Response:
A summer NOx regulation for Missouri is included in EPA modeling of the power sector, and emissions reflect this. For additional information regarding the State rules and/or regulations included in EPA modeling, see the documentation report for the Integrated Planning Model of 2004 in the final CAIR docket and on EPA's website.

XI.B.18.
Comment:
A commenter submitted comments on the NODA for the CAIR proposed rule. An attached spreadsheet indicated alleged errors in the data used for in the IPM model for this proposed rule. The commenter highlighted, added, or corrected data in the spreadsheet. These alleged errors include missing units, incorrect emission rates, missing emission control equipment.

Response:
In developing NEEDS 2004, EPA endeavored to obtain the best available information on electric generating units. A description of the data sources and assumptions that form the basis for NEEDS 2004 is in the "Documentation Summary for EPA Base Case 2004 (V.2.1.9) Using the Integrated Planning Model, October 2004," available in the CAIR rulemaking docket. The

differences that the commenter identified would not have a significant impact on the CAIR modeling. The units for which the commenter identified differences are primarily low-emitting units (mostly gas, some non-fossil). Very little coal capacity would be affected by the changes.

XI.B.19.
Comment:
The commenter is particularly concerned with our inability to fully evaluate the critical IPM model inputs and results which directly related to the electricity generating sector (power plants). There are many versions of files and runs and also changes to the core assumptions hardwired into the model between the current and earlier versions. The specific information used for the CAIR analysis needs to be packaged and presented in whole for comment.

EPA states that the information contained in the NEEDS database (reflected in Docket #OAR-2003- 0053-1712) is used as the basis for all modeling involving EGU's. It does not appear that this file accurately reflects emission rates for Wisconsin's NOx control program or consent decree emission rates for We-Energies. It is unclear how this database interacts with the IPM model in determining future control outcomes and emissions. An older version of an IPM file contains reference to the 'Wisconsin NOx Policy' but the assumptions are unclear and if this file was superseded by the NEEDS database file. Therefore the treatment of these parameters by the IPM model and resulting emissions is unclear. This same issue applies to Wisconsin's recently promulgated rule calling for EGU mercury reductions by 2010 and 2015. The control equipment used for mercury control is anticipated to be primary SO2 and PM2.5 control technologies.

The NEEDS database appears to contain errors. This is especially true for NOx emission rates contained in columns under 'Base Rate' and 'Policy Rate' which do not reflect any current of future anticipated conditions. For example, the Wisconsin Columbia 1 generating unit reflects a current emission rate under the 'Base Rate' for a selective catalytic reduction unit where one does not exist. Then the 'Policy Rate' reflects a relatively low efficiency selective catalytic reduction unit. There are also a significant number of sources where there are changes between Base and Policy rates that are not justified. However, it is unclear what emission rates are actually required for the NOx Base and Policy fields as the intent is not defined and therefore it is difficult to provide comment. The commenter submitted a table identifying requested corrections to Base NOx emission rates in the NEEDS database coinciding with current conditions and Policy emission rates consistent with expected combustion control for major units. The attachment also identifies applicable NOx emission limits in 2007 under the Wisconsin rule NR 428.

There does not appear to be any outliers for the SO2 emission rates contained in the NEEDS database. However, EPA needs to ensure that these emission rates are consistent with those contained in the acid rain compliance reports.

Another aspect that needs to be considered in future control is the replacement of existing control equipment. For example, as hot-side ESPs age they are being retired as soon as feasible and replaced by fabric filter systems. This has occurred for one major unit in Wisconsin (Weston 3)

and is planned for two additional units. The IPM model needs to address this type of ongoing equipment change and evolution.

Response:
Updated modeling using IPM has been completed for the final CAIR, and modeling results can be found in the CAIR docket and on EPA's website. As part of a routine model update to IPM and in response to comments from various parties, EPA has updated the inventory of EGUs (the NEEDS database), made revisions to several model assumptions, and various State rules, regulations, and NSR settlements to best reflect available data and information. The documentation for these updates, entitled "Documentation Summary for EPA Base Case 2004 (V.2.1.9) Using the Integrated Planning Model, October 2004" is also in the CAIR docket and on EPA's website. The updated NEEDS database (NEEDS 2004) was published in the CAIR NODA, and is available on EPA's website.

The NOx and SO2 requirements in the cooperative agreement between We Energies (WEPCO) and DNR are implemented in the v.2.1.9 update of IPM, however, the mercury requirements were not included in this update but may be incorporated in a future update. In addition, actions representing the We Energies (WEPCO) New Source Review (NSR) Settlement as it existed in March 2004 are implemented in v.2.1.9. The EPA explains how the cooperative agreement and NSR settlement are implemented in IPM v.2.1.9, in the Documentation Summary. The NOx base rates and NOx policy rates are also explained in the Documentation Summary.

If EPA performs future updates of the IPM, the Agency will endeavor to obtain the best available information on existing control retrofits, including replacement of control equipment.

XI.B.20.
Comment:
Although EPA appears to incorporate all of the Metropolitan Emission Reduction Proposal (MERP) reductions in its emissions inventory for CAIR, the commenter cannot confirm from the NODA that the emissions information is accurate.

Since Minnesota ratepayers are going to spend $1 billion to achieve the MERP, the commenter strongly believes any additional costs imposed upon them should be thoroughly justified, both technically and legally. Previously, the commenter observed that EPA had not accounted for the MERP in the REMSAD model. The MERP will result in a 90 percent reduction in NOx and SO2 emissions from the commenter's power plants in the Twin Cities area and will have a significant beneficial impact on air quality in Minnesota and in downwind states. In the NODA, the commenter is pleased to see that EPA has apparently proposed improvements to its emissions inventory and that these improvements now incorporate the MERP. However, none of the information in the NODA confirms that EPA has properly accounted for any of the MERP reductions after 2007 (the commenter plans to repower two plants in 2008 and 2009). While the commenter is confident that EPA has properly incorporated this information, the commenter is unable to confirm it through their examination of the NODA. Given that Minnesota's emissions

are already so close to the proposed significance level (or below it given CMAQ's acknowledged overprediction), inclusion of all of the MERP is essential for accurately assessing Minnesota's impact on downwind states.

Response:
Updated modeling using IPM has been completed for the final CAIR. As part of a routine model update to IPM and in response to comments from various parties, EPA has updated the inventory of EGUs, made revisions to several model assumptions, and added various State rules, regulations, and NSR settlements to best reflect available data and information. Along with new economic and emissions modeling reflecting these updates, EPA has redone air quality modeling. These new results are intended to reflect what EPA projects to occur in the future with and without CAIR. In Minnesota, EPA incorporated the Metropolitan Emission Reduction Proposal which requires various repowerings and retrofits of Xcel Energy units. EPA incorporated these updates based on available data. However, EPA has discovered that there may be some discrepancies in emissions between the MERP as agreed to by Xcel and Minnesota and how EPA implemented the MERP in IPM. Nonetheless, EPA has concluded that although differences may exist, they are not large enough to impact EPA's test for Minnesota's significant contribution to a downwind nonattainment area, and is therefore finalizing CAIR with Minnesota as part of the program.

As noted above, the discrepancy in emissions from several Xcel facilities in Minnesota is expected to result in somewhat lower 2010 Base Case NOx and SO2 emissions compared to what EPA used in the modeling of Minnesota's contribution to PM2.5 nonattainment in downwind States. Emissions of NOx are expected to be 16,500 tons lower and emissions of SO2 are expected to be 5,900 tons lower than we modeled, according to a recent EPA analysis. These reductions translate into a 4.6 percent reduction in total statewide NOx and a 4.3 percent reduction in total statewide SO2 emissions in Minnesota in 2010. In view of these reductions, we performed two analyses to estimate whether the lower emissions would drop Minnesota's downwind contribution below the PM2.5 significance threshold of 0.2 $\mu g/m^3$. EPA's zero-out modeling for Minnesota shows that Minnesota's maximum contribution is 0.21 $\mu g/m^3$ to Cook County, Illinois. Our analyses of the effects of the emissions changes on the maximum contribution are as follows:

- Analysis 1: We reduced the maximum PM2.5 contribution by the larger of the percent reduction in NOx and SO2 emissions (i.e., the 4.6 percent reduction in NOx). The maximum PM2.5 contribution after making this adjustment is 0.2 $\mu g/m^3$.

- Analysis 2: We reduced the sulfate and nitrate portions of the maximum PM2.5 contribution by the corresponding reductions in SO2 and NOx emissions. Specifically, the sulfate portion (including sulfate, ammonium, and particle-bound water) was reduced by the 4.3 percent reduction in SO2 emissions and the nitrate portion was reduced by the 4.6 percent reduction in NOx emissions. We then recalculated the maximum contribution

using these lower components. The result is that the adjusted maximum PM2.5 contribution is 0.2 $\mu g/m^3$.

Thus, our analyses indicate that Minnesota makes a significant contribution to PM2.5 nonattainment, even after considering the emissions reductions which result from Xcel's comments.

XI.B.21.
Comment:
Revised future year emission inventories for large point sources have not been created nor provided because the Integrated Planning Model (IPM) model that predicts unit dispatching, has not been run although it is planned. It is unconscionable that the CAIR rule could be made final before knowing the results of this analysis and providing an adequate opportunity for all interested stakeholders to review and comment on them.

Response:
Modeling using IPM was made public for the CAIR NPR (January 2004), and interested parties had adequate time to review and understand the results of the model for purposes of comment. The newly released IPM results for the Final CAIR incorporate routine updates and improvements. EPA incorporated the most up-to-date information regarding the power sector and included some improvements to the model in response to comments from interested parties.

XI.B.22.
Comment:
While the NODA is silent, it should be noted that new modeling tools, CMAQ, MM5 and revised SMAT, and 2001 emissions were part of this release, and that this exercise was specifically performed to update only the $PM_{2.5}$ portion of CAIR.

The NODA reports an updated NEEDS database. This database is for use by IPM. However, there is no information available on the differences between the old and the new NEEDS, if there were plans for revised IPM runs, and if so when those data and analysis would become available for comment.

Response:
Updated modeling using IPM has been completed for the final CAIR, and modeling results can be found in the CAIR docket and on EPA's website (the NEEDS database has not changed since it was posted for the NODA). As part of a routine model update to IPM and in response to comments from various parties, EPA has updated the inventory of EGUs (the NEEDS database), made revisions to several model assumptions, and various State rules, regulations, and NSR settlements to best reflect available data and information. The documentation for these updates, entitled "Documentation Summary for EPA Base Case 2004 (V.2.1.9) Using the Integrated Planning Model, October" is also in the CAIR docket and on EPA's website. The updated NEEDS database is called NEEDS 2004.

XI.C. Deficiencies with approach to future non-EGU emissions projections

XI.C.1.
Comment:
Several commenters noted that for the NPR, EPA had used three different 2010 base case inventories, but only one 2010 control case inventory. One commenter noted that the proposal did not describe which of the three 2010 base cases was used as the basis for the 2010 control case. Other commenters pointed out that the differences between the 2010 Base-1 emissions used for the State zero-out runs and the updated 2010 Base-2 emissions used for modeling the actual control strategy were large for some States. They noted that EGU NOx emissions for Massachusetts dropped from 27,800 tons in the 2010 Base-1 to 10,400 tons in the 2010 Base-2; that EGU SO2 emissions for North Dakota were 11,300 tons lower in 2010 Base-2; and that EGU SO2 emissions for Iowa were 16,351 tons lower in 2010 Base Commenters recommended that EPA should redo all air quality modeling to use a consistent set of emissions for both the individual State zero-out runs and the overall control strategy cost-benefit.

Response:
EPA agrees. For the final rule, all zero-out and base and control case modeling was done using a single IPM version, 2.1.9. The single 2010 control case inventory modeled for the NPR was based upon the 2010 Base-2 inventory. Further explanation of the sequence of events leading to the use of three 2010 base cases for the proposal is presented below.

For the NPR, EPA had developed a single 2010 base case for all emissions sectors except EGUs. For EGUs, IPM version 2.1 provided the first set of EGU 2010 predictions, which were used in inventory file 2010 Base-1. This inventory file was used for the State-by-State zero-out modeling runs for all States except for Iowa, Louisiana, North Dakota, Vermont, Colorado, Montana, New Mexico, and Wyoming. Prior to zero-out modeling for these eight States we identified and corrected an error in projected 2010 $PM_{2.5}$ EGU emissions at three facilities in Iowa, Louisiana, and North Dakota. This corrected version was called 2010 Base-1a, and was used for the zero-out runs of those eight States. Prior to beginning the national control strategy model runs for the proposal, EPA developed an updated IPM baseline, version 2.1.6, and incorporated that set of EGU projections into 2010 Base-2. The 2010 Base-2 inventory and a control strategy inventory also developed from IPM version 2.1.6 were used for the proposal's cost-benefit assessment. We compared the total emissions of NOx and SO2 in the 2010 Base-1 versus the emissions in the 2010 Base-2 inventories for each State. For proposal, EPA re-ran the zero-out run using Base-2 emissions for those States whose total emissions of $_{NOx\ or\ SO2}$ differed by 10 percent or more between Base-1 and Base-2. New Jersey was the only State which met this criterion and, thus, this State was remodeled for proposal using Base-2 emissions. For Massachusetts, the 17,400 tons reduction in EGU NOx emissions between the 2010 Base-1 and Base-2 emissions represents a difference of 8 percent of total NOx emissions. For North Dakota, the 11,300 tons reduction in EGU SO2 emissions between the 2010 Base-1 and Base-2 emissions represents a difference of 4 percent of total SO2. For Iowa, 16,351 tons reduction in EGU SO2 emissions between the 2010 Base-1 and Base-2 emissions represents a difference of 6 percent of total SO2. As noted above

and described in the NFR preamble, the contributions from all of these States was modeled for the final rule using updated inventories based on IPM version 2.1.9.

XI.C.2.
Comment:
One commenter stated that an independent modeling analysis found considerable discrepancies when controls were applied generally state-wide to all sources as compared to when controls were applied specifically to each unit as projected by the IPM model. Commenter states that EPA's modeling used the state-wide approach, and urges EPA to examine the technical analyses from the independent modeling study.

Response:
The commenter is incorrect in stating that EPA's NPR modeling applied controls in a state-wide fashion. The control case modeling for 2010 and 2015 used the specific unit-level projections from IPM.

XI.C.3.
Comment:
One commenter asked if EPA has attempted to coordinate base year EGU emissions with those in the NEEDS database used to drive the IPM forecasts, and what EPA has done to preclude double counting of forecasted emissions between EGUs and non-EGUs.

Response:
As part of the development of the final 2001 and future year point source inventories, EPA compared the 2001 EGU and non-EGU point source emissions to the universe of sources in the NEEDS 2003 data base. As a result of this process we identified two sets of existing point sources. One set includes sources that are part the baseline for future year projections by IPM. The other set includes sources which are not expected to be covered by IPM. To avoid double counting of emissions, we used the IPM forecast emissions for those sources which are part of the IPM baseline. Other point sources, not covered by IPM were projected using State/SCC/SIC-specific growth and control factors. This procedure is described in the NFR Emissions Inventory TSD.

XI.C.4.
Comment:
One commenter asserted that the 2010 base inventories used for the NPR did not include the future benefits of several national regulations, including MACT standards, improved diesel engines and diesel fuels, and comprehensive NOx/SCR controls.

Response:
EPA disagrees with the comment. As stated in the NPR preamble and TSD, as per existing policy, EPA took account of all major regulations "on the books" at the time modeling was begun

which are to be in effect in 2010. This included the industrial boiler and internal combustion engine MACT standards, the Tier II/gasoline sulfur standards for light duty vehicles and trucks, the standards for heavy-duty diesel engines, and the large spark-ignition and recreational vehicle standards. In addition, due to the likely major reductions to be gained by the non-road diesel engine rule, which was very close to promulgation at the time modeling was begun, the effects of that rule were also included as part of the base cases for 2010 and 2015. (That rule is now final. See 69 FR 38958 (June 29, 2004).) Other MACT standards geared primarily towards reductions of toxic organic compounds that would also result in modest reductions of VOC emissions were not included in the proposal modeling, but have been included in the final rule modeling. The specific controls included in the future year baselines are described in the NFR EI TSD.

XI.C.5.
Comment:
One commenter stated that EPA had failed to take into account economic growth.

Response:
EPA disagrees with this comment. The future year inventories used for both the proposal and final rule modeling do include growth. For the final rule analyses, updated economic growth projections by State/SCC/SIC were developed, as described in the NFR Emissions Inventory TSD.

XI.C.6.
Comment:
One commenter indicated that EPA should revise 2010 and 2015 base case emissions by improving the methods for estimating economic growth and not rely on the Bureau of Economic Analysis (BEA) data used for proposal.

Response:
In response to this comment, EPA refined its economic growth projections between the proposed rule and the final rule. In addition to using updated versions of the MOBILE6, NONROAD, and IPM models for the final rule analyses, EPA developed new economic growth rates for stationary area and non-EGU point sources. For these two sectors, the final approach uses a combination of (1) regional or national fuel-use forecast data from the U.S. Department of Energy for source types that map to fuel use sectors (e.g., commercial coal, industrial natural gas), (2) state-specific growth rates from the Regional Economic Model, Inc. (REMI) Policy Insight® model, version 5.5, and (3)forecasts by specific industry organizations and federal agencies. For more detail on the growth methodologies, please refer to the NFR EITSD.

XI.C.7.
Comment:
A commenter noted that natural gas transmission compressor station point sources in Kansas had experienced declining use and therefore emissions from 1996 through 2002, and suggested that the actual 1999 to 2001 emissions be used as the starting point for the growth analysis, and also

that future year emissions for these sources be set equal to the 1999 to 2001 average, reflecting zero economic growth.

Response:
The NPR used emission estimates from 1996 which EPA projected to 1999 as a base year, and then projected that 1999 base year to 2010 and 2015. For the final rule analyses EPA has used actual 1999 emissions as submitted by all of the States as the latest available data, and then projected those 1999 estimates to 2001 as a base year. EPA's 2001 inventory used for final rule analysis reflects 56,211 tons NOx from SIC 4922 in Kansas, compared to approximately 56,000 tons in 1999 declining to approximately 52,000 tons in 2001 as indicated by Kansas on the time line graph submitted with their comment. Thus EPA's projection from the 1999 inventory submittals to the 2001 base year reflects essentially no growth. However, because projecting economic growth to 2010 and 2015 is highly dependent on a number of assumptions, including fuel prices, EPA believes that using a consistent set of input assumptions for all States and all sectors is more appropriate than accepting individual requests for adjustments without substantial evidence to support them.

For the final rule analyses the overall 2001 to 2010 economic growth rate used for the natural gas transmission sector in Kansas was 18 percent, and for 2001 to 2015 it was 25 percent. Due to NOx co-benefits expected from the reciprocating engine MACT standard, NOx emissions in Kansas from this sector in 2010 are projected to be 2.1 percent lower than 2001 emissions, and 2015 emissions are projected to be only 3.7 percent higher than 2001.

XI.C.8.
Comment:
One commenter suggested that EPA should use more than one year as a base from which to project future year emissions, and that generated growth factors should be checked against historic trends.

Response:
EPA disagrees with the approaches suggested by these comments. Use of a multi-year average as a base year for emissions projections would simply mean that the annual growth rates typically available from economic models would have to be adjusted to use a multi-year average as their base rather than a selection from among the single years available. This would not result in any difference in future year emissions but would likely increase confusion. The economic models that EPA uses for projections incorporate historical trends in activity levels as one of their input variables. For reasons of transparency and credibility, as well as ease-of-use, EPA believes it is more appropriate to rely on the overall results of available economic forecasting models than to develop our own historical trend lines as a basis for projecting future years.

XI.C.9.
Comment:

One commenter said that they have been unable to locate and access the files to verify the detailed assumptions being used to project non-EGU emissions. Projections of ammonia emissions in 2010 and 2015 were cited as an example of concern in that the decrease projected for Wisconsin in EPA's modeling did not reflect the State's growth expectations.

Response:
Response to Comment Section XI.D.6 regarding accessibility of all emissions input files. The projections of ammonia emissions are primarily driven by projections of agricultural livestock activities. As noted in the "CAIR Emissions Inventory Overview" document provided as part of the NODA, this emissions sector was estimated for both the base year and the two future years using the methodology described at ftp://ftp.epa.gov/EmisInventory/prelim2002nei/nonpoint/documentation/nh3inventorydraft_jan2004.pdf.

Future year projections of animal populations for all States was based upon information in *U.S. Livestock and Dairy; FAPRI 2003 Agricultural Outlook, Food and Agricultural Policy Research Institute, February 2003.*

XI.D. General

XI.D.1.
Comment:
One commenter said that EPA should have used BEIS model version 3.11 or 3.12 rather than version 3.09 for biogenic emissions. The commenter also asserted that EPA was silent on exactly how the biogenic emissions were calculated in terms of what photosynthetically active radiation (PAR) values were used. The commenter suggested that PAR values from either the meteorological model or from satellite measurements should be used, but not PAR values based on sun angle.

Response:
For the final rulemaking, EPA has used BEIS version 3.12. PAR is calculated in BEIS3 in the getpar subroutine. It is a function of solar zenith angle and the radiation reaching the ground.

XI.D.2.
Comment:
Two commenters referred to the same third-party technical evaluation of EPA's proposal which noted some differences in stack parameters and predicted emissions for one utility company's large sources.

Response:
EPA finds that the stack locations and heights compared in the technical evaluation to be largely in very close agreement to the EPA modeling file values for the large existing emitters. The predicted emissions of individual units six years into the future can obviously differ when made by two independent studies. The differences noted in the technical evaluation of the number of stacks and the presence of one tall and several much shorter stacks in the EPA modeling files appears to be the result of the need for EPA's modeling files to include projected new, lower-emitting generators to meet future capacity demands. The IPM model typically projects a total capacity of such new generators for an entire State, but does not locate them for air quality modeling purposes. EPA follows a standard protocol which locates portions of this capacity (usually gas turbines) preferentially in the most likely locations, typically existing facility locations in attainment areas. The additional shorter, much lower emitting stacks seen in EPA's modeling files with default stack parameters are due to that new projected capacity.

XI.D.3.
Comment:
One commenter noted that EPA failed to describe the temporal allocation of emissions.

Response:
EPA used quarterly profile fractions, weekday/Saturday/Sunday adjustments, and 24-hour diurnal profiles, all assigned by SCC, to temporally allocate the emissions for the proposal modeling. For the final rule modeling analyses, EPA used month-specific fractions, day fractions, and hourly diurnal profiles as described in the NFR Emissions Inventory TSD.

XI.D.4.
Comment:
One commenter stated that the emissions inventories have changed with every step of the rulemaking process, leaving tremendous uncertainty as to their quality and the quality and conclusions based on earlier modeling. The commenter stated that improvements should be clearly identified and justified, and that in many cases the changes appear unwarranted and add to confusion.

Response:
EPA disagrees with this comment. The NPR used an emissions inventory that was based upon State point source submittals for the 1996 year, and adjustments made to the other sectors to reflect newer versions of emissions models and utility CEM data. Many commenters on the NPR (see Comment6 XI.A.1) felt that a more up-to-date inventory was needed for the final rule analyses. EPA agreed with those comments, and responded by producing an inventory based upon 1999 State submittals for point sources, utility CEM data for 2001, the latest versions of the MOBILE6 and NONROAD models, and updated and more geographically comprehensive inventories for the major ammonia sources and for wildfires. This improved inventory was documented in both summary and detailed form in the August 6, 2004 NODA in order to provide the most opportunity for public review and comment. (See Comment XI.A.13.) Among the materials made available with the NODA was a 20-page document "CAIR Emissions Inventory Overview", which clearly identified the changes made to the inventory. The comments received on the revised inventory as a result of the NODA primarily addressed specific and local issues, rather than raising broad issues about the appropriateness of using the models or the newer, more comprehensive datasets. EPA has made inventory revisions as necessary to address the NODA comments as documented in the NFR EI TSD and in these Responses to Comments XI.A.4, XI.A.5, XI.A.6, and XI.C.6).

XI.D.5.
Comment:
One commenter stated that the NODA provided only a summary of the emissions resulting from the application of the future year growth and control factors. Commenter stated that EPA should provide summaries of grown emissions both with and without the projected controls, and at a level of detail consistent with the applied assumptions, in order to help States to more quickly identify areas of incorrect data.

Response:
EPA provided with the NODA all of the input files necessary for the projection of the base year inventories to the future year baselines, including the complete base year inventories, the economic growth ratio files, and the control packet files. EPA acknowledges that the process of constructing future year inventories can be complex, due to the large variety of source types, the fact that the economic growth files are specific for each State and 2-digit SIC, the desirability of using State-specific fuel use projections, and the variety of State and Federal control programs to be accounted for. EPA therefore provided as part of the NODA the SMOKE emissions processing software and setup that was used to apply all of these factors to produce the future year baselines. Although EPA ran a number of quality assurance checks to insure correct application of the growth and control factors, EPA does not feel it is necessary or feasible to try to anticipate all of the formats and levels of summary detail that various reviewers might find helpful to satisfy their particular review questions.

XI.D.6.
Comment:
One commenter stated that EPA had not consolidated the detailed base emissions inventories, growth and control files to one readily accessible server location. Commenter had little success obtaining the files although they note that EPA provided instructions for doing so, and those that had been located were described as being in an unaccessible format, and there was not sufficient time to evaluate the quality of the data.

Response:
EPA disagrees with the comment that the detailed inventories and other input files were not made available in one readily accessible location. As commenter notes, the August 6, 2004 NODA provided instructions on where the detailed data and summary files could be accessed. EPA acknowledges that the amount of data used for this rule analysis was substantial and requires extensive computer resources by anyone wishing to review the full detail. EPA made all detailed data available in the standard ASCII-UNIX formats used for emissions processing. EPA also posted summaries of the detailed data, and also developed and posted a set of input templates to allow users to read the UNIX files into an MS Access database for easier viewing.

XI.D.7.
Comment:
One commenter stated that EPA's approach for including emissions from Mexico, Canada, and offshore sources was overly simplistic in that it used data from years 1995 to 1999 to represent the 2001 base year, and used the same emissions data from those sources for the 2010 and 2015 future years. The commenter stated that EPA needs to demonstrate that a change in these emissions does not affect the air quality outcome of the CAIR program, or else provide some estimate of growth and control for these sources.

Response:
EPA used the latest emissions inventory data available for these sources for the base year. Although it may have been possible to grow these emission sources to reflect anticipated economic growth, EPA had no information available to suggest what the concurrent control programs might be. Control program reductions might well be more important than any economic growth, particularly for point sources. In addition, the point source control programs in Canada can be facility-specific, and the base year modeling emissions inventory for Canadian point sources was provided to USEPA without facility identifications in order to not disclose proprietary information. EPA believes that modeling these sources with constant annual emissions across time is the best approach given the lack of future control information.

XI.D.8.
Comment:
Two commenters said that the emissions inventory data used for modeling the 2015 base and control cases had not been made publicly available in a timely fashion.

Response:
These comments were submitted March 11 and March 12, 2004, in response to the NPR. The NPR emissions data used for the 2015 base and control cases was made publically available via EPA's ftp site on March 4, 2004. All emissions data for the final rule analyses for sectors other than EGUs was made available via the August 6, 2004 NODA. Base case EGU emissions data was placed in the docket on November 2, 2004 and November 12, 2004.

XII. AIR QUALITY MODELING

XII.A. Comments on Base Year Modeling

XII.A.1. Base Year Ozone Modeling

XII.A.1.1 Ozone Model Configuration and Evaluation
Comment:
A commenter said that the CAMx ozone modeling was only set up and evaluated for areas without sharp topographical contrasts such as seacoast. The concern was that this could affect results for some Northeast U.S. States.

Response:
EPA disagrees with this comment. As shown in the NFR AQMTSD, the CAMx modeling domain covers nearly the entire Eastern U.S. which includes the topographical features in the Northeast such as the Appalachian Mountains and coastal areas along the Atlantic seaboard. We evaluated the CAMx ozone predictions for the Northeast and three other regions of the domain. The results show that model performance for the Northeast was comparable to that of the other regions and does not indicate particular problems with modeling ozone for this region.

Regional/Episodic performance statistics (in percent) for CAMx 8-hourly ozone predictions.

	Average Accuracy of the Peak			**Mean Normalized Bias**			**Mean Normalized Gross Error**		
	June	*July*	*August*	*June*	*July*	*August*	*June*	*July*	*August*
Northeast	-13.5	-2.4	-1.6	-15.4	-4.9	-3.8	21.3	14.6	20.8
Midwest	-4.0	-0.9	20.6	-5.8	-4.4	17.6	16	16.7	23.7
Southeast	1.3	5.3	20.5	0.9	4.0	18.4	16.4	17.5	24.1
Southwest	5.0	8.2	16.2	3.9	3.6	12.4	17.8	18.1	21.1

Comment:
It was noted that the Ozone Transport Commission (OTC) has conducted zero out modeling that indicates that, even if all anthropogenic emissions in the region were eliminated, seven monitors in the OTC's region would continue to register violations of the 8-hour ozone standard solely as a result of transport pollution.

Response:
These OTC findings confirm the more robust EPA CAIR modeling, based on zero out modeling and source apportionment modeling, which indicates that emissions from upwind states contribute substantially to ozone nonattainment.

Comment:
One commenter submitted several analyses claiming the CAIR ozone modeling approach was flawed and thereby underestimated how significant transport is to states like Maryland.

Response:
EPA disagrees with the comment that the modeling underestimates the effects of transport in the Northeast U.S. and that the modeling approach was flawed. Based on the CAIR ozone modeling analysis EPA concluded that there is widespread transport over the eastern U.S. and that emissions from upwind States are adversely impacting the ability of some downwind receptor areas to attain the NAAQS. In total, 25 States in the East (plus the District of Columbia) were determined to be significant contributors to 8-hour ozone nonattainment in other States. The CAIR region includes nearly all States within 900 miles to the south through west of Maryland (i.e., the typical upwind directions for high ozone in Maryland). EPA's modeling shows that six of the 25 States were linked as significant contributors to projected nonattainment in Maryland (i.e., Michigan, North Carolina, Ohio, Pennsylvania, West Virginia, and Virginia). See Preamble Table VI-9. The commenter does not provide any data that suggests that any other States within or outside the CAIR region do, in fact, significantly contribute to nonattainment in Maryland. We have no information to believe that other States make a significant contribution to 8-hour ozone in Maryland. However, even if EPA's modeling inappropriately failed to specifically link any of the other CAIR States to nonattainment with the 8-hour ozone standard in Maryland, the CAIR controls in these other States will provide benefits toward reducing ozone nonattainment in Maryland.

Comment:
A commenter compared our CAMx ozone predictions to ozone measurements from aircraft aloft. Based on this comparison, the commenter contends that the model consistently underestimated ozone aloft over Maryland.

Response:
EPA does not agree with this comment. It should be noted that comparisons of "instantaneous" ozone measurements from aircraft at specific points in space and time against model grid volume hourly averages are potentially misleading. Small differences between modeled winds versus actual local wind directions can result in the model-predicted urban ozone plumes being slightly misaligned with the actual plume, as measured by the aircraft. Based on our review of the data submitted by the commenter we believe that the model-predicted versus aircraft-measured comparisons show only relatively small differences in the "transport layer" aloft (i.e., the area above the nighttime boundary layer within which ozone precursors are transported long distances overnight). For example, the aircraft versus predicted ozone during the late morning/early afternoon flight on July 13, 1995 indicates that the model predictions compare with measurements within +/- 10 ppb through approximately 1245 EDT, independent of height. The commenter's aggregated summary of measurements across multiple days indicates that, on average, the model predictions compare favorably with measurements aloft at approximately

2000 ft which represents ozone concentrations in the transport layer aloft overnight. It should be noted that the tendency of the model to under predict ozone at higher altitudes is not necessarily relevant for the assessment of interstate transport, since ground level ozone is the relevant comparison.

Comment:
A commenter claims that the technical analyses were built using tools oriented at low-level (i.e., near ground level) pollution.

Response:
EPA disagrees with this comment. The data submitted by the commenter indicate that the nocturnal ozone transport layer aloft extends up to approximately 2000 ft. Above this altitude, the measured concentrations decline and are generally low (i.e., in the range of 40 to 50 ppb). EPA's CAMx modeling includes the transport layer in that the modeling region extends up to approximately 13,000 ft which is well above the transport layer evident in the data submitted by the commenter.

Comment:
According to one comment, reconfiguring the modeling to higher resolution grids may increase the number of locations predicted to exceed the standard in 2010 and 2015.

Response:
EPA's draft 8-hour ozone modeling guidance recommends using 36 km resolution for regional modeling with nested grid cells not exceeding 12 km over urban portions of the modeling domain. The guidance states that 4 to 5 km resolution for urban areas is preferred, if feasible. In addition, if 12 km modeling is used then plume-in-grid treatment for large point sources of NOx should be considered. Our modeling for CAIR is consistent with this guidance in that we are using 36 km resolution for the outer portions of the region; 12 km resolution covering nearly all urban areas in the domain; and a plume-in-grid algorithm for major NOx point sources in the region. In addition, an analysis for the 1995 ozone episodes indicates that the spatial fields predicted at both 12 km and 4 km have many common features in terms of the areas of high and low ozone[93]. The analysis also found that when comparing model predictions to observation, the 12 km modeling was found to be somewhat more accurate than the finer 4 km modeling for predicting ozone concentrations in the East. Also, as stated in the proposed rule, EPA is forecasting future concentrations for the location of each air quality monitoring by using the modeling results in a "relative" sense to project the change in concentrations for these sites. In this approach, the absolute model predictions are not used to determine whether or not a grid cell is attainment or nonattainment. Since future attainment/nonattainment is based on the location of monitors, increasing the grid resolution will not necessarily increase the number of nonattainment

[93]Irwin, J. et.al. "Examination of model predictions at different horizontal grid resolutions." Submitted for Publication to Environmental Fluid Mechanics.

areas. Thus, we believe that the grid resolution used for the CAIR ozone modeling provides credible results.

XII.A.1.2 Ozone Modeling Episodes

Comment:

Commenters asserted that the ozone episodes used for the CAIR modeling a) were not selected in a manner consistent with EPA modeling guidance and b)do not capture all of the pertinent 8-hour events in the ozone transport region and EPA should expand its analyses to incorporate episodes that are better predictors of the 8-hour attainment status. Another commenter claimed that it is inappropriate and not technically justifiable to combine meteorological conditions from one time period with ambient pollutant concentrations from a different time period. Modeled episodes should, at a minimum, occur within the time frame represented by design value data used in the analysis.

Response:

It should be noted that the guidance is intended for local attainment demonstration modeling, as opposed to regional transport analyses. In addition, the guidance is merely precatory, and binds neither EPA nor states. With these qualifiers, the draft 8-hour ozone guidance recommends that, at a minimum, four primary criteria should be used to select episodes for attainment demonstration modeling. However, the guidance does recommend that in applying a regional model one should choose episodes meeting as many of the criteria as possible, though it acknowledges there may be tradeoffs.

From a general perspective, the 1995 episodes used for CAIR ozone modeling address all of the primary criteria recommended in the guidance. These criteria include: 1) the episodes capture a variety of meteorological conditions, 2) measured ozone values during the episodes are close in concentration to current air quality, 3) extensive meteorological and air quality data are available for modeling and model evaluation, 4) the episodes contain a sufficient number of days. More detail is provided in the NFR AQTSD, but below is a brief description of how each of the four primary criteria are met by the 1995 episodes.

With regard to the criteria of meteorological variations, we have completed inert tracer simulations for each of the three 1995 episodes that show different transport patterns in all three cases. For example the June case involves east-to-west transport; the July case involves west to east transport; and the August case involves south to north transport. In a separate analysis[94] to determine whether the 1995 episode days correspond to commonly occurring and ozone-conducive meteorology, EPA applied a multi-variate statistical approach for characterizing daily meteorological patterns and investigating their relationship to 8-hour ozone concentrations in the

[94]Lehman, J.S., et. al., "Application of Automated Classification Scheme to Identify Meteorological Regimes and Their Relationship to Ozone Concentrations in the Eastern United States." Technical Report to U.S. Environmental Protection Agency, Contract No. 68-D-02-061, September 2003.

eastern U.S. Across the 16 sites for which the analysis was performed, there were five to six distinct sets of meteorological conditions, called regimes, that occurred during the ozone seasons studied. An analysis of 8-hour daily maximum ozone concentrations for each of the meteorological regimes was undertaken to determine the distribution of ozone concentrations and the frequency of occurrence of each regimes. EPA determined that between 60 and 70 percent of the 1995 episode days we modeled are associated with the most frequently occurring, high ozone potential, meteorological regimes. These results also support our belief that the episodes modeled are representative of conditions present when high ozone concentrations are measured throughout the modeling domain.

The second criteria deals with how closely measured ozone concentrations during the 1995 episodes modeled reflect current ozone concentrations. In this regard, EPA performed an analysis which shows that ozone levels during the 1995 episodes approximate recent ambient concentrations over the eastern U.S. For example, of the 524 monitoring sites in the East that collected data both during the 1995 episodes and during the 2001-2003 design value period, 267 sites (51 percent) had fourth-highest values during the 1995 episodes that were higher than the current baseline design values while 257 sites(49 percent) had fourth-high values that were less than the current ozone levels. Also, during the 1995 episodes there was at least one day with measured ozone within $\pm$ 5 ppb of the corresponding 2001-2003 design value at over 90 percent of monitoring sites with design values at or above 75 ppb. Additional analyses show that each of the three episodes involves widespread areas of elevated ozone concentrations, as described in the NFR AQMTSD. The synoptic meteorological pattern of the July 1995 episode was identified by one of the commenters as representing a classic set of conditions necessary for high ozone over the eastern U.S. While the ozone was not quite as widespread in the June and August 1995 episodes, these periods also contained exceedances of the 8-hour ozone NAAQS in most portions of the region.

Concerning the third and fourth criteria, EPA believes that there is ample meteorological and air quality data available to support an evaluation of the modeling for these episodes. Specifically, there were over 700 ozone monitors reporting across the domain for use in model evaluation. As noted above, the model performance for these episodes compares favorably to the recommendations in EPA's urban modeling guidance. In addition, the 1995 episodes are comprised of 30 days in total, not including initialization days. This extended period is considerably more than is typically used in attainment demonstration modeling submitted to EPA by States.

EPA's draft ozone guidance also indicates that extra weight can be given to selecting episodes for which there is prior modeling experience. In this regard, the 1995 CAIR episodes have been successfully used for air quality modeling completed in support of several recent EPA rules (i.e., Tier-2, Heavy Duty Diesel Engines, and NonRoad Diesel Engines).

Selection of episodes during the 3-year period which serves as the basis for the current monitored design value is considered in the guidance as a second-tier episode selection criteria which may

be used on a case by case basis. Based on the analysis of the 1995 episodes with respect to the four primary episode selection criteria, EPA believes that it is not necessary to establish additional episodes from the most recent 3-year period.

Comment:
Several commenters said that the 1995 episodes were inappropriate for establishing specific source-receptor relationships in certain areas. The specific areas of concern were: Arkansas, Mississippi, New Hampshire, Texas, and the Northeastern States in general.

Response:
EPA reiterates that given the large number of potential ozone nonattainment areas within the modeling domain, it would be extraordinarily resource-intensive to simulate enough episodes to capture time periods associated with the highest ozone levels for every single individual nonattainment area within the eastern United States regional modeling domain. As noted above, EPA has reviewed the transport patterns within the three modeling episodes and concluded they represent frequently-occurring regional transport patterns when ozone levels are near that of present-day eight-hour ozone design values. As a result, EPA is satisfied that the chosen episodes are appropriate for continued use in assessing regional ozone transport over the eastern U.S. Additionally, EPA would like to make the following observations regarding the specific areas discussed within the context of this general comment.

In terms of Mississippi's impact to residual nonattainment ozone in southeast Texas, it should be noted that the State did not submit their review of the upper-air wind patterns which indicated an overemphasis on transport from Mississippi to Texas. As a result it is impossible to confirm their hypothesis. Further, there is strong evidence of ozone transport from Mississippi to Texas from the CAIR modeling that is independent of the frequency of any particular wind trajectory. The modeling indicates that the maximum impact of Mississippi emissions on ozone in Jefferson County, TX in 2010 is 3.0 (zero out) and 5.3 ppb (source apportionment). These large values for maximum impact indicate that the particular wind patterns need not occur frequently for the Mississippi emissions to significantly impact Texas.

Similarly, Entergy Services concluded that "preliminary findings from internal studies" indicated that the CAIR episodes differed greatly from long-term average conditions. This analysis was not submitted as part of the comment, so it is not possible to verify those findings. However, there is again strong evidence independent of wind trajectory frequency that emissions from Arkansas significantly affect downwind future nonattainment receptors. The modeling indicates that the maximum impact of Arkansas emissions on ozone in Jefferson County, TX in 2010 is 3.3 (zero out) and 4.5 ppb (source apportionment). These large values for maximum impact likewise indicate that the particular wind patterns need not occur frequently for the Arkansas emissions to significantly impact Texas.

With respect to comments from New Hampshire and air quality planners in the Austin TX area that the episodes contained an insufficient number of days with elevated ozone levels within the

State, EPA disagrees. In the 2001 base case CAMx modeling there are two counties in New Hampshire with baseline design values above 80 ppb, Hillsborough and Rockingham. For the thirty days modeled, there were 11 days in Rockingham County in which the maximum 8-hour simulated ozone allowed the calculation of a relative reduction factor (i.e., was greater than 70 ppb). In Hillsborough County there were 7 such days. In Travis County, Texas there were 7-8 days with elevated modeled values. EPA believes this is a sufficient number over which to assess the effects of transport on New Hampshire and Austin TX.

Comment:
How representative is the summer of 1995 relative to other years?

Response:
EPA performed an analysis to look at the representativeness of meteorological conditions during the 1995 episodes[95]. This analysis focused on the frequency of ozone-conducive meteorological conditions. Specifically, the analysis identified a series of 3 or more meteorological regimes for each of 16 locations across the U.S. based on common synoptic weather conditions. The analysis determined (a) the frequency with which the individual meteorological regimes occurred over each of the 16 locations and (b) the mean daily eight-hour ozone maximum associated with each of the regimes. Based on the results of this analysis EPA concludes that 60 to 70 percent of the 1995 episode days we modeled were associated with the most frequently occurring, high ozone potential, meteorological regimes at these 16 locations. Additional information on this analysis is provided in the NFR AQMTSD.

XII.A.1.3 Meteorological Inputs for Ozone Modeling
Comment:
Several commenters claimed that the meteorological model evaluation for the 1995 episodes was limited and cursory. The commenter noted that no "thorough" statistical metrics concerning the accuracy of the fields was provided. They also added that EPA should compare hourly and daily meteorological model performance against the performance metrics compiled by Environ[96] to represent target model performance goals.

Response:
A peer-reviewed, quantitative evaluation of the RAMS model performance for the entire meteorological period also was completed by Hogrefe, et. al.[97] This analysis was performed

[95]Lehman, J.S., et. al., "Application of Automated Classification Scheme to Identify Meteorological Regimes and Their Relationship to Ozone Concentrations in the Eastern United States." Technical Report to U.S. Environmental Protection Agency, Contract No. 68-D-02-061, September 2003.

[96]Environ, *Enhanced Meteorological Modeling and Performance Evaluation for Two Texas Episodes*. August 2001.

[97]Hogrefe, C. et. al. "Evaluating the performance of regional-scale photochemical modeling systems: Part 1-meteorological predictions". Atmospherics Environment 35 (2001)

using RAMS predictions for June through August 1995. The results show that the RAMS biases and errors are generally in line with the better performing meteorological model simulations found by other groups outside EPA, as compiled by Environ. Specifically, the RAMS predictions of surface water vapor mixing ratio are within the performance goals for this parameter and the root mean square error for the RAMS-predicted hourly wind speed is 1.8 m/s which is within the goal of 2.0 m/s. The model temperatures had an overall bias of 1.4 degrees C and error of 2.3 C which are somewhat outside the target goals of $\pm$ 0.5 and 2.0 degrees C, but still within the range of performance in other non-EPA meteorological model applications. The meteorological data from the RAMS model coupled with base year emissions data result in CAMx ozone model performance that is within the ozone modeling performance goals recommended in EPA ozone modeling guidance, as discussed in response to other comments. Thus, EPA remains satisfied that the 1995 RAMS meteorological inputs for the three CAMx ozone modeling episodes are of sufficient quality and we have continued to use these inputs for the ozone analyses for the final rule.

Comment:
One commenter suggested that given the technology that was available at the time the RAMS model runs were made that it is highly unlikely that mixing, winds, and surface temperatures were adequately simulated.

Response:
While more advanced meteorological modules have become available over the past half-decade, EPA believes that the evaluation conducted for the 1995 RAMS modeling shows adequate model performance. As discussed above, the temperatures do appear to have a bias on the order of about 1.4 degrees, but the winds and moisture parameters appear to match observations closely. It is more difficult to evaluate the performance of a meteorological model in terms of the depth of the mixed layer. However, as discussed separately in response to comments on ozone modeling, EPA believes that the comparisons of ozone predicted aloft to aircraft measurements of ozone for the July 1995 episode that the model is accurately representing the depth of the planetary boundary layer, at least for the limited number of days for which aircraft measurements are available.

Comment:
One commenter stated that the 1995 RAMS meteorological data set is seriously flawed and should be replaced by readily available and less-biased data from 2001 that is being used to support findings related to fine particulate matter. EPA offers no justification to disregard the entire 2001 ozone season data set in favor of the 1995 episodic meteorology.

Response:
EPA disagrees with the conclusions regarding the suitability of the 1995 meteorological dataset for the CAIR ozone modeling analyses. As noted in response to other comments (1) EPA

4159-4174.

continues to believe that the 1995 episodes are adequate for assessment of regional ozone transport and meet the primary episode selection criteria recommended in EPA's 8-hour ozone modeling guidance and(2) the RAMS meteorological data provide credible meteorological inputs to our ozone episodic modeling. Also, the meteorological data for $PM_{2.5}$ modeling was updated to 2001 from 1996 because there was a lack of ambient $PM_{2.5}$ species measurements in 1996 to permit an adequate evaluation of our $PM_{2.5}$ air quality modeling. In contrast, there were over 700 ozone monitoring sites for which measurements were available for our ozone model performance evaluation.

Comment:
Several commenters were concerned that some aspects of transport were likely missing from EPA's assessment of transport. Specifically, the commenters claim that EPA's modeling did not properly consider the role of the low-level jet in transporting ozone and ozone precursors long distances.

Response:
Information submitted by the commenters indicates that the typical spatial extent of the low-level nocturnal jet which may influence ozone and precursor transport into Maryland covers upwind States to the south Maryland as far as North Carolina. EPA's analysis of interstate ozone contribution has identified North Carolina and Virginia among the States that make a significant contribution to ozone nonattainment in Maryland. Thus, there is no evidence that EPA's modeling has failed to capture the importance of the low-level jet with respect to transport into Maryland.

Comment:
A commenter claimed that the technique of "nudging" used in the meteorological modeling likely removed all small-scale transport features.

Response:
Four-dimensional data assimilation (FDDA), commonly referred to as "nudging", is a commonly-used technique in meteorological modeling. This technique, which incorporates measured data into the meteorological model simulation, prevents the simulation from deviating, to any large extent, from "reality". This is especially necessary in regional model applications in which use of FDDA ensures that the synoptic scale transport features are adequately modeled. The commenter did not provide any information to support the claim that use of FDDA biases predictions of regional scale transport patterns.

Comment:
EPA received a number of specific comments concerning the technical components of the 1995 RAMS meteorological modeling. These include:
a) current meteorological modeling protocols developed within the air quality modeling community consistently employ ETA model data sets to develop meteorological modeling initial first-guess fields of meteorological data.

b) the combination of observed cloud and rainfall data with the remaining meteorological modeling inputs being model-driven could potentially create erroneous air quality modeling results.
c) the surface layer in the meteorological model was too shallow and therefore artificially inflate surface concentrations and erroneously represent transport.

Response:
a) Use of ETA model. The commenter did not provide any information to suggest that the first guess fields used in the RAMS modeling were in appropriate or flawed. EPA performed an analysis to examine alternative methods of preparing first-guess fields[98]. This analysis concluded that model predictions of temperature, mixing ratio and wind have less bias and error with ETA first-guess fields as opposed to NCEP/NCAR Re-analysis (NNRP) first guess fields. However, the report did note that "certain metrics make one configuration or the other look better in certain regions depending on the episode and metric." Thus, it is not appropriate to conclude that the use of ETA for first guess fields results superior meteorological model performance in all cases.

b) Combining observed cloud and rain data with data from meteorological models. EPA's ozone modeling combined observed cloud and rain data with predictions from the RAMS meteorological model. While it is possible that other factors could potentially be compensating for inconsistencies between the cloud/rainfall data and the remaining thermodynamic fields from RAMS, the results of the ozone modeling indicate that this approach produced credible regional ozone predictions that are within the performance goals recommended for urban modeling in EPA's guidance. Specifically, as described in detail in the NFR AQMTSD, the ozone evaluation indicates that when all hourly observed ozone values (greater than 60 ppb) are compared to their model counterparts for the 30 episode modeling days in the eastern U.S. simulations, the mean normalized bias is -1.1 percent and the mean normalized gross error is 20.5 percent. This is well within the range of model performance goals identified in EPA's 8-hour ozone modeling guidance.

c) Lowest layer of meteorological model is too shallow. The lowest layer in the RAMS modeling was 16.7 meters deep. However, the lowest layer in the CAMx ozone modeling extended from the surface to 50 meters. This is consistent with standard air quality modeling procedures as well as recommendations on model configuration in EPA's 8-hour ozone modeling guidance. There is no evidence that the RAMS data as used in the CAMx ozone modeling is inflating surface concentrations; in fact there is a slight negative bias.

Comment:
One commenter said that EPA should use the University of Maryland's planetary boundary layer scheme in meteorological modeling in order to provide meteorological inputs for CAMx ozone modeling.

[98]McNally, D. "Topical report: a comparison of MM5 model estimates for February and July 2001 using alternative input databases". Report submitted to EPA, May 7, 2002.

Response:
The evaluation of both the meteorological inputs to the CAIR ozone modeling and the ozone model predictions indicate that model performance is acceptable, as discussed in the NFR AQMTSD and in response to other comments. The ozone model performance results for the Baltimore/Washington, DC subdomain are considered excellent. The bias in this subregion for the June, July, and August episodes was -6.8 ppb, -5.2 ppb, and 0.7 ppb, respectively. The errors ranged from 16 to 23 percent. Thus, the results of the model performance evaluation do not suggest the need to remodel with alternative meteorological inputs, as suggested by this commenter.

Comment:
The model-ready emissions inventory should be coordinated temporally with the meteorological data. Differences between the model-ready emissions inventories developed with 2001 versus 1995 meteorology may be significant and should be addressed by EPA.

Response:
Two elements of the emissions inventories most sensitive to hour-to-hour meteorological variations were developed using 1995 meteorological data. These include the biogenic emissions and the calculation of plume rise from point source emissions.

XII.A.2 Base Year $PM_{2.5}$ Modeling

XII.A.2.1 $PM_{2.5}$ Modeling Configuration and Evaluation

Comment:

Commenters said REMSAD has considerable shortcomings particularly with respect to handling speciation and photochemistry of the various components of $PM_{2.5}$ and that it is not an appropriate modeling tool for $PM_{2.5}$, and other commenters said that other models with more sophisticated science are available and EPA should update it's modeling to utilize the best available science through use of the most comprehensive photochemical model for simulation aerosols

Response:

EPA believes that REMSAD is appropriate for regional and national modeling applications because the model does include the key physical and chemical processes associated with secondary aerosol formation and transport. Specifically, REMSAD simulates both gas phase and aerosol chemistry. The gas phase chemistry uses a reduced-form version of Carbon Bond chemical mechanism (micro-CB-IV). Formation of inorganic secondary particulate species, such as sulfate and nitrate, are simulated through chemical reactions within the model. Aerosol sulfate is formed in both the gas phase and the aqueous phase. The REMSAD model also accounts for the production of secondary organic aerosols through chemistry processes involving volatile organic compounds (VOC) and directly emitted organic particles. Emissions of non-reactive particles (e.g., elemental carbon) are treated as inert species which are advected and deposited during the simulation.

Although the micro CB-IV chemical mechanism utilized in REMSAD treats fewer organic carbon species compared to the full CB-IV, the inorganic portion of the reduced mechanism is identical to the full chemical mechanism. The intent of the CB-IV mechanism is to (a) provide a faithful representation of the linkages between emissions of ozone precursor species and secondary aerosol precursor species; (b) treat the oxidizing capacity of the troposphere, represented primarily by the concentrations of radicals and hydrogen peroxide; and (c) simulate the rate of oxidation of the nitrogen oxide (NOx) and sulfur dioxide ($_{SO2}$), which are precursors to secondary aerosols. EPA agrees that micro CB-IV is simplified compared to the full CB-IV mechanism. However, performance testing of micro CB-IV indicates that this simplified mechanism is similar to the full CB-IV chemical mechanism in simulating ozone formation and approximates other species reasonably well(e.g., hydroxyl radical, hydroperoxy radical, the operator radical, hydrogen peroxide, nitric acid, and peroxyacetyl nitrate)[99].

In addition, the REMSAD model was subjected to a scientific peer-review (Seigneur et al., 1999) and EPA has incorporated the major science improvements that were recommended by the peer-review panel in the version of REMSAD used for the NPR modeling. Specifically, the following

[99]Whitten, G. Memorandum: Comparison of REMSAD Reduced Chemistry to Full CB-4. February 19, 2001.

updates have been implemented into REMSAD Version 7.06, which was used for the proposed CAIR control strategy simulations: (1) the nighttime chemistry treatment was updated to improve the treatment of the gas phase species NO_3 and N_2O_5, (2) the effects of temperature and pressure dependence on chemical rates were added, (3) the MARS-A aerosol partitioning module was added for calculating particle and gas phase fractions of nitrate, (4) aqueous phase formation of sulfate was updated by including reactions for oxidation of $_{SO2}$ by O_3 and O_2, (5) peroxynitric acid (PNA) chemistry was added, and (6) a module for calculating biogenic and anthropogenic secondary organic aerosols (SOA) was developed and integrated into REMSAD. We believe that these changes adequately respond to the peer review comments and have bolstered the scientific credibility of this model.

With regard to comments that other photochemical models are now available which are more scientifically sophisticated than REMSAD and specifically, in response to the commenter's recommendations on specific models, EPA has selected CMAQ as the modeling tool for the final CAIR modeling analysis. The CMAQ model is a publically available, peer-reviewed, state-of-the-science model with a number of science attributes that are critical for accurately simulating the oxidant precursors and non-linear organic and inorganic chemical relationships associated with the formation of sulfate, nitrate, and organic aerosols. Several important science aspects of CMAQ that are superior to REMSAD include (1) updated gaseous/heterogeneous chemistry that provides the basis for the formation of nitrates and includes a current inorganic nitrate partitioning module; (2) in-cloud sulfate chemistry, which accounts for the non-linear sensitivity of sulfate formation to varying pH; (3) a state-of-the-science Secondary Organic Aerosol (SOA) module that includes a more comprehensive gas-particle partitioning algorithm from both anthropogenic and biogenic SOA; and (4) the full CB-IV chemistry mechanism, which provides a complete simulation of aerosol precursor oxidants. Nonetheless, even though REMSAD does not have all the scientific refinements of CMAQ, we believe that REMSAD treats the key physical and chemical processes associated with secondary aerosol formation and transport. Thus, we believe that the conclusions from the proposal modeling using REMSAD are valid and therefore support today's findings based on CMAQ that (1) there will be widespread $PM_{2.5}$ nonattainment in the eastern U.S. in 2010 and 2015 absent the reductions from CAIR, (2) upwind States in the eastern part of the U.S. contribute to the $PM_{2.5}$ nonattainment problem in other downwind States, (3) States with high emissions tend to contribute more than States with low emissions, (4) States close to nonattainment areas tend to contribute more than other States farther upwind, and (3) the CAIR controls will produce major benefits in terms of bringing areas into or closer to attainment.(see final preamble section VI.A.1.a)

Comment:
Some commenters stated the overall performance of REMSAD is poor. Specifically, IAQR evaluation of annual $PM_{2.5}$ model simulation for 1996 shows that model performed poorly in predicting $PM_{2.5}$ and $PM_{2.5}$ components. Several commenters claimed that EPA's air quality model evaluation for 1996 was deficient because it lacked sufficient ambient measurements, especially in urban areas, to judge model performance (one needs to know the degree of confidence in these simulations in order to provide projections of attainment and nonattainment at

urban monitor locations). Commenters said that EPA should (1) update the evaluation to a more recent time period in order to take advantage of greatly expanded ambient $PM_{2.5}$ species measurements, especially in urban areas and (2) calculate model performance statistics over monthly and/or seasonal time periods using daily/weekly observed/model-predicted data pairs where the use of seasonal and annual performance metrics are inappropriate for adequate model performance because it averages localized or regional over/under predictions skewing actual model performance.

Some commenters also stated that the 1996 data were so limited that it is not possible to determine whether REMSAD could be used with confidence to assess the effects of emissions changes and can provide an incomplete record on which to base a final judgment on what transport assistance states will need in attaining and maintaining the PM-fine standard.

Response:
EPA agrees that the limited amount of ambient $PM_{2.5}$ species data available in 1996 affected our ability to evaluate model performance, especially in urban areas, and there were deficiencies in the performance of REMSAD using the 1996 model inputs. EPA also agrees that a model evaluation should be performed for a more recent time period in order to address these concerns. Thus, we conclude that the 1996 modeling platform which includes 1996 emissions, 1996 meteorology, and 1996 ambient data should be updated and improved, as recommended by commenters.

EPA has developed a new modeling platform which includes emissions, meteorological data, and other model inputs for 2001. The 2001 data were publically available to commenters as part of the Notice of Data Availability (NODA)(69 FR 47828). This platform was used to confirm the ability of our modeling system to replicate ambient $PM_{2.5}$ and component species in both urban and rural areas and, thus, establish the credibility of this platform for $PM_{2.5}$ modeling as part of CAIR[100]. In 2001, there was an extensive set of ambient $PM_{2.5}$ measurements including 133 urban Speciation Trends Network (STN) monitoring sites across the nation, with 105 of these in the East. This network did not exist in 1996. Also, the number of mainly suburban and rural monitoring sites in the Clean Air Status and Trends Network (CASTNet) and Interagency Monitoring of Protected Visual Environments (IMPROVE) network has increased to over 200 in 2001, compared to approximately 120 operating in 1996.

The EPA evaluated CMAQ, which was used in the final rule modeling rather than REMSAD, for the 2001 modeling platform. This evaluation used an extensive set of 2001 monitoring data for $PM_{2.5}$ species. The evaluation included a statistical analysis in which the model predictions and measurements were paired in space and in time (i.e., daily or weekly to be consistent with the sampling protocol of the monitoring network). Model performance statistics were calculated for

[100]The 2001 modeling platform is described in full in the Notice of Final Rulemaking (NFR) Emissions Inventory Technical Support Document (EITSD) and NFR Air Quality Modeling Technical Support Document (AQMTSD).

each network with separate statistics for sites in the West and the East[101]. In response to comments that performance statistics should be calculated over monthly and/or seasonal time periods, we elected to use seasonal time periods in order to be consistent with our use of quarterly average $PM_{2.5}$ species as part of the procedure for projecting future concentrations. In addition, the sampling frequency of the CASTNET, IMPROVE, and STN sites may not provide sufficient samples in a one month period to provides a robust calculation of model performance statistics. The performance statistics for CAIR NFR 2001 CMAQ modeling are provided in Table VI-1 of the CAIR Preamble and NFR AQMTSD. The CMAQ 2001 performance is considerably improved over that of the REMSAD 1996 for summer sulfate and winter nitrate. The performance for CMAQ is within the range or better than that found by other groups in recent applications and meets the benchmark goals suggested by several commenters. The CMAQ code and model inputs used for the 2001 Base Year evaluation were made available to the public as part of the August 2004 NODA (69 FR 47828). Details of EPA's model evaluation for CMAQ using the 2001 modeling platform can be found in the CMAQ Model Performance Evaluation Report.

Comment:
Commenters said the REMSAD evaluation is not consistent with the draft guidance developed by EPA. However, some commenters acknowledged that there are no universally accepted or recommended quantitative criteria for judging the acceptability of $PM_{2.5}$ model performance. In the absence of such model performance acceptance criteria, some commenters said that performance should be judged by comparing EPA's model performance results to the range of results obtained by other groups in the air quality modeling community who conducted other recent regional $PM_{2.5}$ model applications. One commenter also identified specific model performance ranges and criteria that they said should be achievable for sulfate and $PM_{2.5}$, given the current state-of-science for aerosol modeling and measurement uncertainty. The specific values cited by this commenter are ±30 percent to ±60 percent for fractional bias, 50 percent to 75 percent for fractional error, and 50 percent for normalized error.

Response:
EPA agrees that there are no universally accepted performance criteria for $PM_{2.5}$ modeling and that performance should be judged by comparison to that found by reputable modeling conducted by other groups in the air quality modeling community. In this respect, we have compared our CMAQ 2001 model performance results to the range of performance found in other recent regional $PM_{2.5}$ model applications by other groups[102]. Details of this comparison can be found in the CMAQ Model Performance Evaluation Report. Below are performance results from other, non-EPA modeling studies, for summer sulfate and winter nitrate. It should be noted that nitrate and sulfate are the two species most relevant for CAIR. Overall, the general range of fractional bias

[101]For the purposes of this analysis we have defined "East" as the area to the east of 100 degrees longitude.

[102] These other modeling studies represent a wide breath of modeling analyses which cover various models, model configurations, domains, years and/or episodes, chemical mechanisms, and aerosol modules.

(FB) and fractional error (FE) statistics for the better performing model applications are as follows:

- summer sulfate is in the range of -10 percent to +30 percent for FB and 35 percent to 50 percent for FE; and
- winter nitrate is in the range of +50 percent to +70 percent for FB and 85 percent to 105 percent for FE.

The corresponding performance statistics for EPA's 2001 CMAQ application as well, as the 1996 REMSAD application used for the proposal modeling, are provided in Table VI-1 of the CAIR Preamble. The results indicate that the performance for CMAQ in 2001 is within the range or better than that found by other groups in recent applications. The performance also meets the benchmark goals suggested by several commenters. In addition, the CMAQ performance is considerably improved over that of the REMSAD 1996 performance for summer sulfate and winter nitrate, which were near the bounds or outside the range of other recent applications. The CMAQ model performance results give us confidence that our applications of CMAQ using the new modeling platform provide a scientifically credible approach for assessing $PM_{2.5}$ concentrations for the purposes of CAIR.

Comment:
Commenters said that EPA has not provided adequate analysis of model performance evaluations for precursor gases involved in the formation of particulate nitrate and particulate sulfate. Moreover, the commenters claim that the analysis did not use all available observed data, including data from SEARCH or the EPA Supersites. It was suggested that a diagnostic model evaluation, in which model predictions of $PM_{2.5}$ precursor photochemical oxidants are compared to corresponding measurements, is an approach for gaining confidence in the ability of a model to provide a credible response to emission changes.

Response:
EPA agrees with commenters that one way to establish confidence in the credibility of this approach is to determine whether model predictions of $PM_{2.5}$ precursors are generally comparable to corresponding measured data. In this regard, we compared the CMAQ predictions to observations for several precursor gases for which measurements were available in 2001. These gases include sulfur dioxide, nitric acid, and ozone. The results indicate the fractional bias and error for ozone is within the recommended range for urban scale ozone modeling included in EPA's draft guidance for 8-hour ozone modeling. For the other species examined there are limited ambient data and few other studies against which to compare our findings. Still, our performance results for these species are within the range suggested as acceptable by commenters for sulfate (i.e., ±30 percent to ±60 percent for fractional bias and 50 percent to 75 percent for fractional error). In addition, as suggested by commenters, we have compared CMAQ predictions of ozone, NO, SO_2, HNO3, nitrate, sulfate, and other species to the corresponding observations at SEARCH sites. Times series analyses of the observed and predicted data show that the model is able to capture the day-to-day and month-to-month temporal patterns reasonable well at most sites. The results of this analysis can be found in the Updated CMAQ Model Performance Evaluation Report.

Comment:
One commenter stated that the REMSAD model performance evaluation for $PM_{2.5}$ lacks adequate spatial and temporal resolution to accurately quantify model performance and applicability

Response:
As described in the NPR AQMTSD the $PM_{2.5}$ modeling for the proposal was performed for an domain (i.e., area) covering the 48 States and adjacent portions of Canada and Mexico. Within this domain, the model predictions were calculated for a grid network with a spatial resolution of approximately 36 km. EPA disagrees with these comments and continue to believe that the grid dimensions for our $PM_{2.5}$ modeling are not too coarse nor are they inconsistent with our draft guidance. The draft guidance for $PM_{2.5}$ modeling states that 36 km resolution is acceptable for regional scale applications in portions of the domain outside of nonattainment areas. For portions of the domain which cover nonattainment areas, 12 km resolution or less is recommended by the guidance. However, as stated in the guidance document, these recommendations were based on guidance for 8-hour ozone modeling because there was a lack of $PM_{2.5}$ modeling at different grid resolutions at the time the guidance was drafted. In addition, the $PM_{2.5}$ guidance states that exceptions to these recommendations can be made on a case by case basis. For several reasons we believe that 36 km resolution is sufficient for $PM_{2.5}$ modeling for the purposes of CAIR. First, recent analyses that compare 36 km to 12 km modeling of $PM_{2.5}$[103] indicate that spatial mean concentrations of gas phase and aerosol species at 36 km and 12 km are quite similar. A comparison of model predictions versus observations indicates that the model performance is similar at 12 km and 36 km in both rural and urban areas. Thus, using 12 km resolution does not necessarily provide any additional confidence in the results. Second, ambient measurements of sulfate and to a significant extent nitrate, which are the pollutants of most importance for CAIR, do not exhibit large spatial differences between rural and urban areas, as described elsewhere in today's rule. This implies that it is not necessary to use fine resolution modeling in order to properly capture the regional concentration patterns of these pollutants.

Comment:
One commenter stated while considering a large degree of uncertainty (over predictions of 3-5 times measured nitrate and nitric acid) the benefit of controlling NOx emissions on a regional basis for PM2.5 is at best speculative in this analysis. These results should be viewed with extreme skepticism and are certainly not sufficient to justify NOx emission controls to offset disbenefits produced by SO2 emission controls.

[103]VISTAS Emissions and Air Quality Modeling-Phase I Task 4cd Report: Model Performance Evaluation and Model Sensitivity Tests for Three Phase I Episodes. ENVIRON International Corporation, Alpine Geophysics, and University of California at Riverside, September 7, 2004.

Response:
The EPA disagrees with this comment. The over predictions of nitrate evident in the proposal modeling has been reduced considerably in the $PM_{2.5}$ modeling for the final rule. As discussed elsewhere in the response to comments, the final rule $PM_{2.5}$ modeling relies on CMAQ and the 2001 base year emissions and meteorological data. CMAQ model performance for nitrate in the East is within the range of performance goals suggested by commenters based on the results of better performing $PM_{2.5}$ model applications by other groups in the modeling community. In addition, the EPA does not use the absolute predictions of the model in a direct manner for determining the benefits of NOx emissions reductions. Rather, the model predictions are used in a relative sense and are "grounded" in ambient measurements. Thus, in the case of nitrate, the impacts of NOx emissions reductions on nitrate are determined by applying the relative change in model-predicted nitrate between 2001 and the future year scenario to ambient nitrate concentrations. In view of the improved model performance for nitrate coupled with our approach to using the model predictions in a relative sense, we believe that our modeling provides a credible means of determining the impacts of NOx emissions reductions.

Comment:
One commenter noted that even though CMAQ is capable of predicting ozone, ozone was not part of the CAIR NODA release and asked why ozone was excluded from the NODA analysis?

Response:
Ozone was not excluded from the NODA model performance analysis for CMAQ. On pages 31 and 32 of the OAQPS CMAQ Model Performance Evaluation Report (Figures 30 and 31), which was part of the NODA (69 FR 47828), EPA provides the 2001 CMAQ predictions of 8-hour daily maximum ozone and 1-hour maximum ozone compared to the corresponding AIRS ozone measurements. Additional ozone performance results can be found in the Updated CMAQ Model Performance Evaluation Report.

Comment:
One commenter noted that it was not evident whether the two CMAQ Performance Evaluation reports developed by USEPA/ORD and USEPA/OAQPS were based upon the same version of the model, model inputs, and the design of the modeling system. The commenter mentioned discrepancies in some of statistical parameters that were based on the total sample size.

Response:
The two CMAQ performance evaluations performed by the EPA/ORD and EPA/OAQPS used the identical design of the modeling system, including the same version of the CMAQ (version 4.4), the same meteorological inputs from 2001 MM5 simulations and same emission inputs, and the same model configuration and domain. However, the two studies focused on different performance statistics and different spatial aggregations of the observed-predicted pairs in calculating the statistics.

Comment:

One commenter stated that the CMAQ model evaluation is incomplete because model performance is compared to observed data in an aggregated way. Commenters also claimed that model performance was not very good for key $PM_{2.5}$ species and also noted that the reports show the model performance for urban STN sites is worse than for the rural IMPROVE and CASTNet sites, which is also a concern given that the PM-2.5 nonattainment areas typically are in urban areas

Response:
As stated above, EPA has chosen to use the best tools available, best and improved science (state-of science algorithms for particulate matter) along with improved emission inventories and meteorology. Model performance of the final CAIR 2001 CMAQ modeling platform is comparable to or better than other recent non-EPA $PM_{2.5}$ model applications, as detailed in the CMAQ Model Performance Evaluation report. See also Table VI-1 in the final preamble. Thus, EPA believes that CMAQ is a credible tool for predicting $PM_{2.5}$ component species.

EPA agrees with commenters that performance of summer sulfate in the East at rural IMPROVE and CASTNet sites is slightly better than that at urban STN sites; however, the sulfate performance at STN is well within the performance goals suggested by the modeling community. In addition, it should be noted that winter nitrate PM performance in the East at STN sites is better than that at IMPROVE and CASTNet sites. Further details are given in the NFR preamble, Table VI-1 and in the CMAQ Model Performance Evaluation Report.

Comment:
One commenter stated that EPA has not explicitly identified which version of the REMSAD model was applied to develop the model evaluation in Appendix C of the NPR AQMTSD. The commenter also said EPA failed to show what, if any, model performance evaluations were performed for the two versions of the model, and, if so, what were the conclusions.

Response:
Two versions of REMSAD were used for the proposal modeling. Version 7.03 was the most current version available when EPA began model runs for the proposal. During the course of the modeling process updates were made to REMSAD and incorporated into version 7.06. The updates to the REMSAD that were made between version 7.03 and 7.06 affect the dry deposition velocity of all gas phase species and in particular ammonia. Several assumptions contained in the REMSAD dry deposition code were removed. In previous versions of REMSAD, the surface resistance (Rc) for ammonia gas was set equal to 30 s/m at all times for the landuse categories of agriculture, range, and mixed agriculture and range. In addition, for the landuse types of deciduous forest, coniferous forest, and mixed forest, the ammonia surface resistance was set equal to the stomatal resistance only. Both of these assumptions were removed from the code. As a result, version 7.06 more closely follows the original work by Wesley (Wesley, 1989). The model performance results in the proposal AQMTSD are based on REMSAD version 7.06. Model performance for $PM_{2.5}$ component species at IMPROVE sites with version 7.03 was similar to that found with version 7.06, except for nitrate. In version 7.06, winter nitrate at IMPROVE sites in

the East were over predicted by a somewhat larger amount than in version 7.03. The EPA used version 7.06 for modeling the impacts of the proposed CAIR control case in 2010 and 2015. As described elsewhere in response to other comments, we have updated our $PM_{2.5}$ modeling for the final rule.

Comment:
One commenter claimed that the REMSAD model is a restricted access model and is, therefore, inconsistent with EPA's requirements for publicly available models (EPA, 2001) in regulatory decision-making.

Response: The EPA disagrees that REMSAD is not publicly available. The model can be obtained from the following web site: http://www.remsad.com

Comment:
One commenter believes that $PM_{2.5}$ modeling is not reliable at this time and should not be used to make regulatory decisions with such wide-ranging implications.

Response:
The EPA disagrees with this comment. The findings on $PM_{2.5}$ modeling in the North American Research Strategy for Tropospheric Ozone (NARSTO) report on particulate matter[104] indicates that models can be used with moderate to high confidence for estimating the transport of sulfate and nitrate and the impacts of reductions in emissions that affect these components of $PM_{2.5}$. Th report also identifies CMAQ (the model EPA used for the final CAIR rule $PM_{2.5}$ modeling) as one of the models that is ready for policy applications. In addition, as described in response to other comments, we have evaluated the predictions of CMAQ against observed data and found that the performance is within the range or better than that found by other groups in recent applications and meets the benchmark goals suggested by several commenters.

Comment:
A commenter expressed concern that EPA has not followed a public process for $PM_{2.5}$ air quality modeling.

Response:
The EPA disagrees with this comment. The public has had several opportunities to comment and provide input to the air quality modeling aspects of CAIR. Specifically, as part of the proposed rule EPA took comment on the air quality models we used, the inputs to these models, the procedures and data used for projecting future case concentrations, and the procedures for determining contributions from emissions in upwind States to ozone and/or $PM_{2.5}$ nonattainment in downwind States. EPA received a large number of comments on the air quality modeling performed for proposal. In response to these comments, we made important updates to a number

[104]NARSTO, *Particulate Matter Science for Policy Makers-A NARSTO Assessment*. February 2003.

of components of our modeling platform including the emissions inventories and meteorology. We also switched from REMSAD to CMAQ for modeling $PM_{2.5}$, visibility, and deposition, and prepared and took comment on (1) an evaluation of CMAQ and (2) a revised procedures for projecting future year concentrations.

Comment:
A commenter claims that EPA performed modeling for the SNPR using a new and different base year (i.e., changed from 2001 to 2002) compared to the January 30, 2004 NPR for this same rulemaking.

Response:
The EPA disagrees with this comment. Although revised modeling of utility emissions using the Integrated Planning Model (IPM) was presented in the Supplemental Notice of Proposed Rulemaking (SNPR), EPA did not perform any new air quality modeling for the SNPR. In addition, the base year for air quality modeling was not changed from 2001 to 2002.

Comment:
Some commenters claim that they have tried unsuccessfully to employ EPA's modeling files in order to do their own assessment of the modeling and have had difficulty obtaining those files in a timely manner. In addition, it appears that EPA is constantly updating the files, thus making it impossible for states to analyze the same data sets that EPA used (e.g., States now have the January data files, but EPA updated them for the June SNPR). EPA's failure to provide updated files in a timely manner precludes states from fully analyzing and assessing what EPA is proposing. In addition, some commenters say that have tried to analyze this modeling have had difficulty replicating EPA's results, calling into question some of EPA's practices involved in this particular set of modeling exercises.

Response:
Modeling files necessary to duplicate EPA's results in the proposal were made publically available on March 5, 2004. Updated Base Year 2001 and selected updated 2010 and 2015 projection emissions data and documentation were made public as part of the NODA in August 2004. EPA has corresponded with technical representatives from various commenters including New Hampshire, New Jersey, and New York regarding electronic access to air quality modeling-related data files. The commenter did not indicate, and EPA is not aware of any specific cases in which the public has not been able to access our data and replicate our results.

Comment:
One commenter stated that contradictory passages in Appendix C of the NPR AQMSTD (Pages C-1 and C-22) do not show whether mercury deposition was evaluated and, if so, with which version of REMSAD

Response:

EPA compared REMSAD version 7 predictions of mercury deposition in 1996 against measurements from the Mercury Deposition Network (MDA). The results indicate that the observed mercury deposition was underestimated by the model. However, 1996 was the first year of operation of MDA and there were only 8 sites nationwide with complete annual deposition data.

XII.A.2.2 $PM_{2.5}$ Modeling Guidance

Comment:

It is suggested that EPA conduct annual fine particulate matter modeling for the three year period (2000-2002) being used to make initial designations for the fine particulate matter NAAQS. EPA should use available $PM_{2.5}$ data collected during the three-year period upon which attainment designations are being made to perform a robust analysis of $PM_{2.5}$ model performance.

Response:

EPA agrees that it is necessary to model extended time periods for analyses of the annual $PM_{2.5}$ standard. The EPA draft modeling guidance recommends modeling a full year when applying the attainment test for the annual $PM_{2.5}$ standard. If it is not feasible to model a full year, the guidance recommends modeling a minimum of at least 15 calendar days per quarter. For the CAIR, EPA modeled a full year (2001), which meets the recommendations of the guidance.

While it would be interesting to test the model response over a multi-year period, it has not been shown to be necessary. There is no existing evidence which would lead us to believe that the model response to future controls will be different from one base year to the next. In addition, modeling three full years for $PM_{2.5}$ would be difficult due to the large number of model runs that were completed for CAIR. In the future, as computers become faster, modeling 3 years may become a reality. But at this time, we do not anticipate revisions to the modeling guidance which would recommend three full years of modeling.

Comment:

Several commenters questioned the accuracy of the $PM_{2.5}$ modeling conducted at 36km horizontal grid resolution. They felt that higher resolution modeling would allow more accurate accounting of downwind contributions and local impacts.

Response:

We disagree with these comments and continue to believe that the grid dimensions for our $PM_{2.5}$ modeling not too coarse nor are they inconsistent with our draft guidance. The draft guidance for $PM_{2.5}$ modeling states that 36 km resolution is acceptable for regional scale applications in portions of the domain outside of nonattainment areas. For portions of the domain which cover nonattainment areas, 12 km resolution or less is recommended by the guidance. However, as stated in the guidance document, these recommendations were based on guidance for 8-hour ozone modeling because there was a lack of $PM_{2.5}$ modeling at different grid resolutions at the time the guidance was drafted. In addition, the $PM_{2.5}$ guidance states that exceptions to these recommendations can be made on a case by case basis. For several reasons we believe that 36 km resolution is sufficient for $PM_{2.5}$ modeling for the purposes of CAIR. First, recent analyses that

compare 36 km to 12 km modeling of $PM_{2.5}$[105] indicate that spatial mean concentrations of gas phase and aerosol species at 36 km and 12 km are quite similar. A comparison of model predictions versus observations indicates that the model performance is similar at 12 km and 36 km in both rural and urban areas. Thus, using 12 km resolution does not necessarily provide any additional confidence in the results. Second, ambient measurements of sulfate and to a significant extent nitrate, which are the pollutants of most importance for CAIR, do not exhibit large spatial differences between rural and urban areas[106] This implies that it is not necessary to use fine resolution modeling in order to properly capture the regional concentration patterns of these pollutants.

Comment:
Several commenters questioned whether EPA followed our modeling guidance for selecting models, developing emissions fields, meteorological fields, evaluating model performance, selecting episodes, etc. Commenters claim that (a) some aspects of EPA's formal ozone and PM modeling process have been bypassed in the IAQR, [thus] the consistency, credibility, and the quality of the resulting modeling products are thereby diminished as a consequence, and (b) EPA's $PM_{2.5}$ and Regional Haze guidance document places stringent requirements on a State in terms of selecting and justifying a model for use in a $PM_{2.5}$ attainment demonstration.

Response:
EPA currently has two draft documents which provide modeling guidance to States which are completing State Implementation Plans (SIPs). One modeling guidance document is for ozone modeling and a second document covers $PM_{2.5}$ and regional haze modeling. These documents were written to provide recommendations to States doing modeling for their nonattainment areas (for both ozone and $PM_{2.5}$). The guidance documents are in draft form and are subject to change. The documents are also only guidance as well, and are not binding in that the guidance allows for deviation from recommendations on a case by case basis. Still, EPA has attempted to follow the recommendations in these guidance documents where appropriate to the extent reasonably possible.

The ozone and $PM_{2.5}$ guidance documents recommend the following general steps in completing a modeled attainment demonstration:

1. Develop a conceptual description of the problem to be addressed.
2. Develop a modeling/analysis protocol.
3. Select an appropriate model(s) to support the demonstration.

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[105]VISTAS Emissions and Air Quality Modeling-Phase I Task 4cd Report: Model Performance Evaluation and Model Sensitivity Tests for Three Phase I Episodes. ENVIRON International Corporation, Alpine Geophysics, and University of California at Riverside, September 7, 2004.

[106]Air Quality Data Analysis Technical Support Document. Docket item OAR-2003-0053-0006.

4. Select appropriate periods to model.
5. Choose an appropriate area to model with appropriate horizontal/vertical resolution.
6. Generate meteorological and air quality inputs to the air quality model.
7. Generate emissions inputs to the air quality model.
8. Evaluate performance of the air quality model and perform diagnostic tests.
9. Evaluate prospective control strategies

For both the ozone and $PM_{2.5}$ modeling for the CAIR, we have carefully addressed each of the steps in the guidance. The proposal preamble and Air Quality Data Analysis TSD contained a conceptual description of the problem. The proposal also served as a modeling protocol. The public had an opportunity to comment on the air quality modeling contained in the proposal and in a subsequent NODA.

As a result of these comments, we have made improvements to the CAIR final rule modeling analysis. We are now using up to date inventories based on the 1999 NEI projected to 2001. For our $PM_{2.5}$ modeling, we are using 2001 meteorological fields that have been fully evaluated by an outside contractor. We are running CMAQ (for $PM_{2.5}$)and CAMx (for ozone), which are state of the science models. We have completed a model performance evaluation for ozone, $PM_{2.5}$, and $PM_{2.5}$ species. We are modeling 30 episode days for ozone and a full year for $PM_{2.5}$. These all go beyond the minimum recommended modeling time periods in the modeling guidance.

We have also made several improvements to procedures identified in the draft $PM_{2.5}$ guidance (e.g. revised SMAT). Details of the modeling analyses and improvements made in the final rule modeling are contained in the CAIR Air Quality Modeling TSD.

XII.B. Comments on Approach to Projecting Future 8-Hour Ozone Nonattainment

XII.B.1.
Comment:
EPA received a comment stating that the 2010 and 2015 Base Case attainment projections for 8-hour ozone are based on flawed technical analyses that were "less-than-SIP-quality". In particular, this commenter concluded that Massachusetts will not be able to attain the 8-hour standard by those years without significant reductions in transported emissions.

Response:
The commenter did not provide any specific information to support the claim that the CAIR CAMx modeling was flawed or "less-than-SIP-quality", and we disagree with the commenter's characterization. The CAMx modeling performed for CAIR followed the general guidance recommendations that EPA provides for ozone attainment demonstration modeling. Further, the model evaluation demonstrates that the model is performing within acceptable ranges. EPA's analysis indicates that there will be significant reductions in emissions between the present time and 2010/2015, due to a number of control measures (e.g., NOx SIP Call and Federal mobile source measures), as shown by data in the NFR EITSD. As a result of these emissions reductions, ambient ozone concentrations are expected to improve substantially by 2010. While all of Massachusetts is projected to be in attainment of the 8-hour ozone NAAQS by 2010, it should be noted that several counties are projected to be just below the 85 ppb threshold and the emissions reductions forecast to result from CAIR will help Massachusetts attain and maintain the NAAQS by that date.

XII.B.2.
Comment:
A commenter noted that, based on the episodes chosen and the residual nonattainment predicted by EPA's ozone modeling in Rhode Island, they did not believe the model's prediction that Massachusetts will meet the 8-hour NAAQS in 2010 or 2015 absent additional controls not in the CAIR future base cases.

Response:
Because of the proximity of the Kent RI monitor to Massachusetts, EPA is confident that, even if the ozone projections for Massachusetts are overly optimistic, we have included all possible States affecting Massachusetts in the CAIR control region. Even if portions of the State were predicted to be in nonattainment in 2010, it would likely not change the list of 25 States being included in the CAIR control region for ozone. The State did not submit in their comments any evidence that additional States were adversely affecting their ability to attain.

XII.C. Comments on Approach to Projecting Future Annual $PM_{2.5}$ Nonattainment

XII.C.1.
Comment:
The use of relative reduction factors for future year analyses does not account for the bias inherent in the initial modeling. As a result of poor model performance, the use of relative reduction factors (RRFs) for determining future-year design values can yield inappropriate responses to emissions changes and therefore erroneous projections of future $PM_{2.5}$ levels.

Response:
EPA believes the future year nonattainment projections should be based on using model predictions in a relative sense. By applying the model in a relative way, each measured component of $PM_{2.5}$ is adjusted upward or downward based on the percent change in that component, as determined by the ratio of future year to base year model predictions. EPA feels that by using this approach, we are able to reduce the risk that overprediction or underprediction of $PM_{2.5}$ component species may unduly affect our projection of future year nonattainment.

EPA agrees with commenters that simply using relative reduction factors does not eliminate model biases and uncertainty with respect to the response of control strategies. For the CAIR $PM_{2.5}$ modeling, confidence in the response of the model was established through the model performance evaluation and sensitivity and diagnostic analyses. The CMAQ model performance evaluation is provided in two reports[107]. As discussed elsewhere in response to comments, the model performance with CMAQ is within the range of performance goals suggested by several commenters as indicative of acceptable model performance.

Additionally, the results of the CMAQ sensitivity modeling described in the NFR AQM TSD indicates that the response of the model to emissions changes are consistent with the scientific processes associated with formation and fate of secondary aerosols. Thus, EPA believes that the applications of CMAQ for CAIR using the new modeling platform provides a scientifically credible method of estimating the projected impact on $PM_{2.5}$ concentrations expected to result from emissions changes.

XII.C.2.
Comment:
Several commenters said that large uncertainties exist in using unreconciled measurements from the STN and IMPROVE networks to create spatially interpolated fields for 'speciation' of FRM data. The analysis makes no distinction between the IMPROVE and ESPN networks, even though it is well known that there are differences in their operations, sampling protocol and analysis, including the absence of measured ammonium.

[107]CMAQ Model Performance Evaluation Report; Docket item OAR-2003-0053-1716. Expanded CMAQ Model Performance Evaluation for 2001; Docket item OAR-2003-XXXX.

Response:
The measurements from the IMPROVE and ESPN networks are very comparable once the ESPN measurements are blank corrected for organic carbon. (Solomon et al, http://www.epa.gov/ttn/amtic/files/ambient/samwg/spring2004/stncomp.pdf). For this reason EPA used (blank corrected) data from both networks to estimate concentrations at locations without speciation measurements and relied on precisely measured $PM_{2.5}$ at FRM sampling locations together with a mass balance approach to estimate total carbonaceous mass at those locations.

XII.C.3.
Comment:
One commenter asked a series of clarifying questions regarding the revised Speciated Modeled Attainment Test approach which was documented in the CAIR NODA.

Comment:
It is stated that the revisions are in response to comments received on the CAIR proposal with no specifics. Also, no information is provided as to how the revised SMAT is an improvement over the previous version.

Response:
The revised SMAT approach addressed the comments from several commenters to the proposed rule who criticized various aspects of the original SMAT approach. The main criticism was that we didn't take into account the potential volatilization of nitrate from FRM filters and we didn't account for particle bound water (on the FRM filters). We addressed these issues in the revised SMAT approach. The revised SMAT also modified the calculation of organic carbon, the species interpolation techniques, the treatment of ammonium, and other lesser updates. Overall, we believe the revised SMAT to be more scientifically sound than the original version. Additional details on revised SMAT can be found in "Procedures for Estimating Future $PM_{2.5}$ Values for the CAIR Final Rule by Application of the (Revised) Speciated Modeled Attainment Test (SMAT)[108]" (final SMAT report).

XII.C.4.
Comment:
Do the acronyms STN and ESPN refer to the networks that are operated by the State Agencies?

Response:
The STN and ESPN networks are the monitoring networks which are funded by EPA, but operated by the State and local agencies. STN is the Speciation Trends Network. This refers specifically to the 53 speciation monitoring sites which have been identified as trends sites. The ESPN (EPA SPeciation Network) is the larger network of both trends and supplemental speciation monitor sites. There is a considerable amount of confusion owing to the fact that these networks have not been assigned permanent names (or acronyms) that have been used consistently.

[108]Docket number OAR-2003-0053-1907.

XII.C.5.
Comment:
Given that there are differences between the mass measurements attributed to a FRM, STN and the sum of speciated components, and that the FRM-based mass is the regulatory parameter of interest, explain how the monitored fractional compositions are determined?

Response:
The commenter is correct that the FRM-based mass measurement is the regulatory parameter of interest. The FRM measurements are used to determine attainment/nonattainment status. See 40 CFR section 50.7 (a) (1) (i). As a result, in CAIR, all of the projections of $PM_{2.5}$ to future years are based on the FRM mass measurements. The challenge was to estimate the fractional components of each of the $PM_{2.5}$ species at the FRM monitors. We used the existing $PM_{2.5}$ speciation measurements from the ESPN and IMPROVE networks to estimate the fractional components. Some of the speciation measurements were adjusted to account for the known differences in measurement and analysis techniques between the speciation networks and the FRM network. The adjusted measurements were interpolated to the FRM monitors and used to estimate species fractions at each FRM monitor. Complete details of the methodology can be found in the final SMAT report.

XII.C.6.
Comment:
It appears that because of the regulatory weight associated with the FRM mass, the measured nitrate and OC concentrations are 'adjusted' to meet the mass balance, and the ESPN mass was ignored. This implicitly assumes that the chemical composition of measured FRM mass is known.

Response:
In the revised SMAT methodology, the FRM mass was the $PM_{2.5}$ measurement of interest (since this is the measure which determines attainment or nonattainment). There was no reason to directly use the ESPN total $PM_{2.5}$ mass measurement in the analysis. The quality of the absolute measured $PM_{2.5}$ mass from the ESPN network has not been carefully studied. We used the 2002 quarterly average ESPN component mass measurements combined with the 2002 quarterly average FRM measurements to calculate the fraction of $PM_{2.5}$ mass contributed by each specie. We did assume that the chemical composition of measured FRM mass is known. In the revised SMAT methodology there is no "unknown mass" component. The organic carbon is calculated as the difference between the FRM measurement and the sum of the other known species. Therefore, any unknown mass is essentially contained in the organic carbon fraction. This is a reasonable assumption since organic carbon is the most uncertain component.

XII.C.7.
Comment:
The commenter said that in the database on page 4 of the docket, reference was made to major chemical species, but the species were not identified. What are these species, and how many samples were removed because of the listed quality checks?

Response:
The "major species" are sulfate, nitrate, elemental carbon, organic carbon, crustal, and ammonium (ESPN only). Before removing any data, there were 23,413 monitor days in the ESPN + IMPROVE networks in 2002 for the East. A monitor day is a single measurement day at each site. We removed all monitor days where at least one major specie was missing. This left us with 15,983 monitor days. Next we removed the data for the July 6-9th 2002 period in DE, CT, NY, MD, NH, MA, NJ, VT, RI , and PA. This was to account for the influence of the Quebec fires. This left us with 15,939 monitor days. Finally, we removed all site quarters which had less than 11 samples in any quarter. This left us with a final count of 15,304 monitor days.

XII.C.8.
Comment:
If the CMAQ modeling was performed for 2001, why was the January through December 2002 period selected for SMAT analysis?

Response:
The calculation of species fractions at each FRM site depends on the availability of speciated $PM_{2.5}$ data. The majority of the speciated $PM_{2.5}$ data in the East comes from the ESPN network. This network is relatively new and has been ramping up the number of sites over the last couple of years. The SMAT methodology for the CAIR proposal used speciation data from the April 2001-March 2002 period. The maximum number of speciation sites in that dataset was 156. The revised SMAT uses data from the calendar year 2002. There are as many as 207 sites in this data set. The 2003 speciation data set has even more sites, but the full ESPN and IMPROVE data set was not available in time to use for the CAIR final rule. Ideally, we would have used the full 5 years of data to match the FRM data for 1999-2003. But the available data was limited. We chose to use the 2002 data because it was the most recent year with most number of sites. We also didn't average the 2001 and 2002 data due to the large number of sites coming on-line within the two year period. Some areas would be represented by a single year of data and other areas would be represented by a two year average of data, which could negatively affect the species interpolations. We felt it to be more meaningful to use the single year of the most complete data available. The fact that the base modeling year is 2001 was not a consideration because we are using FRM data from the 1999-2003 period.

XII.C.9.
Comment:
On Page 5 of the docket, it is stated that RCFM was computed each day, and only those days for which the RCFM and the FRM-based mass are within ±30 percent were used in this study. Does Table 2 on Page 4 of the docket reflect these quality checks? What was the basis for the ±30 percent window?

Response:
The reconstructed fine mass (RCFM) was computed for each quarter and compared to the quarterly average fine mass. Site quarters that differed by more than ±30 percent were thrown out. The total number of site quarters eliminated as a result of this QA check was 30 (out of 712 site quarters). Table 2 on page 4 of the final SMAT report does not reflect the 30 site quarters which were eliminated.

The ±30 percent rule was a final QA check before we interpolated the speciation data. We wanted to make sure that the final estimate (before interpolation) of quarterly average RCFM was at least reasonably close to the co-located quarterly average FRM mass. Upon inspection of the data sets, there were a small number of site quarters which appeared to be outliers. Using a 30 percent cut-off eliminated the data that looked to be potentially suspect. Only ~4 percent of the data was eliminated.

XII.C.10.
Comment:
On page 6 of the docket, the spatial interpolation is described as a way to provide speciation information for the 80 percent of the FRM sites that are not collocated with an ESPN monitor. Were any of the collocated FRM and ESPN monitor sets exempted from the use of spatial interpolation?

Response:
No. All of the speciation concentrations used in the analysis were values interpolated to the 36 km grid cells. Even at the speciation sites, interpolated values were used. This was done to avoid inconsistencies among nearby monitors.

We have calculated an example set of future year concentrations at $PM_{2.5}$ speciation monitors without using interpolated data. We analyzed monitoring data at 75 Eastern monitoring sites which had a full year of $PM_{2.5}$ speciation data for 2002. These were the only sites where the annual average future year concentrations based on interpolated speciation data could be compared to future year concentrations using non-interpolated speciation data. The analysis examined the 2010 base case concentrations (without CAIR controls). The results of the analysis show that the use of interpolated speciation data in the revised SMAT methodology makes a small, unbiased difference in the results. The average difference in 2010 base case concentrations was <0.01 ug/m3. The maximum difference at any site was 0.10 ug/m3. The detailed results of the comparison of using interpolated versus uninterpolated speciation data is provided in the NFR AQMTSD.

XII.C.11.
Comment:
From page 8 through page 14 of the docket, there are several equations that are based upon assumptions of retained nitrate mass, estimate of ammonium sulfate, and particle bound water. In these cases the data requirements include hourly ambient temperature and relative humidity. How

were these data [hourly ambient temperature and relative humidity] obtained for each monitoring station?

Response:
The meteorological data was derived from a set of National Weather Service (NWS) observations. The hourly relative humidity and temperature data was mapped to the speciation monitor locations from the nearest NWS site.

XII.C.12.
Comment:
Is there a tabulation to provide the differences between the measured ESPN mass and those identified as speciated FRM mass?

Response:
Measured ESPN $PM_{2.5}$ mass was not used in the analysis. The reconstructed fine mass at the ESPN sites will add up to the speciated FRM mass. The measured ESPN mass has no direct use in the methodology.

XII.C.13.
Comment:
What is the level of confidence in applying these 'corrections' to the measured speciated data?

Response:
Based on measurements produced in six eastern US cities (Frank, http://www.epa.gov/ttn/amtic/files/ambient/samwg/spring2004/frank1.pdf), nitrates in $PM_{2.5}$ mass (on Teflon filters) were accurately predicted by the evaporation model, as described in the final SMAT report. Water was estimated using the AIM thermodynamic model using available ammonium data and associated spatially smoothed aerosol acidity (degree of sulfate neutralization). Because of large uncertainties in measurement- derived carbonaceous mass (due to uncertain blank corrections and carbon-to-mass multipliers), the estimate for carbon-by-mass balance was judged to provide reasonable if not more certain values.

XII.C.14.
Comment:
On page 13, the docket states that a 'nominal blank mass of 0.5 μg/m3 will be considered in mass construction computations.' No such correction appears to have been applied to the ambient measurements. In those instances when a monitor has a reported design value of 15.9 μg/m3 , would this correction of blank mass bring the monitor into attainment? How would this be reconciled, given the various adjustments that are being called for in estimating the RCFM to make it equal to the FRM mass?

Response:

The $PM_{2.5}$ blank is not used to correct the measured $PM_{2.5}$ annual average values. Therefore attainment assessment is unaffected. Mass associated with the blank filter is part of the definition of $PM_{2.5}$ as measured by the FRM. Although it is important to consider in the chemical characterization of mass, it is not considered in comparisons to the NAAQS.

XII.C.15.
Comment:
Are there any studies available in support of the blank mass correction to the FRM mass?

Response:
EPA reports mean $PM_{2.5}$ mass in field blanks to be 11.1 ug per filter in the Eastern US. With nominal flow rates for the $PM_{2.5}$ FRM sampler, this is equivalent to 0.5 ug/m3. (3-Year Quality Assurance Report: Calendar Years 1999, 2000 and 2001; The $PM_{2.5}$ Performance Evaluation Program, Draft June 2003). In addition, the SEARCH network uses a similar value (0.3 ug/m3) in their mass balance of $PM_{2.5}$ as measured by the FRM.

XII.C.16.
Comment:
The commenter appreciates EPA's efforts to attempt to improve the SMAT procedure. However, the commenter notes that the document describing the revised SMAT procedure indicates that 'a revised version of the SMAT technique has been applied in support of the CAIR final rule.' Similarly, near the end of the document, EPA says that results using the new procedure 'were used in the CAIR final rule modeling analysis.' (p.18) Despite these statements, the commenter can find no analysis in the docket or on EPA's website that contains an application of the revised SMAT procedure for CAIR. Nor is there any document in the NODA information that provides results of new CAIR modeling. Without seeing the application of the new SMAT procedure for CAIR (which, according to EPA's document, already exists), or at least a comprehensive, detailed example of its application in the document, there is no meaningful opportunity to comment on the SMAT revisions and their implications for CAIR specifically. Thus, although in theory the revised SMAT procedure should provide better estimates of the design values, in application, where the revised procedure matters for this rulemaking, EPA has provided no information. The commenter requests that EPA provide that information and allow an adequate time for review and comment on it, before promulgating a final CAIR.

Response:

An updated version of the SMAT methodology is available in the docket[109]. Also in the docket are the projected $PM_{2.5}$ concentrations for the 2010 and 2015 Base Case scenarios which were developed by EPA using this methodology[110].

XII.C.17.
Comment:
One commenter provides some observations and questions below, and asks that EPA evaluate these comments as it uses the revised SMAT in the CAIR analysis.

Comment:
What impact on projected nonattainment areas (number and location) does the revised SMAT have? Does the revised SMAT procedure change design values more than EPA's 0.15 ug/m3 contribution threshold?

Response:
We have calculated the projected nonattainment counties for the 2010 base case with the version of SMAT used for proposal (i.e., "old" SMAT)and the revised SMAT. The comparison is based on the differences between the methodologies using the same starting point for current year concentrations (i.e., based on the average of 99-03 observations) and the same interpolation techniques (i.e., the Voronoi Neighbor Averaging interpolation). In most counties (with the exception of counties in Florida), the 2010 base case concentrations are higher using the revised SMAT methodology.

In the CAIR final rule modeling (using revised SMAT) there are 80 "modeled only" nonattainment counties and 63 "modeled + measured" nonattainment counties. Using the old SMAT methodology yields 66 "modeled only" nonattainment counties and 57 "modeled + measured" nonattainment counties. Only the "modeled + measured" counties are used as downwind receptors in the significant contribution analysis. The revised SMAT predicts seven more "modeled + measured" nonattainment counties compared to old SMAT. Four of those counties are in Pennsylvania, one is in West Virginia, and one is located in New Jersey. The details on the analysis of the old SMAT versus revised SMAT for all 433 Eastern counties is included in the NFR AQMTSD.

XII.C.18.

[109]Procedures for Estimating Future $PM_{2.5}$ Values for the CAIR Final Rule by Application of the (Revised) Speciated Modeled Attainment Test (SMAT). Docket item OAR-2003-0053-1907.

[110]Base Year, 2010 Base Case, and 2015 Base Case Annual Average $PM_{2.5}$ and 8-Hour Ozone for Counties with monitoring sites in the Eastern U.S. Docket item OAR-2003-0053-1908.

Comment:
The commenter applauds EPA's blank correction for organic carbon. However, the commenter urges EPA to blank correct for all ESPN species, not only for the purposes of SMAT, but also to improve model performance evaluations.

Response:
There are two areas in SMAT where field and laboratory blank information is used: 1) the organic carbon quarterly average data from the speciation networks is blank corrected using average blank values. 2) When reconstructing FRM mass, a blank mass of 0.5 ug/m3 is added to account for blank mass that would be found on FRM filters. We know of no other areas of the methodology or species that need to be blank corrected.

XII.C.19.
Comment:
What is the effect of the mass balance (no unattributed mass) on the estimated design values for sites included in the CAIR analysis? Has EPA considered the fact that, through the Equation 13 TCM approach, EPA is simply assigning the remaining 'unknown' mass, after accounting for particle-bound water, to TCM, without understanding what components make up the mass, including possible components that are not carbonaceous, such as sea salt (which can be an important component of PM-2.5 mass for coastal areas)? Does EPA believe that accounting for sea salt explicitly in the SMAT procedure is not appropriate?

Response:
EPA's approach assigns all minor components of $PM_{2.5}$ into the mass associated with carbon. In effect, the organic carbon estimate includes sea salt and any other components not explicitly identified. This is consistent with other standard procedures for characterizing $PM_{2.5}$ mass such as those used by the IMPROVE and SEARCH programs. EPA has determined that the effect of sea salt is very small at non-coastal sites in the mass balance of $PM_{2.5}$. While the SMAT approach may overestimate the carbon contributions at coastal locations by the amount associated with unaccounted for sea salt. There are not any Eastern coastal areas which exceed the $PM_{2.5}$ NAAQS and therefore this effect is not at issue for future year air quality predictions at those areas.

XII.C.20.
Comment:
EPA's approach for calculating TCM (through mass balance calculation of TCMmb in Equation 13) is helpful in that it avoids measurement discrepancies for OC and EC that exist between ESPN and IMPROVE sites. However, it is unclear why EPA, having combined OC and EC through Equation 13, then breaks apart the OC and EC when calculating PM-2.5 FRM values (Equation 15). It would seem better to use the TCMmb value in Equation 15. If this is done, of course, the modelers will need to be careful to extract the correct model factors for calculating RRF based on TCM.

Response:
The original SMAT methodology from the modeling guidance specifies calculation of separate RRFs for elemental carbon and organic carbon. We continue to believe that it is important to have separate factors for the two individual carbon species. Elemental carbon and organic carbon can have different sources and exist in the atmosphere in different amounts. The ambient concentrations of organic carbon are generally much higher than elemental carbon. Additionally, the relative predicted changes in elemental and organic carbon in the future are very different. Total elemental carbon is predicted to be reduced by up to 50 percent or more in urban areas in the next 10 to 15 years. Total organic carbon is predicted to remain nearly unchanged or to be reduced by up to 10 percent. Because of these differences, using a single RRF for total carbon would give a much different response compared to using individual RRFs for elemental and organic carbon. It is more scientifically accurate to use individual RRFs.

XII.C.21.
Comment:
The commenter notes that EPA's analysis discards data at two occasions. First, EPA removes observations affected by smoke from fires (page 4). Second, EPA removes site/quarter combinations with more than a 30 percent discrepancy between the ESPN RCFM and the FRM $PM_{2.5}$ (pages 5-6). Has EPA evaluated the impact from excluding these data? Does this exclusion of data mean that States may exclude such data when determining attainment status and developing attainment demonstrations whether they have a smoke management plan or not? Do smoke management plans allow exclusion for only 'local' fires or fires from afar? What basis does EPA have for excluding these data? (For example, a discrepancy of over 30 percent in a quarter could indicate an issue that should be investigated, not ignored).

Response:
The urban speciation networks have only been operating for a few years and new sites are still coming on-line. We chose to use speciation data for the full calendar year of 2002. This was the best and most recent data set available to use. Ideally, we would have used a 3 or even 5 year speciation data set which matched up with the 1999-2003 FRM data. But we could not, due to the limited speciation data available.

The 2002 speciation data used to represent the fraction of $PM_{2.5}$ species that exists in the 1999-2003 FRM data, on a quarterly average basis. Therefore, extreme events that heavily influenced the 2002 data set were removed. The only event that fell into this category was the July 2002 Quebec fires. We found that in 10 Northeastern states, the fires had a large impact on the 3rd quarter 2002 measured organic concentrations. Not removing the impact of the fires would have led to an unrealistically high organic carbon fraction in the Northeast States in the 3rd quarter.

The removal of quarterly data that had a >30 percent discrepancy between the ESPN RCFM and the FRM $PM_{2.5}$ was addressed above.

XII.C.22.
Comment:
EPA's adjustments should be applied on a sample-by-sample basis, rather than for quarterly average data. For some of EPA's adjustments, it is unclear from the document whether they are being done sample-by-sample or using quarterly averages. For others (e.g., the Equation 13 TCMmb calculation), EPA is clearly using quarterly averages, rather than the more accurate sample-by-sample approach. To the extent EPA believes that an adjustment should be made using quarterly averages, EPA should at least explain why the use of quarterly averages is appropriate, as compared to a sample-by-sample approach.

Response:
Water calculation with AIM is sensitive to the concentration of NH4 and the associated degree of neutralization (DON) of sulfates. Because of uncertainty in daily NH4 measurements and apparent spatial discontinuities among nearby sites, EPA chose to not estimate daily values of particle bound water. Instead, EPA produced a spatial surface of DON on a quarterly basis and used these to estimate quarterly average concentrations of water associated with inorganic aerosol. EPA used daily values when they could be used. Daily values of measured nitrate in combination with hourly temperature and relative humidity were used to estimate the nitrate concentration in $PM_{2.5}$ gravimetric mass.

XII.C.23.
Comment:
It appears that Equation 2, for calculating the loss of nitrate from the FRM filter (pages 8-9), may not be correct in all circumstances. According to Hering and Cass (JAWMA, Vol. 49, pp. 725-733 (1999)), the equation is correct when airflow at the filter is at the ambient temperature. However, EPA says that Equation 2 can be used when the filtration temperature is 3 to 5 degrees K above ambient temperature. Hering and Cass indicate that a different equation (Equation 6 in their paper) is needed if the filtration temperature is not at ambient conditions. The effect of a 3 to 5 degree K filtration temperature increase would be to increase delta NO3 by a factor of 1.5 to 2, which substantially changes the curves in EPA's Figure 4 (page 10).

Response:
As implemented by Hering, the form of the nitrate evaporation model corresponds to a situation where there is 100 percent depletion of NH3 and HNO3 ahead of the filter; or a 5 degree temperature rise in filter temperature and no gas depletion; or a 50 percent depletion and 3 deg delta T. The model was modified further to distinguish between high and low relative humidity. This form of the model was applied to six high concentration Eastern US locations and it was determined that predicted NO3 agrees with measured NO3 from Teflon filters within 4 percent on an annual average basis. Therefore, we believe that the approach we used properly accounts for the loss of nitrate on the FRM filter.

XII.C.24.
Comment:
EPA's approach for addressing particle-bound water appears to be logical, but the description lacks enough detail to permit a meaningful evaluation. A more detailed discussion of the process (i.e., treatment of particle-bound water) that was followed would be useful.

Response:
EPA used the AIM model based on $PM_{2.5}$ filter equilibration conditions, measured ionic concentrations and estimated degree of neutralization as described in the final SMAT report. The information provided should allow one to run the AIM model to replicate the SMAT results.

XII.C.25.
Comment:
EPA should include a discussion that emphasizes that the modeling community will need to properly identify and map the model outputs to each species from the revised SMAT procedure. The document that EPA has posted for the NODA may not be adequate to explain to the States how to use the revised procedure. The commenter recommends that EPA offer assistance to the States to use the new procedure. For example, EPA could develop software for the States to use to make the adjustments that EPA has identified. Of course, such software would need to be flexible enough to handle different measurement methods, network experience (e.g., blanks), and modeling platforms.

Response:
The revised SMAT methodology used for CAIR will likely supplant the current methodology that is outlined in the draft modeling guidance. EPA will have further discussions with the modeling community (EPA regional offices, States, and stakeholders) before changes to the guidance are finalized. The final $PM_{2.5}$ modeling guidance may contain the revised SMAT methodology as implemented in CAIR or it may be further revised based on new information and analyses. In either case, EPA will work closely with the States and interested parties to ensure that the most scientifically credible technique is used in support of the $PM_{2.5}$ and Regional Haze SIPs. EPA will provide support to make it easier for States to implement any version of the revised SMAT methodology.

XII.C.26.
Comment:
Because the SMAT procedure will also be proposed by EPA in the near future as part of the proposed guidance for demonstrating attainment with the PM-2.5 NAAQS, the commenter assumes that it will have another opportunity to comment on the SMAT revision in the context of that proposal. Assuming that those comments precede final promulgation of CAIR, the commenter requests that EPA consider those comments in the context of this rulemaking.

Response:
As part of the $PM_{2.5}$ and Regional Haze modeling guidance development process, there will be another opportunity to comment on the final version of SMAT and the modeling guidance. The modeling guidance will be finalized sometime in 2005, after the CAIR final rule is published. Therefore, comments on the final modeling guidance cannot be considered as part of this rulemaking.

XII.C.27.
Comment:
As part of the NODA, EPA has revised the methodology of speciated modeled attainment test (SMAT) that was originally issued as part of the draft modeling guidance for $PM_{2.5}$ and regional haze. We are quite concerned by the path chosen to issue the new method instead of revised draft guidance. Furthermore, this process significantly curtails the comment period for a through review and assessment of the method. In the same vein, we would also like to note the deviation in defining the 'current year' design value. EPA has chosen to use an average of three design values covering a five-year period. Again, this change cannot be evaluated within the limited comment period.

Response:
The SMAT technique was revised in response to comments on the CAIR proposal and the commenter was given an opportunity to review and comment on those changes. We are not able to immediately incorporate those changes into a new version of the draft modeling guidance. The modeling guidance is being developed (and finalized) on a separate track from CAIR. The modeling guidance will be finalized in 2005 as part of the $PM_{2.5}$ implementation process.

The definition of the "current year" concentration will be revised and updated in the final version of the guidance. The public will get another opportunity to comment on the modeling guidance document before it is finalized.

XII.C.28.
Comment:
One commenter noted that EPA's projections relied on procedures provided in a draft guidance document entitled 'Guidance for Demonstrating Attainment of Air Quality Goals for PM-2.5 and Regional Haze' (2001). (Southern anticipates that an opportunity for comment on this draft guidance will be provided in association with EPAs proposed implementation rules for the PM-2.5 NAAQS.) These draft procedures estimate future-year design values without any consideration of the differences in the way the underlying component data is measured and reported. In the SEARCH program, data are measured and reported in two ways, FRM equivalent and Best Estimate. Other methodologies are possible, given the number of different speciation monitors in use by EPA's Speciation Trends Network. Moreover, EPA's proposed approach does not account for particle bound water, which arguably should be factored into the calculations. Given the importance in this rulemaking of which counties are projected to be PM-2.5 nonattainment, Southern decided to evaluate the effects of the design value methodologies on future projected

nonattainment counties. To accomplish this, Southern retained Ivar Tombach and a team of experts at SAI and AER to evaluate the methodologies and the results obtained using those methodologies. Their report (Glass, et al.) Is Attachment 2 to these comments.

According to the commenter's report,.... The design value methodology can have a substantial impact on which counties are projected to be nonattainment for the PM-2.5 NAAQS. For example, in 2010, the Best Estimate method, taking into account particle bound water, results in a projection of from 39 to 51 $PM_{2.5}$ nonattainment counties, compared to the 61 nonattainment counties resulting from EPA's projection. Given these results, Southern believes that EPA's projected nonattainment counties used in the IAQR analysis are biased high. Because there is no air quality linkage if a county is projected to be attainment, the overestimate of downwind nonattainment counties revealed by this analysis can have an impact on the number of States for which EPA has found a contribution. EPA must reexamine its methodology and determine the impact that its methodology has on which States are determined to contribute significantly to a projected 2010 downwind nonattainment county.

Response:
The commenter submitted documentation which examined several different ways of apportioning $PM_{2.5}$ species mass to $PM_{2.5}$ mass. Two methods were described as the "best estimate" method and the "FRM equivalent" method. The commenter noted that the two methods gave somewhat different results, but the commenter did not recommend the use of one methodology over the other. Since nonattainment designation determinations and future year nonattainment projections are based on measured FRM data, we believe that the $PM_{2.5}$ species data should be adjusted to best conform to what is measured on the FRM filters. Therefore, we believe that it is warranted to revise SMAT to use a methodology similar to an "FRM equivalent" methodology.

Based on these comments, we revised our technique for projecting current $PM_{2.5}$ data to incorporate some aspects of the commenter's "FRM equivalent" methodology. As described in detail in the final SMAT report, we believe our revised methodology to be the most scientifically credible estimation of what is measured on the FRM filters.

Analysis of the differences between the commenter's suggested techniques and the original SMAT methodology contained in the CAIR NPR reveals that the original SMAT methodology in fact contained aspects of both the best estimate and FRM equivalent methodologies. EPA reviewed the latest scientific understanding of how $PM_{2.5}$ and $PM_{2.5}$ species are measured and analyzed and developed the revised SMAT methodology with the intention of closely matching the FRM measurements. The revised SMAT methodology is similar to, but still somewhat different than the commenter's "FRM equivalent" methodology.

We revised the SMAT methodology to take into account several known differences between what is measured by speciation monitors and what is measured on FRM filters. Among the revisions were calculations to account for nitrate, ammonium, and organic carbon volatilization, blank

$PM_{2.5}$ mass, particle bound water, the degree of neutralization of sulfate, and the uncertainty in estimating organic carbon mass.

The commenters noted that the "best estimate" methodology predicted fewer future nonattainment counties compared to the FRM equivalent method. Accounting for particle bound water also increased the number of future year nonattainment counties.

EPA compared the results of the original SMAT methodology and the revised methodology for the 2010 base case. The revised methodology results in more predicted nonattainment counties. The number of "monitored + modeled" nonattainment counties increases from 56 counties with the original SMAT to 63 counties with revised SMAT. With the revised SMAT, 415 out of 435 counties saw an increase in 2010 base case concentrations compared to original SMAT. The increases in concentrations with the revised SMAT are due to a shift in the apportionment of $PM_{2.5}$ from nitrates to sulfates and organic carbon. The predicted reduction in sulfates and organic carbon between the 2001 and 2010 base case is smaller than the predicted reduction in nitrates. This results in generally higher predicted $PM_{2.5}$ mass in 2010 (before CAIR controls) with revised SMAT.

XII.C.29.
Comment:
Several commenters note that in the TSD-AQM document (page 20) EPA explains that in order to get speciated $PM_{2.5}$ data at all sites it needed to use 'spatial interpolation techniques' where speciated data was not available. EPA indicated that it used data from the Speciation Trends Network and IMPROVE data to fill the speciated data gap where collocated speciation monitors where not available. EPA has not provided any analysis that delineates the accuracy of this technique. Errors in the speciated components would severely effect the calculation of the speciated relative reduction factors used in determining modeled design values. EPA needs to evaluate the sensitivity of the modeling derived $PM_{2.5}$ design values to possible errors generated by using these 'spatial interpolation techniques'. EPA can not assume that $PM_{2.5}$ composition in rural areas is representative of urban areas in the eastern United States.

Use of the rural IMPROVE network to represent urban speciation profiles for the FRM monitors could severely misrepresent urban sites. While sulfate may be similar between urban and rural areas in the east, nitrates, and carbonaceous mass can differ significantly (See Air Quality Data Analysis Technical Support Document for the Proposed Interstate Air Quality Rule pages 14-15 in this docket). EPA needs to evaluate how this possible misrepresentation for urban speciation affects the modeled $PM_{2.5}$ design values.

Response:
In the final version of revised SMAT, EPA has changed the interpolation procedure to use a Voronoi Neighbor Averaging (VNA) approach instead of Kriging. We have performed an analysis of the impact of using the two different spatial interpolation techniques. We have also completed an analysis examining the impact of spatial interpolations at monitoring sites compared

to directly using non-interpolated data. In both cases we have found the impact of the spatial interpolations to be small and unbiased.

Two separate analyses compare the differences in projected $PM_{2.5}$ concentrations from 1) VNA interpolation vs. Kriging and 2) VNA vs. non-interpolated speciation data (at speciation sites). The VNA interpolation vs. non-interpolated data was summarized elsewhere in response to a separate comment. We calculated the 2010 base case concentrations at 75 speciation sites which had complete monitoring data for the full year of 2002. These were the only sites where the annual average future year concentrations based on interpolated speciation data could be compared to future year concentrations using non-interpolated speciation data. The average difference in 2010 base case concentrations was <0.01 ug/m3. The maximum difference at any site was 0.10 ug/m3.

We also completed an analysis of VNA vs. Kriging for the monitoring sites in the Eastern 433 counties with available data. The analysis of VNA vs. Kriging shows that the choice of interpolation techniques makes a small, unbiased difference in the 2010 base case $PM_{2.5}$ concentrations. The average difference in all counties was <.01 ug/m3. The largest difference was 0.14 ug/m3 (the largest difference in a nonattainment county was 0.08 ug/m3). The number of predicted nonattainment counties is the same in both cases. There is one county that is predicted to be nonattainment with VNA, but attainment with Kriging, and vice versa. The two affected counties are not "key" receptor counties for any upwind states (i.e. are not the sole link to an upwind state) and therefore do not affect the outcome of the significant contribution analysis.

We have also examined the impact of choice of interpolation technique on the zero-out portion of the significant impact analysis. We compared the results of the zero-out model runs using the 2010 base case and 2010 State-by-State zero-out model runs post-processed through revised SMAT using VNA and Kriging. We examined the significant impact linkages for all of the States that had an impact of 0.10 to 0.30 ug/m3 (10 States). These are the upwind States that would be most likely to either move above the 0.2 ug/m3 significant threshold or fall below the 0.2 ug/m3 threshold. The results show that the choice of interpolation technique has very little impact on the zero-out results. None of States moved to above or below the 0.2 ug/m3 threshold as a result of the interpolation technique. Out of the ten States, seven had exactly the same maximum contribution, the maximum contribution dropped by .01 ug/m3 from two States, and .02 ug/m3 at one State.

XII.C.30.
Comment:
One commenter asserts that EPA's design values are inconsistent and overstate the scope and extent of nonattainment with the fine particle standard. Accurate data sets and analytical tools are essential for developing beneficial and cost- effective emission control strategies. The proposed rule utilizes 2000-2002 $PM_{2.5}$ design values as the foundation for developing the proposed emission reduction provisions. An analysis of the design values used in the technical support documents for the proposed CAIR reveals several discrepancies when compared to data from the EPA report titled 'Analysis of 2000-2002 PM Data for the PM NAAQS Review'. The differences

include 27 cases of varying design values for 2000-02, 12 of which decreased by an average of 0.91 ug/m3 and 15 of which increased by an average of 0.22 ug/m3.

Response:
The commenter refers to two different documents which summarize 2000-2002 $PM_{2.5}$ concentrations. One of these documents matches the design values that were used in the CAIR NPR. The other document does not. The document at www.epa.gov/airtrends/pm25_design_values-2000-2002.pdf[111] contains official 3 year average design values based on the methodology contained in 40CFR Part 50, Appendix N. The design values in this document match the CAIR NPR values. The document at www.epa.gov/oar/oaqps/pm25/2002analyses.html[112] contains an analysis of $PM_{2.5}$ data from the 2000-2002 time period, but does not contain design values. The average values that are reported in the document were based on four to twelve quarters of data (depending on data availability at each monitoring site). The data was meant to be used for informational purposes, not for calculating design values. The data in the analysis has no direct relationship to the calculation of current year design values for CAIR.

EPA agrees that a consistent set of design values should be used to establish current year air quality. For the CAIR NFR, EPA has updated the design values to include those from 1999-2001, 2000-2002, and 2001-2003. The design values are averaged to get the current year concentrations for both $PM_{2.5}$ and ozone. The complete methodology for calculating current year concentrations is included in the final SMAT report.

XII.C.31.
Comment:
The commenter is concerned that EPA, in their modeling in Section IX, may have overestimated the benefit of the proposed rule. Modeling conducted by the LADCO states indicates that more areas in Indiana, and the Midwest in general, remain above the ozone standard after the reductions in the proposed rule than EPA's modeling shows. The commenter urges EPA to examine LADCO's modeling closely. The commenter also urges EPA to apply modeling results to 2001 - 2003 ozone season data since this is the information upon which designations are being made. Under several modeling scenarios, these newer data result in more areas in Indiana over the standard. For this reason, the level of control is an issue. The commenter will find it difficult, as will other states, to obtain additional emission reductions from EGUs after implementation of this rule, especially given the structure of the proposed trading program.

Response:
EPA has examined the modeling documentation that was submitted by the commenter. The document was written by LADCO, based on their preliminary modeling. The LADCO report concludes that "the modeling results are qualitatively similar to those reported by USEPA in their

[111] Air Quality Data Update 2000-2002 $PM_{2.5}$ Air Quality Data.
[112] Analysis of 2000-2002 PM Data for the PM NAAQS Review, August 29, 2003.

Federal Register notice" [CAIR proposal]. The modeling platforms used by LADCO and EPA are quite different, but the results were qualitatively similar. The report also notes that "the modeling results are not definitive and should only be viewed as qualitative in nature (i.e., approximating the improvement in air quality, but not defining a specific level of [future] air quality). More reliable modeling will be performed over the next couple of years to support SIP development."

We believe that our modeling is based on sound science, as indicated in response to other commments, and that all of Indiana's nonattainment counties will benefit from CAIR.

Additionally, as noted previously, we have expanded the use of ambient ozone and $PM_{2.5}$ data to include the entire data record from 1999-2003.

XII.C.32.
Comment:
The potential designation of New Haven as nonattainment for the annual average $PM_{2.5}$ NAAQS is not justified and directly affects the applicability of Interstate Transport Rule requirements for our neighboring state, Massachusetts.

The commenter's in-depth monitoring network and analysis thereof shows that elevated $PM_{2.5}$ levels at the Stiles Street site in New Haven are due to micro-scale phenomena not representative of community exposure. Ambient levels at all six additional measurement sites deployed in New Haven to study the situation are below the level of the NAAQS. EPA should strongly consider the commenter's sound scientific and technical analysis to conclude that all of Connecticut should be designated attainment for $PM_{2.5}$.

Response:
The New Haven monitoring site that was measuring $PM_{2.5}$ concentrations in excess of the NAAQS has been designated as a "hot spot" monitor. As a result, we have removed this $PM_{2.5}$ monitoring site from our analyses for CAIR.

XII.D. Culpability Modeling

XII.D.1.
Comment:
Several commenters questioned the use of zero-out modeling and claimed that the approach assumes that the chemistry response is linear. One commenter said that EPA should support the development of a source apportionment model $PM_{2.5}$ contributions. The commenter recommended that EPA delay the final rule until such a technique can be used. Another commenter provided results of a sulfate source apportionment technique currently under development along with modeling results which showed that the zero-out technique and source apportionment for sulfate provide similar results in terms of the magnitude and extent of downwind impacts. The commenter noted that the results suggest that zero-out modeling may somewhat underestimate the transport of sulfate.

Response:
EPA rejects the claim that zero out modeling assumes a linear chemical response. We continue to believe that the zero-out technique is a credible method for quantifying interstate $PM_{2.5}$ and ozone contributions. The zero-out technique involves the use of modeling results from base case and zero-out case model simulation. The results of both simulations reflect the non-linear chemistry contained in the model. In addition, sulfate source apportionment modeling results provided by commenters show that the zero-out technique and source apportionment appear to give similar results. These results indicate that the zero-out technique does not overestimate interstate transport of SO_2. Moreover, EPA rejects the notion that we should delay needed reductions awaiting alternative assessment techniques. The legal obligation to control interstate transport of PM and ozone precursors which contribute significantly to nonattainment exists now.

XII.D.2.
Comment:
EPA should conduct culpability assessments using current year(s) modeled culpability in place of potential future year contributions to establish specific causality to significant contribution to downwind nonattainment.

Response:
EPA disagrees with this comment. Conducting culpability assessments for current year(s) would not take into account economic growth and planned, but not yet implemented, control programs that effect emissions and therefore effect future nonattainment and projected interstate contributions. In this respect, conducting the assessment for current year(s) could overestimate or underestimate the extent of nonattainment and the amount of pollutant transport.

XII.C.3.
Comment:
One commenter said that the zero-out modeling does not determine actual downwind exposure, but merely demonstrates the effect of zeroing out all emissions in a state. They also claim that this

approach does not account for disproportionate impacts of upwind contributors nor does it account for the impact of controls on more significant contributors closer to the nonattainment area.

Response:
The zero-out modeling was performed to quantify the contribution from anthropogenic emissions of NOx and SO2 in one State to $PM_{2.5}$ nonattainment air in other States. This approach was also use by EPA as part of the method for quantifying the contribution from emissions in one State to 8-hour ozone nonattainment in downwind States. The ambient exposure in the downwind nonattainment area is comprised of an aggregate amount of $PM_{2.5}$ (i.e., collective contribution) that reflects the total contribution from in-State emissions as well as emissions from all contributing upwind States, combined. Thus, the individual State-by-State zero-out model runs are not intended to provide estimates of actual downwind exposure, but rather to provide a quantified estimate of the part of the total exposure in the downwind area attributable to out-of-state emissions.

XII.D.4.
Comment:
One commenter argued that the model does not take into account a state's controlled airshed. In 2002, Mississippi had SO_2 emissions of 1 ton square mile. Nonattainment states have has much as 29 tons/square mile.

Response:
The EPA disagrees with this comment. The base case for the culpability modeling performed by EPA to quantify interstate contributions to nonattainment does include the effects of baseline controls in each upwind State. In general, States with higher emissions have greater contributions to downwind nonattainment, depending on meteorological conditions and on the downwind distance to nonattainment areas.

XII.D.5.
Comment:
A commenter said that EPA should use air quality analysis to determine whether reasonably controlling the largest contributor to a nonattainment area will bring that area into compliance. This analysis should continue with the next largest contributing state until the analysis shows the area to be in attainment.

Response:
EPA disagrees with this comment for several reasons. First, no single upwind State contributes the highest amount to all downwind nonattainment areas. Controlling the largest contributor to one area would also reduce nonattainment in other areas. Thus, the approach suggested by the commenter would require an arbitrary assignment of controls to each upwind State. Second, many downwind nonattainment areas receive similar amounts of contributions from multiple upwind States. For such cases, the approach would again lead to an arbitrary assignment of controls to the

upwind States. However, it should be noted that the trading program, and the SIP process itself, allows for actual control to be apportioned reasonably among sources.

XII.D.6.
Comment:
One commenter said that the differences in emissions between the original and revised 2010 base case emissions (i.e., 2010 Base-2) were not insignificant. One commenter questioned why EPA did not perform the zero-out simulations for other States such as Delaware, Ohio, and Pennsylvania using the 2010 Base-2 emissions.

Response:
Updated 2010 utility emissions became available near the completion of the zero-out modeling performed for the proposal contribution analysis. When the new emissions became available EPA compared the revised versus original total (i.e., from all emissions sectors, combined) 2010 emissions for NOx and for SO_2 for those States that had been modeled with the original emissions. A State was remodeled using the new emissions if the new 2010 State total emissions exceeded the original State total emissions by more than 10 percent. New Jersey was the only State which met the 10 percent criteria. It should be noted that all States in the Eastern U.S. have been modeled using the final 2010 emissions.

XII.D.7.
Comment:
Under the proposed Interstate Transport Rule, Kansas has been identified as a possible significant contributor to ozone nonattainment in three counties in Wisconsin.

Response:
The contributions from emissions in Kansas to ozone nonattainment in downwind States could not be evaluated because the region modeled by EPA for 8-hour ozone only contained the eastern portion of Kansas. The remainder of the State was outside the region covered by EPA's ozone contribution modeling and thus, we could not evaluate the contribution to downwind 8-hour nonattainment from emissions in the entire State.

XII.D.8.
Comment:
A commenter said that regional modeling performed as part of the Regional Air Partnership analysis affirms that Minnesota emissions are primarily affecting Minnesota. Figure 6 shows how modeled Region 1 state (Minnesota, Iowa and Missouri) utility emission reductions of 60 percent show fine particulate benefits only within region 1 when the significance threshold is set at 1 ug/M3.

Response:
EPA's $PM_{2.5}$ culpability modeling and significance threshold was based on quantifying the downwind contributions to nonattainment from total (i.e., all sectors, combined) emissions of NOx

and SO2 from each State in the CAIR region . The decision to propose emissions budgets to mitigate the significant contribution was based on the availability of highly cost effective controls, not on the contribution to nonattainment of each sector. Thus, the analysis to quantify the impact of emissions reductions from a single sector in a single State is not an appropriate basis for determining significant contribution. Moreover, as discussed elsewhere, EPA is using a significance threshold of 0.2 ug/m3 for $PM_{2.5}$, not 1 ug/m3 as used by the commenter.

XII.D.9.
Comment:
One commenter recommended updating of the zero-out modeling for North Dakota utilizing the 2010 Base-2 emissions (i.e., IPMv216).

Response:
In response to comments, EPA has further revised the $PM_{2.5}$ air quality modeling platform, as described in the NFR AQMTSD. The revisions include additional updates to the future base case utility emissions which supercedes the IPMv216 scenario. EPA has remodeled all States in the East using this new modeling platform.

CAIR Control Strategy Modeling

XII.D.10.
Comment:
One commenter simulated the proposed CAIR regional NOx and SO2 emissions reductions using their own modeling platform and found that the impacts of these emissions reductions were qualitatively similar to the results from EPA's modeling. Specifically, the commenter found that the proposed NOx and SO2 emissions reductions, in combination with expected federal and State controls, will reduce ozone and fine particle concentrations, and improve visibility levels in the Eastern U.S.

Response:
We agree with this comment which confirms EPA's modeling that the NOx and SO2 emissions reductions from CAIR will improve air quality and visibility in the Eastern U.S.

One Atmosphere Modeling

XII.D.11.
Comment:
Several commenters said that EPA should take a one atmosphere approach to air quality modeling since (a) there are chemical interactions and linkages between pollutants and their precursors and (b) the suite of precursor sources for both ozone and $PM_{2.5}$ are essentially the same. Commenters are concerned whether the emissions reductions would actually lead to the forecasted improvement, since they are based upon application of different photochemical models.

Response:
EPA believes that it is important to take a one atmosphere approach for modeling particulates since the formation of secondary particles is dependent, in part, on ozone photochemistry. In this regard, EPA has used CMAQ for modeling particulates since CMAQ is a one atmosphere model that couples photochemical processes with the formation of secondary particulates. Using ozone predictions from a one atmosphere model may also be useful, from a practical standpoint in terms of limiting the number of model runs, but is not necessary from a chemistry standpoint. As described elsewhere, EPA is using a state-of-the-science ozone chemistry model, CAMx, for modeling episodic ozone concentrations. The predictions of this model, as compared to ozone measurements, are within the ranges recommended by EPA in guidance for urban scale modeling. Thus, we continue to believe that our particulate and ozone modeling provide scientifically credible result.

Initial and Boundary Concentration

XII.D.12.
Comment:
One commenter stated that the NODA docket did not provide sufficient explanation on linking GEOS-CHEM with CMAQ, especially the vertical structure and temporal resolution of the global GEOS-CHEM model and how those fields are used to develop initial concentrations fields and concentrations along the boundary of EPA's national CMAQ modeling domain. The commenter asked (a) if the global GEOS-CHEM and national CMAQ modeling was conducted in a one-way or two-way nesting manner and (b) if there was any evaluation of model performance between using concentrations based on GEOS-CHEM versus static clean (i.e., very low) concentration fields. The commenter also wanted to know the horizontal grid resolution of the two models.

Response:
EPA believes that the use of a global chemistry model (GEOS-CHEM) to provide dynamic initial and boundary concentration fields for national modeling is more scientifically sound than the use of static clean concentrations. The pollutant concentration fields provided by the global model reflect emissions from other countries and actual meteorological conditions outside of EPA's national modeling domain. Thus, these concentration fields are more credible for initial and boundary concentrations than the assumption of clean concentrations. In addition, it could be problematic to use static concentration fields since the pollutant influxes from the upwind boundaries, which are often dynamic in nature, can affect pollutant concentrations within the modeling domain. More detailed information and references for the GEOS-CHEM model, the interface program used in linking the GEOS-CHEM and CMAQ, the spatial (horizontal and vertical) and temporal resolutions of the two models, and a comparison of model predictions using GEOS-CHEM vs clean concentrations are provided in the NFR AQMTSD.

Plume-in-Grid Modeling

XII.D.13.
Comment:
One commenter said that CMAQ is a more robust model than REMSAD and that CMAQ is more representative of the state of the science. However, the commenter believes that EPA's application of CMAQ overstates the impact of Minnesota emissions on downwind nonattainment areas because our modeling did not treat point source emissions as individual plumes using a "Plume-in-Grid" (PinG) methodology. The commenter said that CMAQ is designed to allow for PinG modeling and contends that EPA did not use this feature because it is expensive and time consuming to run. The commenter also submitted an analysis which they claim shows that not using PinG overstates the amount of nitrate formed from a NOx plume. Unless EPA actually runs a plume-in-grid model that confirms its assumptions, the commenter requests that EPA not rely on its scaling methodology as a basis to include Minnesota in CAIR.

Response:

EPA agrees with the comment that CMAQ is a state-of-the science air quality model. Although CMAQ does contain a plume-in-grid algorithm for treating secondarily formed aerosols, this algorithm has not be fully tested nor has it been evaluated against ambient measurements. For this reason, EPA chose not to use plume-in-grid in our CMAQ model simulations. EPA is not aware of any other model which contains an aerosol plume-in-grid algorithm that has been tested and evaluated. The analysis referenced by the commenter has a number of limitations which makes the results not directly applicable to transport of particulates. Specifically, the commenter's modeling included application of an ozone, not particulate, plume-in-grid algorithm for a multiday ozone episode. EPA does not believe that it is appropriate to extend the results of this episodic ozone modeling to infer effects on annual average particulate concentrations. Also, EPA uses model predictions in a relative sense and "anchors" these predictions to measured air quality as part of the procedure for calculating interstate contributions. The commenter did not provide any information to show whether or not using plume-in-grid would change the relative change predicted by the model.

XIII. MODEL CAP AND TRADE PROGRAM

XIII.A. Emissions increases prior to implementation of the proposed rule and incentives for early reductions

Comment:
Finally, we note that EPA is not proposing to allow sources to bank early reduction credits (ERCs) for NOx. Part of the basis for that proposal is that the generation of the estimated 3.7 million tons of NOx ERCs 'would delay progress towards achieving both the annual NOx reduction goals ....' (P. 32,702 2d col.) We agree with this conclusion and support expedient achievement of the NOx budgets. However, this logic applies equally to the SO2 program. The title IV program will generate about three times as many early reduction credits1 as the 3.7 million projected under a NOx program. EPA's modeling shows that this will substantially delay compliance with the 2010 and 2015 budgets. Again, these credits should be retired more quickly such that their use does not 'delay progress towards achieving both the annual [SO2] reduction goals ....' Also, we note that the modeling for the CAIR NOx program (see Appendix A of the Air Quality Modeling Technical Support Document (Jan. 2004)) indicates that aggregate EGU emissions of NOx in the regulated States are projected to be over ten percent over budget in both 2010 and 2015. We ask EPA to explain these overages.

Response:
EPA has conducted extensive analysis on the impacts of CAIR on banking and emissions. Cap and trade programs provide flexibility and allow sources to find the least-cost solution to meeting the caps, and an important part of providing flexibility is the unimpeded banking of allowances for future use. The benefit is that sources will reduce emissions earlier than required, but a trade-off exists when those same sources use them at a later date. The structure of CAIR is such that there is no economic incentive to use the bank all at once, but instead to use it gradually over time by carefully examining compliance options. This results in a glide path of downward emissions, eventually at the final cap level. If we look at the existing title IV cap and trade program for SO2 as an example, which is widely believed to be a huge success in reducing emissions and acid rain, there is no evidence that sources greatly increased emissions in any given year or tried to use as much of the bank as possible in any given year. Instead, sources gradually reduced emissions earlier than anticipated, which provided huge environmental benefit, and also lead to a substantial number of banked allowances. In addition, sources continue to use banked allowances for compliance with the existing title IV SO2 market for allowances, and a significant portion of the bank continues to be used each year under title IV.

The final CAIR includes a CAIR CSP for those States that are found to be significant contributors for PM2.5. The CAIR CSP is limited to 200,000 annual CAIR NOx allowances that States can distribute to their sources based upon early emission reductions or "need." This limited pool will not significantly affect the trend toward lowering emissions. The CAIR CSP does not place any restrictions on the use of allowances that are distributed from the pool, such as limiting their use to the first two years of the program, as these restrictions have no impact on the emissions glide path.

Comment:
EPA should allow for additional flexibility by creating an Early Reduction Credit program for NOx reductions that will reward early installation of control technology.

Response:
EPA agrees that providing incentives for early NOx reductions can provide early environmental benefits and lower the cost of compliance. In response, the final CAIR model cap-and-trade programs provide incentives for early NOx emission reductions – through the installation of new control equipment or the increased utilization of existing control technology – in both the CAIR ozone-season and annual NOx programs.

The Final CAIR ozone-season NOx cap-and-trade rule will allow the proposed use of NOx SIP Call allowances of vintage years 2008 and earlier for compliance in the CAIR. This mechanism would provide incentive for sources in NOx SIP Call States to reduce their ozone-season NOx emissions and bank additional allowances into the CAIR.

The Final CAIR annual NOx cap-and-trade rule will provide additional incentives for early annual NOx reductions by creating a Compliance Supplement Pool (CSP) for CAIR States from which they can distribute allowances for early, surplus NOx emission reductions in the years 2007 and 2008. The CAIR NFR preamble discusses the CSP in detail.

Comment:
If the IAQR does not become effective until 2010, one way the rule can help with reductions in the 2007 - 2009 timeframe is to offer early reduction credits. As described above, an early reduction program should be constructed so that there is an incentive to achieve these reductions but without hindering attainment of the NAAQS in later years. The SNPR should have the details of this program well defined as an incentive for companies to apply early controls before State rulemaking is completed.

Response:
EPA agrees with the commenter that there is value in the model cap-and-trade program providing incentives for early emission reductions. As a result, the final CAIR model rules provide early reduction incentives (see CAIR NFR preamble). EPA further agrees that these mechanisms should provide incentives for reductions in 2007 and after. (Note that, because the implementation date for the mandatory NOx emission caps is 2009 in the final CAIR, it is not possible to have "early" reductions in 2009.) However, it is not clear what the commenter intends by "well defined as an incentive for companies to apply early controls before State rulemaking is completed." This contradicts the commenters earlier statement that the early reduction mechanisms should credit reductions beginning in 2007, since States will have already submitted their SIPs but by 2007 but may not have completed their State rule promulgation. With regards to the CAIR ozone-season model rule, sources in NOx SIP Call States will have immediate incentives for early reductions due to model rule provisions that allow the banking of pre-2009 NOx SIP Call allowances into the CAIR ozone-season program. With regards to the CAIR annual NOx model rules, EPA agrees

with the commenter that providing incentives for early reductions through the CAIR CSP should begin in 2007.

Comment:
On page 4578, the EPA states that 'After 1995, emissions increased slightly as sources began to use allowances that they had banked by reducing emissions before the program began, until Phase II of the program began in 2000 and emissions declined again.' This rule proposal appears to present a similar situation in that the IAQR is allowing the SO2 allowances banked under title IV prior to 2010 to be used on a 1:1 ratio. If the trend follows that of Phase I of the title IV Program, then emissions reduction would not be seen until Phase II of IAQR. The EPA needs to assess the likelihood of this scenario and its impact on PM2.5 nonattainment areas.

Response:
EPA analysis, that includes a cap-and-trade program for SO2 that allows the use of pre-2010 title IV allowances for CAIR compliance, has shown that SO2 emission reductions will take place prior to Phase II of the program. In fact, by permitting the banking of title IV SO2 allowances into the CAIR, the analysis projects SO2 emission reductions prior to Phase I that continue to decline.

Comment:
The rule should provide an incentive for early emission reductions: e.g. encourage the operation of SCRs to reduce NOx emission over a calendar year rather than the 5 month ozone season.

Response:
EPA agrees that the final CAIR model rules should provide incentives for early non-ozone season reductions. For this purpose, the final CAIR annual NOx model rule includes a CSP from which States may distribute CAIR annual NOx allowances for early, annual reductions. See the CAIR NFR preamble for additional detail.

Comment:
A commenter recommends that EPA include an early reduction credit program as part of the NOx trading program in any final rule to provide an incentive for early emission reductions, and that EPA include such a proposal in the supplemental notice of proposed rulemaking.

Response:
See response to comment from Shumaker, Loop & Kendrick, LLP for Ohio Electric Utilities (OAR-2003-0053-1039).

Comment:
A commenter supports the efforts of EPA to incorporate market-based cap and trade provisions into the proposed rulemaking. The acid rain allowance trading program has demonstrated that this is the most economical method for meeting the nation's air quality goals. They are aware of no evidence that the trading aspects of the acid rain program have resulted in any adverse changes in the pattern of pollutant deposition.

Response:
This comment supports of the approach taken in the final CAIR.

Comment:
One commenter will have installed over $1.2 billion of selective catalytic reduction (SCR) and other NOx controls to meet the NOx SIP Call and other ozone non-attainment requirements by the end of this year. This commenter just announced plans to install an additional $1.2 billion in new SO2 controls by 2008. Installation of these controls would not be sufficient to achieve compliance with Phase I of the proposed IAQR, so significant installation of additional NOx and SO2 controls would be required in a very short period of time. This commenter therefore recommends that specific mechanisms, including, but not limited to early reduction programs for non-ozone season NOx reductions, fine particulate precursor trading provisions, and/or emergency waivers, be included in the final rule to enable affected sources to realistically be able to meet the transport reductions sought by the compliance deadline for Phase I.

Provisions for early reduction credits should be included in the program to provide compliance flexibility for sources to implement reductions in short time frame, while providing more rapid ambient air benefits.

Response:
See response to comment from Shumaker, Loop & Kendrick, LLP for Ohio Electric Utilities (OAR-2003-0053-1039). In addition, the CAIR CSP of the final CAIR model annual NOx rule provides a mechanism for States to distribute CAIR annual NOx allowances to sources for early, annual NOx emission reductions as well as "need." Sources that install early SO2 controls can bank excess, pre-2010 title IV SO2 allowances into the CAIR. These pre-2010 SO2 allowances can mitigate concerns that individual sources have regarding the CAIR compliance timeline.

EPA has conducted analysis to demonstrate that EGUs can cost-effectively install sufficient control technology to meet the CAIR emission reduction requirements. While EPA believes that sources can install these controls in time for compliance with CAIR, EPA has included a CSP that can alleviate any concerns about the uncertainty of the control equipment installation. See the "Boilermaker Labor Analysis and Installation Timing" TSD for a detailed discussion.

Comment:
While we have problems with the timing of the reductions required by the proposal, we believe that an Early Reduction Credit program, as described in the enclosure, can eliminate much of that concern. Such a program would provide cleaner air sooner while allowing industry to effectively implement NOx and SO2 control projects.

EPA should provide early reduction credit for NOx allowances, which as discussed previously can be done to get clean air sooner.

Response:
See above response to American Electric Power Corp. (OAR-2003-0053-0703) comment.

Comment:
In its model trading program (to be proposed at a later date), EPA should provide credit for early nitrogen oxide (NOx) reductions made at electric generating units in States that are not part of the NOx SIP Call. Texas has required significant NOx reductions from electric generating units earlier than was required by the NOx SIP Call and units in Texas should be able to bank these reductions.

Response:
The final CAIR model rules include a CAIR CSP from which the State of Texas may distribute allowances for early reductions beyond those required by other programs.

Comment:
Cinergy supports a provision in the Final CAIR that allows affected units to generate Early Reduction Credits. A NOx ERC provision will achieve environmental benefits through earlier emissions reductions and lower overall compliance costs while providing sources with the flexibility they may need to comply with EPA's proposed deadlines. EPA can prevent the flooding of the ozone season market with allowances and minimize delayed achievement of the CAIR caps by issuing NOx ERCs at a 2-to-1 ratio and requiring that non-ozone season allowances be used only during the non-ozone season. Similarly, Cinergy supports EPA's proposal to include a provision that would allow sources to carry forward title IV SO2 allowances into the CAIR trading program. A carry-forward provision effectively serves as an ERC program that provides affected sources with an incentive to reduce SO2 emissions as soon as possible, which will benefit the environment and facilitate a gradual transition to more pollution control retrofits required for compliance with Phases I and II.

Response:
EPA agrees and has included mechanisms for early reduction incentives in the NOx and SO2 model rules. EPA further agrees that is it important to limit the number of NOx reduction credits and has, in response, limited the size of the CSP. With a limited quantity of CSP allowances available, it is not necessary to use a other mechanisms, such as a discount ratio (i.e., 1 allowance awarded for every 2 tons of NOx reductions), is not necessary.

In addition, the EPA also agrees important ozone-season emission goals should not be potentially compromised by non-ozone season early reductions. As a result, the CAIR CSP will provide only CAIR annual NOx allowances. The ozone-season NOx model rule will meet the seasonal emission goals through the use of completely separate ozone-season NOx cap-and-trade program.

Comment:
One commenter supports the cap and trade approach of the proposed IAQR as an economically feasible method for implementing this program.

Response:
This comment is generally supportive of the approach taken in the final CAIR.

Comment:
Although UJAE supports the overall thrust of EPA's Air Quality NPR, we believe the proposal can be made better by crediting early emissions reductions.

Given that the Agency seeks to promote quick, cost-effective reductions, it may wish to consider broader (year-round) use of these credits. Such a move could stimulate faster Phase I compliance. UJAE encourages the Agency to craft a voluntary incentive to address these emissions. Although we believe that all emissions should receive credit for early reduction, we also recommend that they be developed in such a way as to not encourage use of banked allowances for the control of summer ozone or to delay compliance with Mercury or SO2 programs. Such an approach would activate equipment sooner while also helping to balance out construction schedules.

The Interstate Air Quality Rule NPR accommodates credits for early NOx reductions, in limited circumstances, before Phase I is implemented in 2010. An early-reduction credit is proposed for surplus reductions achieved during the 5-month ozone season in NOx Call States. This forecloses early reduction credits during seven months of each year through 2009 – and eliminates any credit at all for early NOx reductions in many States.

UJAE urges EPA to consider providing an early reduction incentive program for SO2 emission reductions achieved through the retrofit of scrubbers or other control technologies. A program similar to the 1990 Byrd-Bond Amendment to the title IV acid rain program was included in the Administration's Clear Skies Act. Such an incentive could stimulate early investments in scrubbers, avoiding the risks of disruptive fuel-switching during the first phase control program.

Response:
In the final CAIR model rules, EPA has included mechanisms to provide incentives for early NOx reductions. These include incentives for reductions outside of the ozone-season. EPA analysis showing that the final CAIR ozone-season reductions would occur, included mechanisms to encourage early, ozone-season NOx emission reductions (i.e., the use of pre-2009 NOx SIP Call allowances for CAIR compliance).

The final CAIR model rules provide incentives for early SO2 emission reductions by allowing sources to comply with the CAIR allowance holding requirements by retiring pre-2010 title IV allowances at a one-to-one ratio. EPA analysis supports our belief that this provides sufficient incentives for the investment in SO2 control equipment. Furthermore, because title IV – the basis for the annual CAIR SO2 program – allowances have already been allocated in perpetuity, it is not possible to create a set-aside of SO2 allowances.

Comment:
While we agree with the Agency's observation that action by Congress would allow for a more smooth integration with the existing acid rain program, we believe the agency's proposals to increase the number of sulfur allowances required to emit one ton of sulfur dioxide in 2010 and again in 2015 is a reasonable attempt to integrate the new caps into the existing acid rain program. As the agency correctly observed, the paramount concern should be the integrity of the public

health and environmental objectives of the rule. We note also that Congress specifically observed that the sulfur allowances allocated to each facility are not property rights.

Response:
This comment is generally supportive of the approach taken in the final CAIR.

Comment:
Early reduction credits for SO2 are allowed within the framework of the title IV trading program. However, the draft rule precludes such credits for NOx, noting that trading can commence with Phase I. We recommend new text be crafted to solicit public comment on the merits and mechanisms for allowing such early reduction credits.

Response:
EPA has established a CAIR CSP and allows NOx SIP Call allowances to banked into the CAIR to address this commenter's concern.

Comment:
We believe that EPA should develop a mechanism to reward those units that have already implemented measures to control their emissions, such that they are below the rates used to determine the caps. Early reduction credits or allowances should be awarded to such units to the extent that they are below the cap rate between now and 2010. Such a program would recognize and account for these early emissions reductions, and potentially promote additional reductions. Enhanced air quality, in an accelerated manner, would be achieved.

Response:
The final CAIR model rules include mechanisms that provide incentives for early emission reductions, but these are not related to the CAIR emission reduction requirements. Early reductions must be surplus to the existing control requirements for these sources (or, in the case of the CAIR CSP, need). Only when these early reductions are relative to the sources existing control requirements can it be clear that they are not "anyway tons."

Comment:
The final version of the IAQR should ensure that Texas is rewarded, not punished, in the allowance trading markets, for the progress already made in the reduction of NOx and SO2 from coal and Gulf Coast Lignite-fired power plants.

Response:
The State of Texas would continue to see air quality benefits from existing State-level programs. In addition, to the extent that sources in Texas had already installed emission controls in response to pre-CAIR programs, they would have more certainty regarding their ability to install and operate controls, as well as emission monitoring and reporting systems. Texas would not be disadvantaged by the installation of emission control equipment prior to the CAIR in that the State would receive its share of the region wide budget based upon its share of the heat input – not its relative emission reductions.

Comment:
There are approximately 10 million SO2 allowances currently banked under the title IV Acid Rain program. While the EPA would change the trade in value of these banked allowances after 2010, the allowances would be available to meet the SO2 cap in IAQR on a 1-to-1 basis until 2010. If utilities are allowed to use title IV banked credits to comply with the caps in IAQR then clean up will most certainly be delayed. In a briefing of environmental groups on the IAQR, the EPA itself stated that the IAQR cap would likely not be achieved until, approximately, 2020. This is a very serious concern.

Response:
Cap-and-trade programs, like the final CAIR model rule, achieve emission reductions at a reduced cost because they provide greater flexibility for sources to find the least-cost solution to meeting the requirements. An integral and important part of a successful cap and trade program is the incentive for earlier reductions, and EPA anticipates that sources will reduce emissions earlier than they would have (before CAIR goes into effect in 2010), thereby creating additional allowances to be used at a later date. As a result, the exact cap levels are not achieved exactly on the implementation date. The emissions cap does provide more certainty that emissions goals are achieved, particularly in growing economic sectors, than command-and-control approaches. In addition, sources continue to use banked allowances for compliance with the existing title IV SO2 market for allowances, and the bank had been reduced by several million tons from the level indicated by the commenter.

Comment:
To promote the key objective of providing 'incentives for early emissions reductions,' EPA should allow for early reduction credits for NOx, specifically including credits for annual NOx reductions. EPA's proposed trading approach for SO2 (and the potential alternative approach suggested above) would provide early reduction incentives through the ability to use banked title IV allowances. As outlined in the proposed IAQR rule, however, such an early reduction incentive is absent for NOx. EPA should propose an early reduction incentive feature for NOx in the upcoming supplemental notice of proposed rulemaking for the IAQR.

Response:
EPA appreciates UARG's interest in providing early environmental protection. EPA has included mechanisms in the final CAIR NOx model rules to promote early NOx emission reductions: (1) the CAIR CSP can be distributed by the States to sources that make early NOx emission reductions beyond levels required by other programs; and, (2) NOx SIP Call allowances can be banked into the CAIR and used for compliance with the allowance holding requirements of the ozone-season CAIR NOx program. These mechanisms provide incentives for early NOx reductions while the ozone-season CAIR NOx cap ensures that summer emission reductions take place. See the CAIR NFR preamble for additional discussion.

Comment:

EPA has requested comment on the concept of providing credit for reductions of NOx in advance of the emission budget periods proposed in the IAQR. Texas Genco urges EPA to allow for such credits to be established. While EPA's proposal focuses on sources in the NOx SIP Call region which have the opportunity to operate air quality control systems at times of year other than the ozone season, EPA should not overlook the many sources in States outside of this region that already have implemented significant NOx reduction strategies, and make early reduction credits broadly available within the affected IAQR region. In general, providing incentives to achieve early NOx reductions will result in substantial air quality benefits while lowering costs of compliance. Allowing early reduction credits will also allow sources to recoup a small portion of the investments reflected in these controls, and will allow for a smoother transition to the proposed budget program.

Response:
EPA agrees and the final CAIR model rules include a CSP that States may use to provide sources, including those outside of the NOx SIP Call region, with incentives for early NOx emission reductions. Furthermore, EPA allows banked allowances from the NOx SIP Call program to be used for compliance in the ozone-season CAIR NOx program.

Comment:
The provision to trade and utilize title IV SO2 allowances through vintage 2009 (as stated) or 2011 (per our estimates) on a one-for-one basis must be retained in the final rule. This provision is absolutely required to facilitate the transition of the title IV SO2 market to an IAQR market. Further, even if Phase I compliance time lines are extended, it is still likely that not all generating units that must install controls under IAQR requirements will be able to do so in a timely manner. The one-for-one trading is critical for a robust, liquid SO2 market, prevent price instability and provide needed flexibility for the installation of required emission control equipment.

Response:
This comment is generally supportive of the approach taken in the final CAIR.

Comment:
To promote incentives for early emissions reductions, we recommend that EPA's final IAQR rule should allow for early reduction credits for NOx. While the proposed trading approach for SO2 would provide early reduction incentives through the ability to use banked title IV allowances, such an early reduction incentive is absent for NOX. Some utilities are in a position to achieve sizable, additional reductions of NOx emissions before the 2010 compliance deadline in the IAQR. Therefore, credits for early action on NOx controls would promote immediate, substantial and cost-effective emissions reductions.

Response:
The final CAIR model rules include incentives for early NOx reductions. See CAIR NFR preamble for details. Also, see response to Hunton & Williams of this section of the response to comment document.

Comment:
EPA should also allow for additional flexibility by creating an Early Reduction Credit program for SOx reductions that will reward early installation of control technology, and provide Buckeye with economical alternatives.

Response:
The final CAIR SO2 model rule provides for the early SO2 emission reductions by allowing pre-2010 SO2 title IV allowances to be used for CAIR SO2 compliance at a one-to-one ratio. (See preamble for additional detail.)

Comment:
The commenter urges EPA not to retire or discount any remaining banked SO2 allowances that EGUs hold under the title IV Acid Rain Program at the time IAQR Phase I reductions are implemented. EPA should allow carryover of any remaining banked SO2 allowances that EGUs hold under the title IV Acid Rain Program for use in meeting the IAQR Phase I and Phase II emission reduction requirements. Forcing EGUs to retire banked SO2 allowances would penalize those companies who chose to utilize the banking provisions contained in EPAs successful title IV Acid Rain Program, and would unfairly penalize those companies who either directly reduced SO2 emissions beyond title IV Acid Rain Program requirements or purchased allowances on the market from other entities who exceeded their own emission reduction requirements. Once again, banked SO2 allowances represent environmental benefits that were achieved earlier than required, and these allowances should continue to be used as valid currency in the IAQR cap and trade program.

EPA indicates that attaining the PM2.5 and 8-hour ozone ambient air quality standards will require emission control measures to address both local nonattainment and regional transport. Accordingly, EPA encourages the development of early reduction measures to attain the PM2.5 and 8-hour ozone ambient air quality standards as expeditiously as possible. We agree that emission reductions made prior to the IAQR compliance date are important, and strongly recommend that EPA include a provision in the IAQR cap and trade program to credit early reductions of SO2 and NOx, emissions that occur prior to the IAQR Phase I compliance date of 2010. We believe that for SO2, this can be accomplished through the current title IV Acid Rain Program by allowing banked allowances prior to 2010 to be carried forward and used for IAQR compliance purposes. We also support allowing banked NOx reductions occurring prior to 2010 to be carried forward and used for IAQR NOx, compliance purposes. We request that EPA allow banking of those early emission reductions for future use under the IAQR SO2 and NOx cap and trade programs. Rule provisions that credit early reductions and allow banking them for future use can prompt technology innovation, development and deployment. Finally, environmental benefits occur as a result of early emission reductions, and early reductions should therefore be encouraged. For all of these reasons, the addition of a provision for crediting and banking early emission reductions is a reasonable and necessary provision to be included in the IAQR cap and trade program.

Response:
The comment supports the approach taken in final CAIR.

Comment:
EPSA generally supports the concept of awarding credit to affected EGUs that achieve surplus NOx reductions prior to the 2010 compliance deadline. Many units owned or operated by EPSA members have installed selective catalytic reduction (SCR) control systems for reducing NOx emissions during the 5 month ozone season. Year-round operation of these already installed SCR systems provides a highly cost-effective way to deliver early substantial benefits to the air quality and environment.

Furthermore, EGUs installed with SCR are generally in a position to achieve sizable, additional reductions of NOx emissions before the 2010 phase one compliance deadline. Providing incentives to achieve early NOx reductions will result in substantial air quality benefits while lowering costs of compliance. Importantly, because such reductions would be in addition to the reductions expected under the IAQR, early reduction credits awarded by EPA should not be drawn from the NOx emission budgets established by the transport rule.

Response:
The final CAIR model rules include incentives for early NOx emission reductions that do not remove emission allowances from the regionwide NOx budgets.

Comment:
In addition to providing early reduction credits, EPA should clarify that unused allowances from existing ozone season control programs can be carried forward into the IAQR annual ozone control program. It is also important that EPA not undermine the effectiveness of an early reduction program by imposing an artificial restriction on the flow of early reduction allowances into the program, such as the CSP in the NOx SIP Call program. The history of that program has shown that the CSP was not necessary to ensure the integrity of the NOx budgets in the eastern US, but it significantly increased the costs of compliance by devaluing allowances available through early reductions. Such requirements provide a significant disincentive for early action to reduce emissions, instead encouraging owners and operators to delay air quality improvements until the last minute. In contrast, providing broad incentives to achieve early NOx reductions without artificial restrictions on the use of allowances from such reductions will result in substantially improved air quality, sooner than required, and at a lower cost.

EPA has requested comment on the concept of providing credit for reductions of NOx in advance of the emission budget periods proposed in the IAQR. Reliant urges EPA to allow for such ‘credits’ to be established. While EPA’s proposal focuses on sources in the NOx SIP Call region which have the opportunity to operate air quality control systems at times of year other than the ozone season, EPA should not overlook the many sources in States outside of this region that already have implemented significant NOx reduction strategies, and make early reduction credits broadly available within the affected IAQR region.

Allowing early reduction credits will also allow sources to recoup a small portion of the investments reflected in these controls, and will allow for a smoother transition to the proposed budget program.

Response:
The final CAIR NOx model rules include mechanisms that provide incentives for early emission reductions (i.e., allowing pre-2009 NOx SIP Call allowances to be used for CAIR ozone-season compliance, and the CAIR CSP). EPA disagrees with the commenter that limiting number of NOx SIP Call CSP allowances "significantly increased the costs of compliance by devaluing allowances available through early reductions" and the commenter does not provide any analysis to demonstrate this point. EPA agrees with other commenters that the number of allowances available from the CAIR CSP (as in the NOx SIP Call CSP) for early reductions, as well as "need," should be limited to ensure that they do not "flood the market" when the program is implemented. The annual CAIR NOx allowances of the CAIR CSP will be available to CAIR affected States which can, in turn, distribute these allowances to their sources.

Comment:
Cap and trade programs have proven to be more cost-effective and efficient than command and control programs at reducing levels of SO2 and NOx. Moreover, such programs have historically achieved early pollutant reductions from sources. 'Hotspots' are not an issue with these programs.

Response:
This comment is generally supportive of the approach taken in the final CAIR.

Comment:
LPPC members support EPA establishing a mechanism for providing credit for early NOx reductions. Furthermore, LPPC members believe that credit should not be limited just to the 5-month ozone seasons, but also to reductions achieved over the entire year, e.g., reductions resulting from year-round operation of selective catalytic reduction (SCR) or other NOx control measures that reduce emissions of NOx in non-ozone season months. Although compliance on an industry-wide basis may not be possible prior to the 2010 Phase I compliance deadline, some EGUs are in a position to achieve sizable, additional reductions of NOx emissions before the 2010 deadline. Providing incentives to achieve early NOx reductions is critical to encourage early compliance. The benefits of early compliance are clear. It will result in substantial and earlier air quality benefits while lowering costs of compliance. In addition, it will reduce the reliability concerns and logistical bottlenecks that might occur from back loading most of the pollution control projects and associated outages to just prior to the compliance deadline. EPA already has recognized the legitimacy of such incentive for SO2 by proposing in the IAQR to allow EGUs to use surplus acid rain allowances banked over the years prior to 2010.

Importantly, because such reductions would be in addition to the reductions expected under the IAQR, early reduction credits awarded by EPA should not be drawn from the NOx emission budgets established by the Rule. Rather, such credits should be an addition to those allocated to affected EGUs under the core IAQR emissions trading program.

Response:
The final CAIR NOx model rules provide incentives for early reductions that do not reduce the regionwide CAIR NOx budgets. Further, the CAIR CSP provides States with a mechanism to reward early reductions outside of the NOx SIP Call region and the ozone-season. Finally, banked allowances from the NOx SIP Call program can be used for compliance in the ozone-season CAIR NOx program.

Comment:
EPA should allow States to award early reduction credits as a way to ease burdens imposed by a January 2010 Compliance Deadline. Not only will ERCs achieve emissions reductions earlier than would be achieved otherwise, such credits will be useful for deferring installation on less cost effective units. Facilities will then have the compliance flexibility they need to defer installations to adequately stagger retrofits. The compliance flexibilities afforded by ERCs will help to prevent serious problems that could result from craft labor, materials and equipment shortages.

Response:
This comment is generally supportive of the approach taken in the final CAIR.

Comment:
While the proposed IAQR lacks regulatory language, it appears that there is little or no incentive for affected sources to pursue early reductions and/or early control installations. Perversely, without a defined and purposeful process to limit banking and use of allowances, there is little economic incentive for early installations. As a precedent, the 'progressive flow control' provisions of the regional NOx control program in the northeast and mid-Atlantic States, has been proven to be an effective tool to provide affected sources with the flexibility inherent in banking, yet defines limits on banking that protects the timing and reduction level of the program. We believe that EPA needs to define substantial regulatory and market-based incentives in the IAQR to ensure early decisions and investments in control and monitoring systems, regulatory certainty, and balanced use of available resources and capital. Appropriate incentives for early reductions would increase the certainty that available resources, including skilled labor, are used efficiently and skillfully.

Response:
The commenter does not make clear how the incentive for early emission reductions are diminished by not including provisions that limit banking and the use of allowances. In the final CAIR model rules, EPA has included several mechanisms that provide incentives for early emission reductions that include allowing NOx SIP Call allowances and title IV SO2 allowances to be banked into the CAIR ozone-season and SO2 cap-and-trade programs, respectively. EPA has found no proof that flow control has worked in the NOx SIP Call and is not including this complex mechanism in the CAIR model rules. (See the CAIR NFR, section 8, for additional discussion.)

Comment:

The Group recommends that the final IAQR rule allow for early reduction credits for NOx. The proposed trading approach for SO2 would provide early reduction incentives through the ability to use banked title IV allowances, but such an early reduction incentive is absent for NOx. Providing that incentive would yield environmental benefits. Some utilities are in a position to achieve sizable, additional reductions of NOx emissions before the 2010 compliance deadline in the IAQR. Therefore, credits for early action on NOx controls would promote immediate, substantial and cost-effective emissions reductions.

Response:
The final CAIR NOx model rules include mechanisms that provide incentives for early NOx and SO2 reductions. Also, see the CAIR NFR preamble as well as the Hunton & Williams response in this section of the response to comment document for additional detail.

Comment:
Early reduction credits for NOx should be expressly allowed. EPA should formulate its programs to provide incentives for early emissions reductions of both NOx and SO2.

Response:
The final CAIR NOx model rules include mechanisms that provide incentives for early NOx reductions and the final SO2 CAIR model rule do the same for SO2. Also, see the CAIR NFR preamble as well as the Hunton & Williams response in this section of the response to comment document for additional detail.

Comment:
The IAQR should promote early action to reduce emissions by allocating allowances for emission reductions achieved prior to the compliance deadline.

Response:
The final CAIR model rules include mechanisms that provide incentives for early SO2 and NOx reductions. See preamble for additional detail.

Comment:
Due to the ambitious schedule of the proposed CAIR and the billions of dollars required for implementing the associated emission controls, AEP supports provisions within the final rule that provide increased compliance flexibility for impacted sources. As such, AEP supports the establishment of a NOx Early Reduction Credit (ERC) program in the final rule.

It is difficult to comment in detail on the NOx ERC options due to the absence of specific details on any program in the proposed supplemental rule. AEP supports the inclusion of a NOx ERC program in the final rule, and incorporates by reference its proposal for a precursor (NOx for SO2) trading option as mentioned in AEP's March comments. AEP does not support limiting any NOx ERC program to ozone-season specific NOx requirements, but believes that EPA should provide incentives for all actions directed at early emission reductions. AEP also believes that to be effective, any ERC program should not restrict the use of ERC's awarded to affected sources.

Response:
The final CAIR model rules include mechanisms that provide incentives for early reductions, including those that take place outside of the ozone-season. For instance, the CAIR CSP allowances may also provide States with a mechanism to distribute CAIR NOx allowances to sources based upon "need." Notably, banked allowances from the NOx SIP Call can be used for compliance in the CAIR ozone-season NOx program.

Comment:
In order to award early reductions of NOx while maintaining the integrity of the NOx caps, EPA should establish a CSP similar to that which it established for the NOx SIP Call: In previous comments to EPA on the CAIR NPR, LPPC emphasized the value of providing early reduction credits (ERCs) to EGUs that can achieve reductions of NOx emissions before the 2010 onset of the CAIR. LPPC members also emphasized that the ERCs should not be limited just to the 5-month ozone seasons, but also to reductions achieved over the entire year, e.g., reductions resulting from year-round operation of selective catalytic reduction (SCR) or other NOx control measures that reduce emissions of NOx in non-ozone season months. Some EGUs are in a position to achieve sizable, additional reductions of NOx emissions before the 2010 Phase I compliance deadline. Providing incentives to achieve early NOx reductions will result in substantial and earlier air quality benefits while lowering costs of compliance.

In the SNPR, EPA recognizes these substantial benefits of providing NOx ERCs but highlights concerns that, without some constraints, NOx ERCs could delay the overall reductions sought by the CAIR. Accordingly, EPA solicits comments on four approaches to allowing credits.

LPPC suggests for EPA's consideration a fifth approach, not specifically identified by EPA in the SNPR. This approach would involve establishing a NOx early reduction program modeled after the NOx SIP compliance supplemental pool. In this case, EPA established a fixed number of allowances to fund the compliance supplemental pool and then allocated those allowances to utilities for early NOx reductions achieved prior to the start of the SIP-call regulatory program. Moreover, allowances were allocated only to the extent that affected utility units achieved NOx emissions levels below a specified performance rate 0.25 lbs/ mmBtu rate. Although size of allowance pool and performance rate may need to be different, LPPC believes that this may be an effective framework for allocating ERCs for early NOx reductions under the CAIR program. Specifically, EPA would put aside a certain amount of NOx ERCs and award them to EGUs that achieve reductions and reduce their NOx emissions rate below a specified lbs/mmBtu amount.

Response:
The final CAIR NOx model rules includes a CSP based upon that of the NOx SIP Call. EPA specified that States could distribute the CAIR CSP allowances based upon "need" that could impact the reliability of the electricity grid or for early reductions that are in surplus of any emission reduction requirements from existing programs. The early reduction criteria is not based upon any specific emission rate, because sources are faced with different emission reduction requirements, which may or may not be rate-based, from State-level programs. By defining the

criteria as “surplus” to the any State-level emission reduction requirements, it is possible for States to determine if the emission reductions are “double counted.” See preamble for additional detail.

Comment:
EEI recommended in its March 30 comments that ‘EPA should propose in their upcoming Supplemental Notice of Proposed Rulemaking on the CAIR emission trading EEI Comments on Supplemental CAIR Proposal, July 26, 2004 programs a wide range of flexible alternatives that would allow for early reduction credits for NOx.’ Accordingly, EEI appreciates the agency’s consideration of alternatives.

Early reduction credits and banking are a classic win-win opportunity in that they provide both an environmental benefit and economic benefit and therefore should be encouraged by the rules. The opportunity exists for a number of facilities that have installed SCRs for seasonal NOx control under the NOx SIP Call to run these facilities year round at a relatively low cost (compared to the cost of new installations).

In its supplemental proposal, EPA does not propose a specific NOx ERC approach, but expresses concern about the potentially large number of ERCs that EGUs could generate and solicits comments on possible options for limiting that number. Specifically, EPA suggests on page 32702: (1) maintaining the NOx SIP Call ozone-season NOx cap requirement and allowing sources to use ERCs only to comply with the CAIR annual NOx limitation (an approach that, EPA suggests, might require imposing an ozone-season cap on States that are subject to CAIR but not to the NOx SIP Call); (2) limiting the period of time during which ERCs could be created and banked; (3) capping the number of ERCs that could be created; or (4) applying a discount rate to NOx ERCs.

EEI believes that the critically important objective of encouraging early reductions would best be served by allowing unrestricted creation and use of ERCs. Accordingly, EEI urges EPA to allow ERCs but not with limitations along the lines suggested in the supplemental proposal.

Response:
In creating the CAIR CSP, EPA did restrict the number of allowances that could be distributed by the States based upon “need” or for early emission reductions. The CAIR CSP is a fixed pool of annual CAIR NOx allowances. By having a finite number of allowance available in the CAIR CSP, there is some assurance that the emission markets would not be “flooded” with allowances: potentially compromising the emission cap and significantly delaying the attainment of the environmental goal. Sources would also have other incentives for early reductions (i.e., the banking of NOx SIP Call and title IV allowances into the CAIR programs) that provide other incentives for NOx and SO2 reductions within the emission caps of these existing programs. See response to comment from Reliant Resources, Inc.(OAR-2003-0053-0721) for additional discussion of having a capped CSP.

Comment:

Under the CAIR program, the banked title IV allowances can be used in future years the same as annual allowances. The bank of title IV allowances is significant in 2002 the annual allocations were 9,190,365 and the number of banked allowances available for use were 9,300,138. With such a significant number of banked allowances available for use in the CAIR market, Wisconsin is concerned about the possible flooding of the market with banked allowances resulting in a significant increase in emissions. If the EPA retains a linkage between the title I and title IV programs, it should create a structure that ensures that the market will not be flooded with SO2 title IV banked allowances while maintaining some value in those banked allowances.

Response:
EPA has conducted extensive analysis on the impacts of CAIR on banking and emissions. The expected draw down of the bank of SO2 allowances is actually factored into EPA's setting of the emissions caps. Therefore, the CAIR reaches in 2010 and 2015 the levels of SO2 reductions and pollution control that we want to have.

Cap and trade programs provide flexibility and allow sources to find the least-cost solution to meeting the caps, and an important part of providing flexibility is the unimpeded banking of allowances for future use. The benefit is that sources will reduce emissions earlier than required, but a trade-off exists when those same sources use them at a later date. The structure of CAIR is such that there is no economic incentive to use the bank all at once, but instead to use it gradually over time by carefully examining compliance options. This results in a glide path of downward emissions, eventually at the final cap level. If we look at the existing title IV cap and trade program for SO2 as an example, which is widely believed to be a huge success in reducing emissions and acid rain, there is no evidence that sources greatly increased emissions in any given year or tried to use as much of the bank as possible in any given year. Instead, sources gradually reduced emissions earlier than anticipated, which provided huge environmental benefit, and also lead to a substantial number of banked allowances.

In addition, sources are continuing to use banked allowances for compliance with the existing title IV SO2 market for allowances, and the bank has been reduced well below the level indicated by the commenter. EPA estimates that at the end of 2004, the bank is now at approximately 7.0 million tons of SO2 allowances. Further depletion is likely to occur from now until the States have adopted the program by September 2006.

Comment:
Consistent with our concern over areas timely achieving attainment, API supports EPA allowing for the generation and use of early emission reduction credits for NOx. As EPA notes, these reductions could reduce atmospheric loading of NOx and fine PM precursors prior to implementation of CAIR. Accordingly, API suggests that EPA apply them to the annual limitation. In this way, facilities will not be relieved from complying with the seasonal NOx limitations but some benefits will be achieved.

Response:

The CAIR CSP (as in the NOx SIP Call) is aimed at not only providing incentives for early emission reductions, but also provide some relief should sources have a "need" that could impact the reliability of the electricity grid. For this purpose, EPA chose to provide the CAIR CSP allowances in addition to the CAIR annual NOx budget. However, EPA agrees that the CSP should not provide unlimited numbers of additional allowances – which could flood the market. Analysis presented in the CAIR NFR (and supporting information) shows that the allowances provided in the CAIR CSP will not significantly, adversely impact the marginal costs of the CAIR or the significantly delay the emissions "glide slope" of the CAIR.

Comment:
We appreciate EPA raising for comment TVA's request that EPA provide a mechanism for earning early reduction NOx credits as part of CAIR. Encouraging sources to reduce emissions early achieves air quality benefits earlier and allows sources to optimize reduction schedules going forward by using the allowances this frees up to smooth out construction schedules. This is likely going to be very important for meeting the Phase 1 compliance date of January 1, 2010 and may be critical to ameliorating the limited availability of skilled labor. Of the approaches identified by EPA that could be used to do this, TVA favors limiting the amount of early reduction credits that can be earned by creating State-specific CSPs as was done for the NOx SIP Call rule. Sources made use of this CSP, fostering early reductions of emissions and earlier environmental improvements. The NOx SIP Call rule has already survived litigation substantially intact and mimicking that successful rule will be of needed benefit.

TVA suggests that the amount of additional allowances in that CSP equates to one-third of the annual budget under that rule. One-third of the annual IAQR budget equates to a CSP of 533,000 tons (allowances). Tracking the CSP feature of the NOx SIP Call rule, TVA proposes that EPA consider establishing a CSP for the IAQR with the following features:

1. A CSP in the amount of 533,000 tons be distributed among the targeted states based on proportion to the size of the NOx emissions reduction they are required to achieve under the IAQR. Enclosure 1 is a table that performs this distribution for each of the states.

2. Only early reductions made during 2008 and 2009, or two year prior to the phase 1 compliance date, would be credited and result in distributions from the CSP until the state's individual CSP is exhausted.

3. Early reduction credits are usable only during the first two years of the phase 1 compliance period—2010 and 2011.

EPA has also proposed that states can terminate implementation of the NOx SIP Call Rule when they begin implementing the IAQR.

Response:

This comment is generally supportive of the approach taken in the final CAIR, which includes a CSP based upon the NOx SIP Call model. Early reductions may be earned for the two years prior to the implementation of the NOx programs, i.e., 2007 and 2008. The commenter suggests that the CAIR CSP should be one-third of the regionwide budget to parallel the NOx SIP Call. However, the commenter provides no evidence to support the suggestion that a one-third ratio should be used. EPA established a CAIR CSP totaling 200,000 allowances. This pool is proportionately smaller than that used in the NOx SIP Call as EPA sought to balance the need to provide the benefit of a CSP (i.e., early reduction incentives and addressing initial compliance concerns) and EPA (and commenter) concern that allowing too many additional allowances into the CAIR could flood the market and potentially have a significant impact on the timing the emission reductions.

With regards to terminating the NOx SIP Call trading program, the comment is supportive of the approach taken in the CAIR.

Comment:
If EPA finalizes a CAIR that includes a requirement for additional NOx reductions, Duke Energy continues to urge EPA to include an early reduction credit program to provide an incentive for early emission reductions. EPA should add a NOx Early Reduction Credit Program to the CAIR. Duke Energy's March 30, 2004 comments recommended that EPA add an early reduction credit ('ERC') program to the CAIR to provide an incentive for early NOx emission reductions and to assist in compliance in the early years of the program as EPA did with the NOx SIP Call. Duke Energy again makes that recommendation.

Duke Energy supports the unrestricted creation and use of ERCs under the CAIR. If, however, EPA decides that some limitation is needed, Duke Energy recommends EPA consider developing an ERC program under the CAIR that is patterned after, but not more restrictive than the CSP program under the NOx SIP Call program. As was the case under the NOx SIP Call program, States under a CAIR ERC program should be given reasonable flexibility in determining when a pre-CAIR NOx reduction would make sources eligible for an allocation of ERC allowances. ERCs could be used for compliance during the first two years of the CAIR program.

Response:
The final CAIR model rules include a CSP mechanism and allows for the use of banked NOx SIP Call allowances for compliance with the ozone-season CAIR NOx program.

Comment:
The NOx CAIR program should recognize ERCs. Although not proposed, EPA requests comment on and NRECA fully supports the inclusion of a NOx ERC program into the CAIR. As pointed out in our IAQR and in these CAIR comments, NRECA is deeply concerned that the EPA anticipated construction of SO2 and NOx emissions controls needed to meet the CAIR Phase I caps in a highly cost effective manner will not be forthcoming due to supply shortages of skilled labor and construction material. Yet as proposed, there would be no cushion or safeguard against a significant shortage of NOx allowances due to lack of NOx controls installed by Phase I as utilities transcend into the CAIR Phase I cap. An ERC program could provide this needed cushion by

recognizing ERCs from emissions reductions below NOx SIP Call requirements and from early reductions achieved from non-SIP Call units installing controls prior to CAIR Phase I. Under an ERC program, EPA appears concerned that too many ERCs could be generated, thus potentially creating ozone nonattainment issues that the NOx SIP Call was meant to address if these allowances could be freely used during ozone season, at 32702, col. 2. We think this EPA fear is unfounded, but the regulations could be structured to impose ozone seasonal 'flow control' on the use of ERCs as a contingent to provide a safeguard against ERC overuse.

Response:
The final CAIR model rules include a CSP mechanism. Also, because the final CAIR cap and trade programs include an ozone-season constraint, it is not necessary to include provisions that would restrict the use of CAIR CSP allowances during the ozone-season. For additional discussion, see the response to the Hunton & William comment earlier in this section of the response to comment document.

Comment:
MOG supports unrestricted creation and use of NOx early reduction credits (ERCs). MOG urges EPA to allow ERCs without limitations.

Response:
See response to comment from Edison Electric Institute (OAR-2003-0053-1769).

Comment:
Although not proposed, EPA requests comment on and DPC fully supports the inclusion of a NOx ERC program into the CAIR. As pointed out in our IAQR and in these CAIR comments, DPC is deeply concerned that the EPA anticipated construction of SO2 and NOx emissions controls needed to meet the CAIR Phase I caps in a highly costeffective manner will not be forthcoming due to supply shortages of labor and construction materials. Yet as proposed, there would be no cushion or safeguard against a significant shortage of NOx allowances due to lack of NOx controls installed by Phase I as utilities transition into the CAIR Phase I cap. An ERC program could provide this needed cushion by recognizing ERCs from emissions reductions below NOx SIP Call requirements and from early reductions achieved from non-SIP Call units installing controls prior to CAIR Phase I.

Under an ERC program, EPA appears concerned that too many ERCs could be generated, thus potentially creating ozone non-attainment issues that the NOx SIP Call was meant to address if these allowances could be freely used during ozone season. We think this fear is unfounded, but the regulations could be structured to impose ozone seasonal 'flow control' on the use of ERCs as a contingent to provide a safeguard against ERC overuse.

Response:
See response to comment from The National Rural Electric Cooperative Association (OAR-2003-0053-1805).

Comment:
Exelon suggests that EPA allow for the creation of a limited number of NOx ERCs during the two years preceding the first compliance year. ERCs could be generated from post-combustion control operation (e.g. SCR or SNCR) during the 7-month period of each year that is currently not regulated under the NOx SIP Call. This would encourage unit operators to install and operate additional annual controls prior to the first compliance year. Also, as has been observed with the OTC and NOx SIP Call programs, uncertainty around NOx allowance availability and NOx allowance price volatility are typically high during the first year of a new regulatory program. Allowing affected companies the opportunity to generate NOx ERCs prior to the first compliance year will allow companies to better manage risks and lower compliance costs (by preventing early year price spike impacts). Finally, creating annual emission reductions sooner, rather than later, will support increased NOx reductions in areas with nearer term 8-hour attainment dates by encouraging more NOx reductions prior to 2010.

Response:
The CAIR CSP allows States to distribute CAIR annual NOx allowances to sources that make NOx emission reductions in surplus to emission reduction requirements from other regulatory programs. This includes non-ozone season reductions.

Comment:
We support EPA's decision not to allow the generation and use of NOx ERCs. EPA projects that large number of ERCs would be generated, primarily during the winter. We agree with EPA that use of NOx ERCs for CAIR compliance purposes could delay progress towards achieving the CAIR NOx caps and also could reduce the amount of ozone-season NOx reductions. Overall progress towards the NOx caps could be especially delayed in States not subject to the NOx SIP Call And reducing the amount of ozone-season reductions would be especially problematic in the event that EPA moves forward with its proposed repeal of the NOx SIP Call caps on ozone-season NOx emissions.

If EPA does decide to allow use of NOx ERCs, then it must provide the following minimum safeguards against compromise of the CAIR and the NOx SIP Call programs:

- Retain the seasonal NOx caps in the NOx SIP Call, and allow sources to use ERCs ONLY for compliance with the CAIR annual NOx caps; and

- Allow the use of ERCs ONLY by sources in States subject to both the NOx SIP Call and CAIR.

Response:
EPA has included a CAIR CSP that addresses the concerns of this commenter. The CAIR CSP would distribute allowances for the CAIR annual NOx program and could not be used for compliance with the CAIR ozone-season NOx program. The commenter did not elaborate on the intent of the second suggested restriction, "allow the use of ERCs ONLY by sources in States subject to both the NOx SIP Call and CAIR." The CAIR CSP may be distributed by the State based upon either "need" or early emission reductions beyond other regulatory requirements. EPA

has seen no information that would indicate these two circumstances would be limited to sources in States affected by both the CAIR and the NOx SIP Call. The CAIR CSP will not be limited to NOx SIP Call States only.

Comment:
While we have always encouraged early reductions in principle, the early reduction credits in the context of a cap-and-trade program can be extremely problematic and actually run counter to the programs environmental and public health protection goals. As proposed, we do not support early reduction credits. It may be that under certain conditions, e.g., with separate ozone and non-ozone season caps and allowances, coupled with mechanisms to limit how many and when they are used, e.g., ozone season allowance tracking, flow control, and early reduction credits limited to the non-ozone season, EPA could ensure that early reductions are used in an appropriate non-ozone season timeframe. Given that the OTC NOx Budget Program and the EPA NOx SIP Call allowance cap-and-trade programs are already in place for the ozone season, we cannot support an early reduction program during the ozone season, as there is no way that EPA could ensure that real, permanent reductions take place. If EPA is concerned about achieving reductions earlier than 2010, it should move the compliance date up to the 2007-2008 timeframe.

Response:
The final CAIR model rules included a CAIR CSP that does limit the use of the CSP allowances for compliance with the CAIR annual NOx program only. The CAIR CSP does not limit the use of the allowances from compliance period to compliance period. An ozone-season NOx cap walls off the summer from the use of CSP allowances, which are annual CAIR NOx allowances, and ensures that CAIR results in lower NOx emissions in the summer season. Also, see the discussion of flow control in the CAIR NFR.

Comment:
The GCLC supports the concept of allowing the generation and use of early NOx emission reduction credits (ERCs), and urges EPA to incorporate ERCs into the framework of the CAIR cap-and-trade program. Such credits will provide incentives for early emission reductions that would not otherwise be achieved. Allowing the generation and banking of early NOx emission reduction credits would also be directly responsive to the concerns the GCLC raised in its March 30, 2004 comment letter regarding the need to reward electric utilities that achieve early emissions reductions.

Specifically, ERCs would level the cap-and-trade playing field for those facilities that have already achieved significant NOx emissions reductions. Texas electric generating units that have achieved substantial State-required NOx emissions reductions should be able to bank those early reductions. Such facilities should not be required to make the same level of reductions within the same timeframe as those that have not made comparable reductions. Accordingly, ERCs should be available for emissions reductions that have already been achieved as well as for emissions reductions that are accomplished prior to the implementation of the CAIR. In this way, ERCs would help avoid inequity in the allowance trading markets. ERCs would also help minimize the incentive for generators in Texas to fuel switch away from the use of Gulf Coast Lignite toward

imported coals. Overall, early NOx emission reduction credits would facilitate important air quality benefits, lower compliance costs, and ease the transition to the CAIR cap-and-trade program.

Response:
See response to comments from Texas Genco (OAR-2003-0053-0728).

Comment:
TCEQ supports the proposal to not allow the generation and use of early NOx emission reduction credits. Several States already have Emission Reduction Credit (ERC) programs in place to provide a marketable network for trading reductions to be used as offsets under nonattainment new source review. As suggested in the CAIR preamble, allowing early NOx ERCs to be used in the CAIR program will further delay progress toward the necessary reduction goals and impede the progress of States in meeting attainment of the NAAQS for 8-hour ozone. The addition of another ERC program also could interfere with existing programs, cause confusion, and hamper the generation of new ERCs in existing markets. Should EPA continue to consider the inclusion of early NOx ERCs, it should be clear where the responsibilities lie for approving the generation and use of credit, what the criteria will be by which the early reductions are measured, and what provisions will be in place to ensure a source subject to CAIR does not receive emission reduction credit and CAIR allowances for the same reduction.

Response:
The CAIR final model rules include a CAIR CSP that States can distribute to sources that have NOx emissions surplus to any requirements from other programs, including State-level programs. In response to concerns that a CSP may delay achieving the emission reduction goals of the CAIR, the CAIR NFR (and supporting documentation) presents analysis that shows that the CSP allowances would not significantly impact the emissions “glide slope” of the program.

Comment:
PPL believes that the critically important objective of encouraging early reductions would best be served by allowing unrestricted creation and use of ERCs. All early reductions represent a ton emitted later rather than earlier, making for an improvement in what is likely to be worse air quality. Accordingly, PPL urges EPA to allow ERCs but not with limitations along the lines suggested in the supplemental proposal.

The proposed rule does not make any provisions to restrict the use of emission allowances similar to the provisions that are included in EPA’s NOx SIP call program. Restrictions on the use of emission allowances are counterproductive and should not be included in an emission reduction program. Such restrictions act as a disincentive to early reductions because they have the potential for reducing the value of an emission reduction in future years. Because the proposed rulemaking will bring about progressive annual increase in reduction in emissions, it is likely that emissions, (and the associated air quality levels of PM2.5 and ozone) will be higher in earlier years. Early reductions provide benefits in years that would otherwise exceed air quality standards by a greater margin.

To promote the key objective of providing incentives for early emissions reductions, EPA should allow for early reduction credits for NOx. While the proposed trading approach for SO2 would provide early reduction incentives through the ability to use banked title IV allowances, such an early reduction incentive is absent for NOx. Some electric generators are in a position to achieve sizable, additional reductions of NOx emissions before the 2010 compliance deadline in the IAQR. These generators can achieve early, immediate reductions by operating on a year-round basis NOx emission control technologies, such as selective catalytic reduction, that they currently are operating only in the summer months (the ozone season). Of course, given companies already have made the majority of the capital investment for these controls, their year-round operation would be achieved for a moderate increase in operation and maintenance expense, including more frequent replacement of the catalyst. As such, credits for early action on NOx would promote immediate, substantial and cost-effective emissions reductions. It is only logical that the proposed rule should be modified to encourage and reward these early reductions by giving these utilities 'early action credit.' Importantly, because these reductions would be additional to the reductions expected under the rule, the rule should not draw the early action credits from the NOx emission budgets established by the rule.

Response:
See response to comment from Edison Electric Institute (OAR-2003-0053-1769).

Comment:
EPA has proposed that there would be no early reduction credit provisions in the model SO2 and NOx trading programs. EPA points to the proposal to allow utilities to carry SO2 and NOx allowances forward from the Acid Rain Program and NOx SIP Call that will allow the utilities to acquire allowances prior to 2010. In terms of SO2 emissions, EPA states in 69 FR 4632 that, 'This provides incentives to reduce emissions before the 2020 implementation date because sources would want to ease the transition to more stringent caps in 2010 and thereafter.' It also appears that in using title IV allowances, EPA would be restricted in creating early reduction provisions for SO2 emissions.

As far as NOx early reductions, EPA does not believe the same incentive would apply. In 69 FR 4633, EPA states, 'While EPA believes it is important to provide this compliance flexibility [carry over of allowances] for sources, it is unlikely that many sources will take advantage of this mechanism . . .' However, EPA expresses concern in the supplemental proposal with including additional early reduction provisions. EPA indicates that allowing NOx early reduction credits (primarily from units that would operate existing SCRs outside of the ozone season) could result in 3.7 million tons of NOx early reduction credits. EPA states in 69 FR 32702, 'Allowing these ERCs to be used for compliance with the CAIR NOx emission cap would delay progress towards achieving both the annual NOx reduction goals and could potentially reduce ozone season reductions that are necessary for EPA to justify removing the NOx SIP Call constraint for EGUs'.

The situation with the NOx program presents a conflict for States that will have to prepare attainment demonstrations for the PM2.5 and 8 hour ozone standards. With the current attainment dates and the proposed CAIR compliance dates, States will be in a position of actively seeking

early reductions for attainment purposes. However, if unlimited early reductions are allowed, there could be the possibility of extending ultimate compliance well past the proposed compliance dates and not being able to demonstrate attainment of the NAAQS by the mandated deadlines.

If EPA would choose to allow early reduction credits, there should be limits on the use of the credits. The limitations should include limiting the use of the credits, applying a discount rate on the generation or use of credits and/or a time limit on the use of the credits. The CSP use restrictions under the NOx SIP Call are an appropriate example. It should also be noted, once again, the many issues including early reductions credits may be more easily addressed with separate seasonal and annual NOx trading programs.

Response:
The comment is generally supportive of the use of a CSP, which has been included in the final CAIR model rule.

Comment:
These comments urge EPA to consider specific Early Reduction Credit approaches for both SO2 and NOx.

Southern Company submits the following comments to supplement previous comments on issues concerning the proposals for early reduction credits (ERCs) to promote emission reductions before the CAIR Phase I compliance date and to help sources achieve compliance cost-effectively. Southern Company believes that it is critical that EPA provide for early reduction credits for both nitrogen oxide (NOx) and sulfur dioxide (SO2). These supplemental comments urge EPA to consider the following specific ERC approaches.

For NOx, EPA should ensure that sources in States (and parts of States) that are not subject to the NOx SIP Call but that are included in the CAIR have access to allowances in a CSP that is modeled on that provided by EPA for NOx SIP Call compliance. The total number of CSP NOx allowances that should be made available to the non-SIP Call States and partial States would be an amount that represents that proportional equivalent of the 200,000-ton amount established for the CSP under the NOx SIP Call. Specifically, to determine the amount of the non-SIP Call States' CAIR CSP, 200,000 (i.e., the number of allowances in the NOx SIP Call CSP, see 63 Fed. Reg. 57429 & Table III-3 (October 27, 1998)) would be multiplied by the ratio of (1) the total annual NOx emission reduction requirements under CAIR Phase I in the non-SIP Call States and partial States (including Florida, Mississippi, southern Alabama, and southern Georgia) to (2) the total of the non-SIP Call States' CAIR CSP would be divided among the non-SIP Call States and partial States in proportion to the magnitude of each State or partial State's NOx emission reduction requirement for Phase I of CAIR.
The approach described above could be integrated with a CAIR CSP for the NOx SIP Call States and partial States, an approach that is suggested for EPA's consideration in UARG's comments on the supplemental CAIR proposal. As noted in the previous UARG comments (Document No. OAR-2003-0053-1784), States should have a reasonable degree of flexibility in determining the parameters under which early (i.e., pre-CAIR-compliance-date) NOx emission reductions by units

would make those units eligible for allocation of NOx allowances from a CSP under CAIR. As in the NOx SIP Call, CSP allowances could be used without restriction for compliance during the first two years of Phase I of CAIR. Southern Company also believes that States should be able to use either or both of the methods for allocation of CSP allowances that the NOx SIP Call rule permits, i.e., allocation of the allowances as credits for early reductions or through distribution by the State to units that demonstrate a need for a compliance extension. See 63 Fed. Reg. 57429-30 (October 27, 1998).

A second option for NOx ERCs that Southern Company encourages EPA to consider would allow any electric generating unit subject to CAIR to generate ERCs for use for compliance in the first two years of CAIR Phase I to the extent that that unit's NOx emissions, in the period before the CAIR Phase I compliance deadline, are below its 'CAIR emission level.' The unit's CAIR emission level would be defined as the average of the unit's annual heat input in the 1999-2002 CAIR baseline period multiplied by the CAIR Phase I emission rate of 0.15 lb/mmBtu on an annual average basis. Under this approach, ERCs could be generated by achieving low (i.e., below-CAIR Phase I) emission rates in any year in 2005-09.

For SO2, Southern Company urges EPA to adopt an approach similar to that described in the preceding paragraph. To the extent an electric generating unit within the CAIR region achieves, in any year in the 2005-09 period, an annual SO2 emission level below its CAIR Phase I level (i.e., below 50 percent of its title IV Phase II allowance level), that unit would generate SO2 ERCs that could be used for compliance with CAIR during the first two years of CAIR Phase I. These CAIR SO2 ERCs would not be in the form of additional title IV allowances and could be used for compliance with CAIR regardless of whether EPA makes final its proposal to use title IV allowances for CAIR compliance or instead establishes a new CAIR SO2 trading program with allocation of new CAIR SO2 allowances. In either event, banked title IV allowances could be used for CAIR compliance by sources on a voluntary basis at a one-for-one surrender ratio, as EPA has proposed: the ability to use SO2 ERCs for compliance in the first two years of CAIR Phase I as described above would be in addition to, not in lieu of, the ability to used banked title IV allowances for CAIR compliance on a one-for-one basis.

Response:
The final CAIR model rules include a CAIR CSP for the annual CAIR NOx program, similar to the commenters first recommended option. While the CAIR CSP would be available for both NOx SIP Call and non-NOx SIP Call States, EPA has limited the total CSP to 200,000 tons (including the share for the States of DE and NJ). This is responsive to commenters that were concerned that an excessive amount of new CSP allowances would flood the market once CAIR is implemented.

The final CAIR included incentives for early SO2 reductions by allowing pre-2010 title IV allowances to be banked into the annual CAIR SO2 program at a one-to-one ratio. The final CAIR does not include an SO2 CSP because reductions in SO2 emissions prior to the implementation of the CAIR would be "double counted": first, by the allowing the banking of the title IV allowances into the program and then, second, by awarding an allowance. Further, it is not clear how it would

be possible to establish a CAIR SO2 CSP because no free allowance exist that could be used to populate the CSP pool. That is, the final CAIR does not provide for CAIR SO2 emission allowances and EPA cannot create additional title IV allowances.

Comment:
The Group recommends that the final CAIR rule allow EGUs to generate early reduction credits for NOx. The proposed trading approach for SO2 would provide early reduction incentives through the ability to use banked title IV allowances, but such an early reduction incentive is absent for NOx. Providing that incentive would yield environmental benefits. Some electric generating companies are in a position to achieve sizable, additional reductions of NOx emissions before the 2010 compliance deadline in the CAIR. Therefore, credits for early action on NOx controls would promote immediate, substantial and cost-effective emissions reductions.

Response:
The final CAIR model rules provide incentives for early emission reductions in two ways. First, there is a NOx CAIR CSP that States can distribute based upon early reductions efforts. Second, banked NOx allowances under the NOx SIP Call can be used in the CAIR ozone-season NOx program.

Comment:
If EPA intends a CAIR compliance date after NAAQS attainment, then the agency should not introduce elements such as an early reduction credit provision to the CAIR model rules which have the potential to delay compliance with the NOx caps.

Response:
The final CAIR model rules include a CSP, as well as mechanisms that allow the banking of NOx SIP Call and title IV SO2 allowances (of vintages prior to the CAIR implementation dates) into the CAIR. EPA has conducted analysis that shows that the introduction of the CAIR CSP allowances (a total pool of 200,000 if New Jersey and Delaware are included) will not significantly impact the emissions "glide path" of the CAIR. Additionally, EPA established an ozone-season nested NOx cap and trade program that ensures that summertime NOx emission reductions occur at the onset of CAIR.

Comment:
There are no early reduction incentives for NOx in the IAQR proposal. The IAQR should allow for early reduction credits for NOx. To the extent that affected sources can achieve NOx reductions by operating control equipment on a year-round basis in advance of the 2010 compliance data, the rule should encourage and reward early reductions. Also, since these early reductions would be 'additional' to the reductions expected under the rule, the early reduction credit 'pool' should not be drawn from the NOx emission budgets established in the rule.

Response:
This comment is generally supportive of the approach taken in the final CAIR rule with the addition of the CAIR CSP.

Comment:
CPS favors credit for early NOx reductions such as those being done by GPS and those being required in the State of Texas.

The State of Texas through the Texas Commission on Environmental Quality, has incorporated and modeled for the SIP stringent NOx standards for utilities in Texas through 30 TAC 117 and 30 TAC 116. These rules require formerly grandfathered electric generating gas-fired units to reduce to a level of 0.14 lb/mmbtu times their 1997 heat input which is approximately a 50% reduction beginning May 2003.

Furthermore, CPS three coal-fired electric generating units must reduce NOx emissions to a level of 0.165 lb/mmbtu times their 1996 to 1998 heat-input levels by mid-2005 which is approximately a 50% reduction. These requirements are forcing reductions of NOx much earlier than the proposed EPA Phase I compliance deadline. In fact, CPS has already achieved the levels being imposed by TCEQ and plans to do better.

The benefits of early compliance will result in substantial and earlier air quality benefits as well as lowering costs of compliance since pollution control projects will not be bottlenecked. CPS realizes that the State of Texas will have the discretion to determine whether to participate in a regulatory trading program and how to allocate future allowances.

However EPA should allow for incentives for early NOx reductions and these credits should not be drawn from NOx emission budgets established by the new rule. This concept was considered and addressed in the 1990 Clean Air Act Amendments, Section 406, in which there was a reserve of SO2 allowances set aside for ‘clean States’ such as Texas, which had State-wide emission rates equal to or less than 0.8 lb/mmbtu. At a minimum, EPA should not ‘penalize’ States or companies that reduce emissions early. Any ‘baseline’ period selected by EPA for determining future emissions allocations should ‘back out’ all early reductions so as to not require additional percentage reductions from facilities in States that have already voluntarily, or by State mandate, reduced their emissions.

Response:
The final CAIR model rules includes a CSP that States can use to provide incentives for early reductions that are surplus to existing emission reduction requirements for NOx. The pool of 200,000 allowances is not drawn from the NOx emissions budgets for the States.

Comment:
Our experience with the NOx SIP Call leads Consumers Energy to encourage EPA to incorporate a strong early reduction credit incentive within the final rule. We believe that this will produce more reductions, quicker and more cost effectively.

Response:
The final CAIR model rule includes incentives for early reductions, including a CAIR CSP for NOx that is based upon experience with the NOx SIP Call.

Comment:
Although not proposed, EPA requests comment on and Sunflower fully supports the inclusion of a NOx ERC program into the CAIR. Sunflower is deeply concerned that the EPA anticipated construction of SO2 and NOx emissions controls needed to meet the CAIR Phase I caps in a highly cost effective manner will not be forthcoming due to supply shortages of labor and construction materials. Yet as proposed, there would be no cushion or safeguard against a significant shortage of NOx allowances due to lack of NOx controls installed by Phase I as utilities transition into the CAIR Phase I cap. An ERC program could provide this needed cushion by recognizing ERCs from emissions reductions below NOx SIP Call requirements and from early reductions achieved from non-SIP Call units installing controls prior to CAIR Phase I. If these early reductions are not rewarded the units on which such reductions are achievable will likely not be fully realized.

Under an ERC program, EPA appears concerned that too many ERCs could be generated, thus potentially creating ozone non-attainment issues that the NOx SIP Call was meant to address if these allowances could be freely used during ozone season, at 32702, col. 2. We think this EPA fear is unfounded, but the regulations could be structured to impose ozone seasonal 'flow control' on the use of ERCs as a contingent to provide a safeguard against ERC overuse.

Response:
See response to comment from The National Rural Electric Cooperative Association (OAR-2003-0053-1805).

Comment:
The SNPR does not propose to allow early reduction credits (ERCs) for NOx but, instead, solicits comment on whether a program for NOx, ERCs should be included in the final rule and how such a program should be structured. We agree with EPA that granting ERCs during the non-ozone season would encourage earlier NOx reductions and, therefore, earlier benefits 'by reducing atmospheric loadings of NOx, acid precipitation, and fine PM precursors' prior to 2010.

The SNPR asserts that ERCs 'would primarily be generated by sources already subject to the NOx SIP Call that would choose to operate already installed SCR during the 7-month non-ozone season.' EPA expresses concern that ERCs would delay achieving the CAIR NOx caps and 'potentially' lead to less NOx reductions during the ozone season. The SNPR asserts that 'over 3.7 million tons of NOx ERCs could be created (between 2006 and 2010) and banked into the CAIR if unlimited non-ozone season ERCs were permitted....' (GCA observes that there is no analysis in the docket to support this projection.)

However, NOx reductions during the non-ozone season also produce health and other benefits by reducing PM2.5 levels. Denying credit for early NOx reductions delays benefits that could be realized before the start of Phase 1 in 2010.

To avoid the potential creation of a very large number of banked ERCs, GCA urges EPA to provide year-round credit for early NOx reductions, starting in 2007, based on the lesser of either

(1) a NOx emissions rate of 0.25 lb/mmBtu, or (2) the Unit's allowable NOx emissions rate in 2005. (The applicable emissions rate is converted into tons of NOx to calculate the exact number of ERCs.) The 0.25 lb/mmBtu emissions rate is based on EPA's approach in the NOx SIP Using the more stringent of these emission rates (0.25 lb/mmBtu or the allowable rate in 2005) as the baseline for ERCs prevents the creation of an unreasonably large bank of ERCs and also avoids rewarding higher emitting units. GCA estimates that our recommendation would result in no more than 1.08 million tons of NOx ERCs, or 29% of the number of ERCs EPA is concerned about. Attachment 1 explains GCA's analysis. GCA supports EPA's proposal to no longer subject EGUs to SIP Call requirements, provided the State includes EGUs in the region-wide CAIR program. (EPA would allow States the discretion to retain the seasonal program if they wish to do so.)

EPA has expressed concern that banked ERCs might be used to reduce the level of emissions reduction during the ozone season. However, a similar argument could be made against banking of any non-ERC NOx allowances after 2010. Obviously, this would undermine a market-based approach by restricting flexibility and raising compliance costs. In addition, the adoption of GCAs recommendation above would provide a reasonable limit to the number of ERCs that could be generated. GCA believes that States are unlikely to backslide by allowing less summer time NOx reductions because of banked ERCs. GCA recommends that EPA monitor the implementation of CAIR, paying particular attention to summer time NOx reductions, and take appropriate action should the level of summer time reductions be unsatisfactory because of banked ERCs.

Response:
The final CAIR model rules includes a CSP mechanism for distributing NOx allowances that addresses concerns about the need for an early NOx reduction incentive program while guarding against the creation of excessive numbers of ERCs by restricting the size of the CSP allowance pool. EPA did not choose to use an emission rate threshold for awarding allowances for early reductions to all sources in the CAIR region, but instead established criteria that allow States to determine that the emission reductions are surplus to emission reductions required by other regulatory programs. This recognizes that State- and local-level NOx reduction requirements vary from State-to-State. In addition, sources in the NOx SIP call are able to bank SIP call allowances into CAIR for use at a later date, thus getting credit for early reductions prior to CAIR. In short, EPA believes that the Final CAIR program provides ample incentives for early NOx reductions.

Comment:
EPA should provide credit for early action when emission reductions are implemented in the period between CAIR promulgation and the initiation of Phase 1 requirements.

Response:
The final CAIR model rules include incentives for early reductions. See CAIR NFR preamble and the response to the Hunton & Williams comment earlier in this section of the response to comment document.

Comment:

EPA is proposing that banking of allowances after the start of the CAlR NOx and SO2 cap-and-trade programs be allowed with no restrictions. DPL agrees and asks EPA to adopt this approach. DPL believes that no restrictions on banking encourages early reductions and/or over-control in certain years.

Response:
The final CAIR model rules allow carry over of banked NOx SIP Call allowances into the CAIR ozone-season NOx program and title IV SO2 allowances the CAIR SO2 program, respectively. Pre-2010 title IV SO2 allowances can be used on a 1-to-1 basis for compliance with the CAIR SO2 allowance holding requirements. In all of the CAIR trading programs, there is banking without flow control.

Comment:
UARG believes that the critically important objective of encouraging early reductions would best be served by allowing unrestricted creation and use of ERCs. Accordingly, UARG urges EPA to allow ERCs but not with limitations along the lines suggested in the supplemental proposal.

Response:
See response to comment from Edison Electric Institute (OAR-2003-0053-1769).

Comment:
Early reduction credits for NOx should be included in the CAIR. These should be structured similar to the NOx SIP Call.

Response:
The final CAIR model rules include incentives for early reductions. For additional detail, see CAIR NFR preamble and the response to the Hunton & Williams comment earlier in this section of the response to comment document.

Comment:
The Ohio Utilities are concerned that the SNPR does not allow for the creation of NOx early reduction credits (ERCs). ERCs are essential to allow for the phase-in of the installation of controls and failure of the rule to provide them will needlessly drive up the costs of compliance and require a greater number of outages in a smaller window of time. EPA should include an ERC program for NOx in the final rule.

Response:
The final CAIR model rules include incentives for early reductions by providing for the NOx CAIR CSP and the banking of NOx SIP Call allowances into the ozone-season CAIR NOx program. For additional discussion, see CAIR NFR preamble and the response to the Hunton & Williams comment earlier in this section of the response to comment document.

Comment:

EPA should allow for the generation of NOx ERCs prior to 2010 and their use in complying with the 2010 and 2015 limits. Under Phase I of CAIR the NOx compliance limit is essentially the same as in the NOx SIP Call allowing these credits is no different than banking under the NOx SIP Call. This approach is beneficial for two reasons:

a) By allowing generation of ERCs prior to 2010 the CAIR reductions are being achieved earlier and thus States have a better chance of achieving the 8-hour ozone and PM25 standards in the time frame required by the Clean Air Act.

B) With ERCs sources can make smarter decisions on their hard to control units thus lowering costs for compliance and ultimately the cost to their costumers.

EPA states the 'EPA analysis projects that over 3.7 million tons of NOX ERCs could be created (between 2006 and 2010) and banked into the CAIR if unlimited non-ozone season ERCs were permitted in the program.' (69 FR No. 112 June 10, 2004 page 32702) This is extremely unrealistic as the operation of SCRs is limited by stack gas temperature and thus unit capacity. In the Midwest most utilities have installed SCR on their ozone season base load units. Thus it would be possible in the ozone season to generate ERCs (assuming existing installations are able to meet the CAIR requirements). However, in the Fall, Winter and Spring many of these base load units are cycled as power is needed. In the cycling mode of operation it is impossible to get reliable control of NOx as stack gas temperatures drop too low for the catalyst to work properly. For example, all of Ameren's units with SCR installed have a minimum capacity that they cannot go below and still operate the SCR. In Ameren's case, all of the units except one must maintain at least 65% capacity, while one unit must be over 75% capacity for the SCR to function properly. As a practical matter it is impossible to continually dispatch these units in the non-ozone season months such that the SCRs can be run continuously. Therefore, it is impossible and economically impracticable to generate a large number of NOx ERCs in the non-ozone season months. EPA should allow the generation of NOx ERCs prior to the Phase I 2010 compliance date and allow these to be banked and used for compliance.

Response:
The final CAIR model rules include incentives for early emission reductions. For additional discussion, see CAIR NFR preamble and the response to the Hunton & Williams comment earlier in this section of the response to comment document.

Comment:
Midwest Generation supports a provision for the generation of NOx and SO2 Early Reduction Credits. With respect to SO2 emissions, Midwest Generation supports EPA's proposal to allow pre-2010 SO2 allowances to be used at any time on a one-to-one basis after the Phase I cap takes effect essentially providing ERCs for SO2 reductions. If implemented, this SO2 ERC will provide incentives for sources to reduce SO2 earlier than required in order to ease their transition to the 2010 implementation date.

EPA can ease burdens associated with the proposed Phase I deadline by permitting sources to earn early reduction credits in return for early reductions of NOx and SO2 emissions. Not only will an ERC provision achieve emissions reductions earlier than they would be achieved otherwise, it will give power generation units greater compliance flexibility. Regulated sources will be able to install control technologies on units for which controls are most efficient in order to defer installation on units for which they are less efficient. Thus, ERCs can ease problems associated with deadline-induced shortages of labor and materials and can address the potential for reliability issues introduced by a January 2010 deadline.

The commenter supports EPA's proposal to allow EGUs to use pre-2010 allowances on a one-to-one basis after the Phase I cap takes effect. The commenter also supports EPA's proposal to allow sources to bank and carry forward ozone season NOx allowances. However, the IAQR should provide that sources may generate NOx ERCs year round and issue such allowances on a two-to-one basis. Such a provision would achieve significant environmental benefits through earlier and greater reductions. EPA could prevent the flooding of the NOx bank and excessively high NOx emissions during ozone seasons by providing that non-ozone-season allowances are only usable in non-ozone season and ozone season allowances are usable year round. The IAQR's more stringent requirements, along with the typical non-ozone season outage schedules will encourage the flow of allowances from ozone to non-ozone season.

Response:
The final CAIR model rules include a CAIR CSP that allows States to distribute CSP allowances to sources that make early emission reductions beyond those required by existing programs. These CAIR CSP allowances, which are CAIR annual NOx allowances, may be used in the CAIR annual cap-and-trade program. These CAIR CSP allowances could be awarded by the State at a one-to-one basis. EPA believes that stringent criteria for awarding allowances – that the source must demonstrate that the reductions are beyond existing requirements – would ensure that appropriate levels of reductions would occur without the need to discount the emission reductions (i.e., use a two-for-one award ratio). A separate CAIR ozone-season program has been created to ensure that the necessary ozone-season reductions take place.

The commenter generally agrees with EPA's approach in the final CAIR that includes providing incentives for early SO2 emission reductions by allowing the use of pre-2010 title IV allowances to be used for compliance with the CAIR at a 1-to-1 basis. The final CAIR model rules include incentives for early NOx reductions. For additional discussion, see CAIR NFR preamble and the response to the Hunton & Williams comment earlier in this section of the response to comment document.

Comment:
Maryland is especially concerned that the current and projected size of the SO2 allowance bank (9.3 million tons in 2002) will impede attainment of the PM2.5 standard in 2010, as well as the effect of the bank on the 'glide path' to the actual cap levels many years after 2015. EPA concedes that '[U]nder the CAIR trading program SO2 emissions in 2015 would fall to about 5.3 million tons nationwide, and would continue declining to 4.3 million tons in 2020.' (69 FR 32705/2) By

comparison, the CAIR SO2 cap in 2015 is 2.7 million tons (about 87% of nationwide SO2 emissions originate in the 29-state CAIR region).

In the NPR issued January 30, 2004 (69 FR 4565- 4650), EPA states that, '[T]hese ratios are projected to lead sources to bank roughly an additional 10.5 million allowances prior to 2010. Vintage year allowances 2009 and earlier are projected to be used starting in 2010 at an average rate of 1.3 million per year.' (69 FR 4632/1&2) This is on top of approximately 9 million 1:1 SO2 allowances distributed each year prior to 2010. EPA is inconsistent when, in discussing allowing the generation and use of early NOx emission reduction credits (ERCs), it States that 'over 3.7 million tons of NOx ERCs could be created (between 2006 and 2010) and banked into the CAIR if unlimited non-ozone season ERCs were permitted in the program. Allowing these ERCs to be used for compliance & would delay progress towards achieving & the annual NOx reduction goals.' (69 FR 32702/2)

Response:
See response to the Wisconsin Department of Natural Resources comment earlier in this section of the response to comment document.

Comment:
EPA should fill an important gap in the original CAIR proposal, by proposing for public comment a NOx early reduction credit (ERC) program to provide incentives for additional, early NOx emission reductions. In the Supplemental CAIR, EPA does not propose a specific NOx ERC approach, but expresses concern about the large number of ERCs that EGUs could generate. Comments on possible options for limiting that number are solicited. Specifically, EPA suggests: (1) maintaining the NOx SIP Call ozone-season NOx cap requirement, allowing sources to use ERCs only to comply with the CAIR annual NOx limitation (an approach that, EPA suggests, might require imposing an ozone-season cap on States that are subject to CAIR but not to the NOx SIP Call); (2) limiting the period of time during which ERCs could be created and banked; (3) capping the number of ERCs that could be created; or (4) applying a discount rate to NOx ERCs. The important objective of encouraging early reductions would best be served by allowing the unrestricted creation and use of ERCs. Accordingly, Oglethorpe Power urges EPA to allow for the unlimited creation and use of ERCs.

Response:
See response to comment from Edison Electric Institute (OAR-2003-0053-1769).

Comment:
The EPA has not proposed Early Reduction Credits (ERC) but has solicited comments in this regard. Associated supports ERCs. Associated believes this will not only result in NOx emission reductions prior to Phase I, but will improve the liquidity of the allowance system and ease the transition to caps. Safeguards for ozone season attainment such as an ozone season cap could be incorporated.

Response:
The final CAIR model rules include incentives for early reductions as well as ozone-season requirements. For additional discussion, see CAIR NFR preamble and the response to the Hunton & Williams comment earlier in this section of the response to comment document.

Comment:
EPA proposes not to include any provisions that would allow for early reduction credits (ERCs) for NOx. EPA's rationale for this is a concern that allowing ERCs would delay progress toward achieving the annual NOx reduction goals and could potentially reduce the ozone season reductions that are necessary for EPA to justify removing the NOx SIP Call constraint for EGU's. EPA suggests a number of possible options that would limit the amount of ERCs that could be generated.

Dominion advocated for the inclusion of NOx ERCs in our comments in response to the initial CAIR proposal notice, and we reiterate our support for ERC's in these comments. To the extent that EPA believes unrestricted use of ERCs would compromise its ability to allow such provisions and would compromise its ability to consolidate the seasonal and annual NOx reduction programs, we would support the development of an ERC program that would limit, but not totally prohibit, the use of ERCs during the 5-month ozone season as a possible approach to alleviate EPA's concerns. Another possible suggestion, which is being advanced by UARG, is the establishment of a CSP for each State similar to what was done under the NOx SIP Call (which essentially limits the total number of ERC's that can be awarded).

Response:
See response to comment from Edison Electric Institute (OAR-2003-0053-1769).

Comment:
The IAQR would not enable New Jersey to attain the fine particulate standard. Under the Acid Rain Program, SO2 credits representing about 9 million tons of emissions are currently banked. The IAQR would allow continued use of those credits, which will wipe out most or all of the SO2 emission reductions that the EPA is hoping for in the early years under the IAQR.

The IAQR would therefore forego much of the easily available reductions in NOx and SO2 emissions from power plants upwind of New Jersey. Proven and widely available technology can reduce power plant emissions of NOx and SO2 drastically and cost-effectively. Most coal-fired power plants in New Jersey are either using this technology already, or have committed to installing it in the near future. A strong federal program would encourage this technology to spread to many more power plants, yielding substantial reductions in NOx and SO2. The weak program that the EPA has proposed would make the supply of emissions credits so plentiful that simply buying credits becomes much cheaper than installing today's technology to reduce emissions.

Response:
The most recent modeling done in support of the Final CAIR indicates that New Jersey will have no (zero) counties in nonattainment by 2010. All areas in New Jersey will meet EPA's air quality

standards. This modeling assumes that New Jersey will be a part of the annual SO2 and NOx CAIR cap and trade programs. EPA must note, however, that New Jersey is not included in the Final CAIR, but instead will be included in the annual CAIR programs for SO2 and NOx in a separate rulemaking (see "Proposed Rules" section of today's Federal Register publication).

EPA has conducted extensive analysis on the impacts of CAIR on banking and emissions. For additional discussion, see the response to the Wisconsin Department of Natural Resources comment earlier in this section of the response to comment document.

Cap and trade programs provide flexibility and allow sources to find the least-cost solution to meeting the caps, and an important part of providing flexibility is the unimpeded banking of allowances for future use. The benefit is that sources will reduce emissions earlier than required, but a trade-off exists when those same sources use them at a later date. The structure of CAIR is such that there is no economic incentive to use the bank all at once, but instead to use it gradually over time by carefully examining compliance options. This results in a glide path of downward emissions, eventually at the final cap level. If we look at the existing title IV cap and trade program for SO2 as an example, which is widely believed to be a huge success in reducing emissions and acid rain, sources gradually reduced emissions earlier than anticipated by taking advantage of the banking flexibility, which provided huge environmental benefit earlier than the cap levels went into effect, which also lead to a substantial number of banked allowances. This is projected to be true of CAIR as well, because sources will reduce emissions before the CAIR caps go into effect. In addition, sources continue to use banked allowances for compliance with the existing title IV SO2 market for allowances, and the bank has been reduced well below the level indicated by the commenter.

Comment:
The NOx CAIR program should recognize ERCs.

Although not proposed, EPA requests comment on and Old Dominion fully supports the inclusion of a NOx, ERC program into the CAR. Old Dominion is deeply concerned that the EPA anticipated construction of SO2 and NOx emissions controls needed to meet the CAIR Phase I caps in a highly cost effective manner will not be forthcoming due to supply shortages of labor and construction materials.

Yet as proposed, there would be no cushion or safeguard against a significant shortage of NOx allowances due to lack of NOx controls installed by Phase I as utilities transition into the CAIR Phase I cap. An ERC program could provide this needed cushion by recognizing ERCs from emissions reductions below NO, SIP Call requirements and from early reductions achieved from non-SIP Call units installing controls prior to CAR Phase I.

Under an ERC program, EPA appears concerned that too many ERCs could be generated, thus potentially creating ozone nonattainment issues that the NOx SIP Call was meant to address if these allowances could be freely used during ozone season (32702, col. 2). We think this EPA fear

is unfounded, but the regulations could be structured to impose ozone seasonal 'flow control' on the use of ERCs as a contingent to provide a safeguard against ERC overuse.

Response:
See response to comment from The National Rural Electric Cooperative Association (OAR-2003-0053-1805).

Comment:

In the context of this rule, the Agency should consider offering incentives to EGUs to make the changes needed to comply with the IAQR ahead of schedule. [[1829, p. 18]]

Response:
The final CAIR model rule includes incentives for early emission reductions that include a CAIR CSP, the banking of NOx SIP Call allowances into the ozone-season CAIR NOx program, and the banking of title IV allowances into the CAIR SO2 program.

XIII.B. Consideration for emissions shifting outside the control region

Comment:
Tri-State believes that in the adoption of any further rules on SO2 and NOx that the EPA needs to consider how to address allowance allocations that will be needed for future power plants.

Response:
EPA has developed CAIR to provide some flexibility to States regarding allowance allocations. The recommended approach for allocating NOx allowances includes a set-aside starting at 5% of total NOx allowances for new units. States have some flexibility as to how to allocate NOx allowances, and are able to allocate more allowances (greater than 5%) to new units if deemed appropriate by the State. (See final rule preamble for further discussion).

Comment:
Not utilizing allowance flow control would simplify emissions management and allow for more accurate and timely forecasting of emission allowance requirements.

Response:
The design of CAIR takes into consideration certain restrictions on allowance markets that could create uncertainty and limit compliance options. CAIR does not have a 'flow control' provision and has been designed to enable markets to function as efficiently as possible. (See final rule preamble for further discussion).

Comment:
EPA suggests in the preamble to the CAIR that establishing the new SO2 allowance trading program could make available to EGUs in non-CAIR States a substantial number of title IV allowances at low costs. However, EPA also acknowledges that transmission constraints make it unlikely that any substantial number of title IV allowances will be 'leaked' from CAIR States to non-CAIR States in the West. Oglethorpe Power agrees with this observation. To the extent such occurs, source-specific SIP SO2 emission limits as needed can be adopted by the States to address any local nonattainment or other air quality concerns.

Response:
EPA carefully considered the possibility of emission 'leakage' to sources just outside the CAIR region, but power sector modeling indicates that there are no significant leakage issues with CAIR. Certain physical constraints on the movement of electricity limit this effect, and sources outside of the CAIR program will still be required to meet the existing title IV requirements for SO2 and NOx. (See final rule preamble for further discussion).

Comment:
The IAQR should recognize the growing demand for generation and promote cleaner energy by allocating allowances for new coal plants.

Response:

EPA has developed CAIR to provide some flexibility to States regarding allowance allocations. The recommended approach for allocating NOx allowances includes a set-aside starting at 5% of total NOx allowances for new units. States have some flexibility as to how to allocate NOx allowances, and are able to allocate more allowances (greater than 5%) to new units if deemed appropriate by the State. (See final rule preamble for further discussion).

Comment:
Midwest Generation Supports A Provision That Would Provide Other Source Sectors An 'Opt In' To The Trading Program.: Midwest Generation urges EPA to promote the development of robust NOx and SO2 trading markets by permitting States to participate in the IAQR trading programs regardless of whether they choose to regulate non-EGUs in addition to or instead of EGUs. EPA should give States maximum flexibility for achieving reductions necessary for attainment of NAAQS from any source sector from which reductions can be obtained cost-effectively. In addition, permitting expansion of the trading markets will promote efficient reductions without compromising environmental objectives.

Response:
Under CAIR, States can require emission reductions from any source category. EPA allows States to participate in the cost-effective trading program if certain requirements are met. If a State chooses to obtain emission reductions from non-EGU sources, then they are not allowed to participate in the trading program for a variety of reasons. For example, EPA feels strongly that any cap and trade program for EGUs needs to have strong monitoring and reporting requirements, which are difficult to enforce and implement for other source categories. EPA cannot ensure the quality, quantity, and cost-effectiveness of reductions from other source categories, and for these reason (along with others) has limited the scope of the trading program to EGUs. However, CAIR does allow some flexibility with individual non-EGU opt-ins (e.g., industrial boilers), as long as they meet the emission reporting and measuring requirements under Part 75 of the Clean Air Act. (See final rule preamble for further discussion).

Comment:
Cinergy Supports EPA's Proposal to Carry Forward SO2 Credits on a One-to-One Basis. The ability to carry forward title IV SO2 allowances into the IAQR trading program provides an incentive to reduce SO2 emissions as soon as possible, which is good for the environment and facilitates a gradual transition to tighter caps on emissions.

Response:
EPA agrees with this comment, and allows banked title IV SO2 allowances (vintage year 2009 and prior) to be used in CAIR on a one-to-one basis in all future years. This helps promote early reductions and facilitates the transition from the title IV caps to the new, more stringent CAIR caps. (See final rule preamble for further discussion).

Comment:
KeySpan strongly supports EPA's effort to achieve the SO2 reductions within the framework of the existing title IV program. We realize that the phase-in of SO2 reduction provisions will

require a 2 to 1 and then a 3 to 1 allowance surrender in order to accomplish the desired reduction in the total cap. What we would be opposed to however would be a redistribution or re-allocation of existing title IV SO2 allowances to current non-allocated or new sources that would now become affected sources under the IAQR. KeySpan and many other title IV generators investment strategies are based in part on the valuation of their known long term allowance allocations. Any tampering or retroactive adjustment in the ownership of already earmarked allowances would seriously undermine market mechanisms and unfairly penalize those companies that have already made significant reductions with the presumption of deriving value from the excess allowances that will be generated by such reduction efforts.

Response:
EPA has designed the CAIR cap and trade program to work with the existing title IV SO2 trading program. Post-2010 vintage year allowances are to be used in the CAIR trading program at a ratio of greater than one allowance per ton of emissions, without any redistribution of those allowances. This way, the investments made under title IV and purchases and sales of existing allowances are preserved, but reductions in SO2 are ensured. (See final rule preamble for further discussion).

Comment:
SO2 Cap & Trade Program:

1. The geographic scope should include the WRAP nine State region with the possibility of adding the States of Montana and Washington.

2. Cap levels in 2018 should reflect the WRAP agreement of 271,000 for affected coal fired utility units in the 9 State region. If Montana and Washington are included, tonnage numbers could be extrapolated based on the Annex methodology.

3. A phase 1 IAQR target should be based on the interim milestones (e.g., for 2013) agreed to in the WRAP Annex.

National trading is essential with the limitation to protect the WRAP environmental agreement discussed above.

New Sources:

PacifiCorp believes that new sources should be required to meet appropriate new source requirements under existing programs. We also remind EPA that this Administration and many western States have concluded that the addition of new coal-fired generation will be essential to help meet the energy needs of the west. The WRAP Annex explicitly recognizes this need by providing an increment for new source growth under the milestones. This new source growth increment was not recognized in Clear Skies, but should be provided under any expansion of the cap and trade approach in the IAQR to the western states. In no event; however, should a new source increment reduce the 271,000 tons of allowances awarded to existing utility sources.

Response:
CAIR has been designed to address nonattainment in downwind States to help States meet the NAAQS (see final rule preamble). The analysis and modeling done to determine which States contribute to a downwind State's nonattainment shows that WRAP States, Montana, and Washington do not meet this requirement. In fact, most Western States do not have nonattainment issues. In light of this, EPA has limited the geographic scope of CAIR to certain Eastern States. New Source Performance Standards will not change with CAIR, so new coal-fired generation will be required to install advanced pollution control equipment. With regard to providing additional allowances for new sources above and beyond the cap set forth, EPA believes that this is counter to providing certainty and ensuring environmental improvement, since additional allowances for electricity growth will rise indefinitely, and a constantly increasing cap will not provide certainty with regards to emission reductions and non-attainment. EPA has developed CAIR to provide some flexibility to States regarding allowance allocations. The recommended approach for allocating NOx allowances includes a set-aside starting at 5% of total NOx allowances for new units. States have some flexibility as to how to allocate NOx allowances, and are able to allocate more allowances (greater than 5%) to new units if deemed appropriate by the State. (See final rule preamble for further discussion).

Comment:
If EPA Promulgates the IAQR in Any Form, Allowing Interstate Emission Trading Is Essential, but EPAs Proposed Requirement for More-Than 1-for-1 SO2 Allowance Surrender Raises Legal Questions That Could Be Avoided With a New Trading Program.

EPA describes its proposed 2-for-1 surrender requirement for 2010-to-2014 title IV allowances, and its 3-for-1 surrender requirement for 2015-and-later title IV allowances, as 'in effect, tightening the existing title IV cap.' 69 Fed. Reg. 4632 col. 1. EPA also suggests that, regardless of whether a State decides to participate in an interstate SO2 allowance trading program under IAQR, it would have to require retirement or elimination of 'surplus' title IV allowances (i.e., the difference between the total SO2 allowances allocated to sources in the State and the State's EGU SO2 budget). See id.at 4626 col. 3. Because of constraints on States' ability to adopt (and EPA's ability to approve) SIP provisions that change federal statutory provisions such as the title IV allowance provision –and because EPA in any event may not require States to adopt particular control methods, such as allowance retirements –there is a possibility that this element of the IAQR might be subjected to a legal challenge as inconsistent with the Act.

It is essential to allow States subject to the IAQR to participate in an interstate trading program. The possibility of a challenge to the proposed trading elements discussed above, however, could create uncertainty about the availability and mechanisms of trading under the IAQR (and could be viewed as undermining EPA's 'highly cost-effective' determination for SO2 controls, which is premised on the availability of interstate trading). Thus, EPA should propose for public comment, in the IAQR supplemental notice of proposed rulemaking, an alternative trading program that would not require 2-for-1 or 3-for-1 surrender of title IV allowances but instead establish new, non-title IV SO2 allowances beginning in Phase I of the IAQR program system. However, this alternative program would still allow use of banked title IV SO2 allowances (i.e., allowances of

vintage years before the first year of IAQR Phase I); use of those allowances would be voluntary with each affected source and therefore could not be considered inconsistent with title IV.

EPA suggests that establishing a new trading program could make title IV allowances available in non-IAQR States at very low cost and therefore might result in emission increases in those States. See id. At 4631 col. 1. As EPA acknowledges, however, transmission constraints make any substantial allowance 'leakage' unlikely as a practical matter. Id. If substantial leakage occurred and threatened compliance with CAA requirements, States and EPA could address the problem through SIPs or other established mechanisms under the Act.

Response:
See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
MOG supports interstate emission trading but opposes EPA's proposed retirement ratios for title IV SO2 allowances.: Trading helps to reduce overall costs, and MOG supports interstate emission trading. MOG agrees with UARG that EPA's proposal to require a 2-for-1 surrender of 2010-to-2014 vintage title IV allowances and 3-for-1 surrender of 2015-and-later title IV allowances would be subject to legal challenge in court. [[See docket number 1017 for UARG's comment letter.]] 69 Fed. Reg. At 4632/1. A successful legal challenge would invalidate the SO2 trading program and the entire IAQR. The SO2 Acid Rain Trading program under title IV has worked well and achieved significant reductions of SO2 emissions. MOG joins UARG in urging EPA leave the Acid Rain Trading Program as is and to develop a new SO2 model trading program under the IAQR. MOG also joins UARG in supporting EPA's proposal not to impose flow control or other restrictions on use of banked allowances. After EPA publishes its supplemental notice of proposed rulemaking concerning the cap-and-trade program, MOG and its individual members may submit additional comments on trading issues raised by the IAQR.

Response:
The design of CAIR takes into consideration certain restrictions on allowance markets that could create uncertainty and limit compliance options. CAIR does not have a 'flow control' provision and has been designed to enable markets to function as efficiently as possible. See final rule preamble for further discussion on interaction with the existing title IV SO2 trading program (Sec. IX-B).

Comment:
Another issue EPA must address is the preservation of the allowances already created under the Acid Rain Program. The regulated community should not be penalized for past compliance by having banked allowances devalued, as would some of the IAQR proposal.

Response:
EPA agrees with the commenter. See final rule preamble for further discussion (Sec. IX-B).

Comment:
Small systems such as Hoosier Energy maybe faced with limited options under early market transport allowance price conditions. Thus, the proposed one for one trading of Vintage 2009 title IV SO2 allowance is absolutely necessary to ease market transition into IAQR caps.

Response:
EPA agrees with the commenter. See final rule preamble for further discussion (Sec. IX-B).

Comment:
EPA Should Provide for Interstate Emission Trading But Should Consider Proposing for Comment a Potential Alternative SO2 Trading Approach: EPA proposes to require, for States that regulate EGUs in their IAQR SIPs and that participate in an interstate trading program, 2-for-1 surrender of 2010-to-2014-vintage title IV allowances and 3-for-1 surrender of 2015-and-later-vintage title IV allowances. 69 Fed. Reg. 4632 col. 1. EPA characterizes these ratios as, 'in effect, a reduction of the title IV cap.' Id. At 4631 col. 3. Cf.CAA 402(3) (defining 'allowance' as 'an authorization. . .to emit . ..one ton of sulfur dioxide'). EPA also raises the prospect that, regardless of whether a given State participates in trading, that State would have to require the retirement or elimination of 'surplus' title IV allowances (assuming that the State regulates EGUs under the IAQR), with the surplus defined as the difference between the total title IV allowances allocated to sources in the State and the State's EGU SO2 budget under the IAQR. See 69 Fed. Reg. 4626 col. 3 ('EPA believes that this proposed requirement to retire or eliminate surplus allowances applies regardless of whether or not a State participates in the EPA-managed trading system.'). Given constraints on States' ability to adopt (and EPA's ability to approve) SIP provisions that, in effect, alter federal statutory provisions such as the title IV allowance provisions –and given the CAA principle that EPA may not require States to adopt particular control methods, such as allowance retirements –questions have been raised about the consistency of these elements of the IAQR proposal with the Act.

UARG strongly supports trading and believes it is essential to allow States subject to the IAQR to participate in an interstate allowance trading program. However, any challenge to the proposed trading elements discussed above could create uncertainty about whether and how trading ultimately could proceed under the IAQR (and could be viewed as undermining EPA's 'highly cost-effective' determination for SO2 controls, which is premised on interstate trading). To address this possibility, UARG encourages EPA to propose for public comment, in the supplemental notice of proposed rulemaking on the IAQR, a potential alternative trading program that would not require 2-for-1 or 3-for-1 surrender of title IV allowances but that instead would involve allocation of new, non-title IV SO2 allowances beginning in Phase I of the IAQR program. However, this alternative program, like the program described in EPA's proposal, would allow use of banked title IV allowances (i.e., allowances of vintage years before the first year of IAQR Phase I); use of those allowances would be voluntary with each affected source and therefore could not even arguably be deemed inconsistent with title IV.

EPA suggests in the preamble to the proposed rule that establishing a new SO2 allowance trading program under the IAQR could make available to EGUs in non-IAQR States a significant number

of title IV allowances at low cost. See id. At 4631 col. 1. Yet EPA also acknowledges that transmission constraints make unlikely any substantial amount of title IV allowance 'leakage' from IAQR States to non-IAQR States in the West. Id. For this reason, and given the possibility of SIP SO2 emission limits as needed to address any local nonattainment or other air quality concerns, the notion that availability of title IV allowances will trigger any sizeable increase in Western EGUs' SO2 emissions is speculative at best. In the unlikely event that such emission increases did occur and threatened nonattainment of NAAQS or noncompliance with other CAA requirements, the CAA provides mechanisms to address those problems.

Response:
See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
Geographic Scope- Trading should be allowed across the largest area possible to capitalize on all efficiencies. However, numerous States have made attempts to circumvent the nationwide SO2 trading program as established by title IV of the Clean Air Act Amendments of 1990. Unfortunately, the proposed transport rule leaves many issues subject to State-by-State variability and interpretation, which could result in a less efficient and comprehensive program. That the proposal allows States to exclude the Model Cap and Trade Rule from their SIP filings only opens the door for a limited trading market if numerous States choose not to allow affected sources in those States to participate in 'the market.' A shallow market might allow relatively few participants to influence allowance prices. Participants and outside observers could lose faith in such a limited market. EPA should make every attempt to promote unfettered emissions trading in the final IAQR.

Response:
EPA has designed CAIR to provide emission reductions in a cost-effective manner through use of a cap and trade system, and certain aspects of CAIR will help ensure that an efficient market for pollution allowances is maintained. Although EPA must grant States the choice to participate in the trading program, EGUs are the most logical source from which to control emissions and the trading program is the most cost-effective method for doing so, and will likely lead to most, if not all, States adopting the CAIR trading program (similar to the NOx SIP call). Other important aspects of CAIR would be consistent across participating States, which would help ensure the efficiency of markets. See final rule preamble for further discussion.

Comment:
The NESCAUM States urge EPA to establish progressive flow control mechanisms for NOx and SO2 such as that successfully implemented by the Ozone Transport Commissions in its NOx Budget Program. Flow control is needed to ensure that banked allowances do not interfere with meeting our air quality goals.

Response:
Generally speaking, unrestricted banking has several advantages: it can encourage earlier or greater reductions than are required from sources, stimulate the market and encourage efficiency, and provide flexibility in achieving emissions reduction goals. EPA maintains that the benefits of utilizing flow control procedures are questionable. EPA has analyzed the use of the flow control procedures in a paper released in March 2004, "Progressive Flow Control in the OTC NOx Budget Program: Issues to Consider at the Close of the 1999 to 2002 Period". The lessons learned from this analysis were as follows:

1) Flow control can create market pricing complexity and uncertainty. The need for implementation of flow control for a particular control period is not known more than a few months in advance, and the value of banked allowances varies from year to year, depending on whether flow control has been triggered for the particular year. Therefore, when deciding how much to control, a source has some increased uncertainty about the value of any excess allowances it generates.

2) Flow control can have a bigger impact on small entities than on large entities. Large firms with multiple allowance accounts can shift banked allowances among those accounts to minimize the number of banked allowances surrendered at a discounted rate.

3) Flow control does not directly affect short-term emissions, so it may not serve the environmental goals for which it was created. Refer to Chapter VIII of the Final CAIR preamble for additional discussion on flow control.

Incorporating these lessons learned, EPA is finalizing the CAIR NOx and SO2 cap-and-trade programs with no flow control mechanism. Allowing unrestricted banking and the use of banked allowances is consistent with the existing Acid Rain SO2 cap-and-trade program. See final rule preamble for further discussion (Sec. VIII).

Comment:
The fact that today there are some companies that favor the continuation of the title IV allocations under an IAQR and others that oppose the continued use of title IV allocations is a clear indication that the title IV allocations are not equitable. While some companies will undoubtedly oppose the SO2 allocation scheme that Duke Energy is advocating today, because they would receive fewer allowances than under EPA's current proposal, they cannot credibly argue that Duke Energy's proposal would not be more equitable than the continued use of title IV allocations as EPA proposes to do.

Response:
See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

XIII.C. Desired outcomes in the design of the cap and trade rule

Comment:
Since 1980 the electric utility industry has achieved an overall emission reduction of approximately 40% while usage of electricity has increased substantially. The IAQ Rule and Mercury MACT Rule will provide for an additional EGU emission decrease of nearly 70%. Attaining such a decrease is a monumental task, especially while permitting the possibility that these decreases are achieved in a cost efficient manner. The lynch pin to achieving cost effective reductions is ensuring:

1) Regulatory certainty including Section 126 petitions compliance, Regional Haze, and New Source Review,

2) 3 pollutant synchronization for co-benefits for mercury control,

3) A cap and trade program that is multi-pollutant with inherent flexibility,

4) And, sufficient time to allow cost effective and well planned construction to ensure the reliability and security of affected electric generating sources and interconnecting grids.

Response:
EPA generally agrees with the principles outlined by the commenter and believes that the CAIR achieves these goals. Commenter principles (2), (3), and (4) are addressed elsewhere in CAIR NFR and response to comment document.

EPA recognizes that the power sector is subject to multiple requirements under the CAA and, for several of these requirements, the States have the flexibility to implement these requirements with programs that meet their unique needs. To the extent that States choose to implement the CAIR emission reduction requirements through the EPA-administered regionwide cap and trade programs, EPA feels that power sector could be provided with some degree regulatory certainty.

Comment:
As evidenced by this rulemaking (and its companion mercury reduction proposal), as well as several multi-pollutant legislative proposals that have been brought to the table over the last several years, our industry will likely be required to achieve significant additional emission reductions over the next decade. Our industry will be faced with having to balance the need for implementing capital intensive environmental improvements required to achieve air quality goals with the need to minimize potential impacts to electricity reliability, customers, shareholders and fuel supply.

It is therefore important that emission reduction programs:

1-Meet desired air quality goals;

2-Provide regulatory certainty that will allow our industry to make financially sound compliance and planning decisions regarding capital investments in environmental and energy technologies;

3-Set reasonable emission reduction targets and timelines;

4-Provide maximum flexibility to achieve desired air quality objectives cost-effectively through the use of market-based mechanisms such as emissions trading; and

5-Protect fuel diversity to preserve and assure the continued supply of reliable, affordable electricity to meet our nation's growing energy needs.

To the extent that a regulatory approach such as the proposed IAQR (and the companion mercury proposal) is pursued, we believe such an approach should be designed around the principles described above, taking into account the significant accomplishments our industry has already achieved at great expense.

The IAQR integrated with the mercury cap-and-trade approach EPA has proposed in a separate rulemaking reflects a market-based approach under the Clean Air Act that better meets the policy objectives of continued environmental progress at affordable costs than alternatives EPA might otherwise pursue. While we generally support this approach, we do have some technical and policy issues with the IAQR proposal.

Response:
EPA generally agrees with the principles outlined by the commenter and believes that the CAIR achieves these goals. Commenter principles (1), (3), (4), and (5) are addressed elsewhere in CAIR NFR and response to comment document.

EPA recognizes that the power sector is subject to multiple requirements under the CAA and, for several, the States have the flexibility to implement these requirements with programs that meet their unique needs. To the extent that States choose to implement the CAIR emission reduction requirements through the EPA-administered regionwide cap and trade programs, EPA feels that power sector could be provided with some degree of regulatory certainty.

Comment:
UJAE has followed EPA's development of its proposed rule to reduce interstate transport of fine particulate matter and ozone with great interest. While generally satisfied with the NPR's thrust, we believe it can be improved by enhancing regulatory certainty, implementing year-round credit for early NOx emission reductions, providing incentives for the early installation of SO2 control technologies, revisiting Nox allocation credits to eliminate a bias against coal, and by reviewing the Phase I implementation date to ensure it is achievable. If these actions are taken, the framework for extended emissions reductions will be made clear, and employers will begin to implement these requirements. If done in a reasoned fashion, over a sustained span of time, the members of UJAE are ready for this awesome challenge. Such an approach will minimize fuel switching and maximize direct and indirect job creation. While UJAE prefers a legislative

approach to addressing these issues, we see the Interstate Air Quality NPR as a warranted step in the right direction.

Response:
This comment is generally supportive of final CAIR. The commenter's suggestions regarding "year-round credit for early NOx emission reductions, providing incentives for the early installation of SO2 control technologies, revisiting NOx allocation credits to eliminate a bias against coal, and by reviewing the Phase I implementation date to ensure it is achievable" are addressed elsewhere in today's CAIR NFR and RTC.

EPA recognizes that the power sector is subject to multiple requirements under the CAA and, for several of there requirements, the States have the flexibility to implement these requirements with programs that meet their unique needs. To the extent that States choose to implement the CAIR emission reduction requirements through the EPA-administered regionwide cap and trade programs, EPA feels that power sector could be provided with some degree regulatory certainty.

Comment:
As noted in previously submitted comments on the original proposal (Comments of the Dow Chemical Company, March 30, 2004, Docket ID No. OAR-2003-0053), Dow supports EPA's efforts to achieve cost effective emission reductions through a market driven approach. CAIR promises to provide a known regulatory environment conducive to long term planning while driving emission reductions in an appropriate time frame. However, aspects of the original rule and the supplemental proposal have the potential to impact Dow's license to operate chemical manufacturing and energy production facilities by limiting access to emission credits, requiring unnecessary controls and/or emission credits for current highly efficient, clean energy production facilities and destabilizing the future price and supply of natural gas. Dow continues to urge EPA to consider the enclosed and previously submitted comments to implement changes that ensure the final CAIR will:

-Provide an efficient market-based allowance process that appropriately credits current environmentally clean production facilities and does not disadvantage future production units,

-Encourage the use of efficient co-generation (CHP) technologies,

-Avoid policies and requirements that drive fuel switching and economic disruption of natural gas markets, and

-Ensure a stable, known regulatory environment for companies with facilities in many geographical regions.

Response:
This comment is generally supportive of the approach in the CAIR NFR. While States have the flexibility in how they achieve the CAIR mandated emission reductions, EPA has provided a regionwide cap and trade program as a highly cost-effective mechanism. This cap and trade

program has been designed to achieve the principles recognized by the commenter. First, States that wish to participate in the EPA-administered cap and trade program, must use the model cap and trade rules; therefore, providing regulatory consistency for companies that span multiple States and establishing an efficient market. Second, the use of a cap and trade approach inherently rewards facilities that operate more efficiently and cleaner because they will need fewer emission allowances for each unit of electricity the produce. Lastly, EPA analysis for the CAIR has shown the required emission reductions can be achieved without significant fuel-switching and economic disruption of natural gas markets.

Comment:
U.S. electricity demand grew 60% in the 1990s and continues to compound. Yet, our nation needs new power to remain competitive and increase our self sufficiency. If properly crafted, the EPA's IAQR will encourage new, clean generation resources, diversifying our national generation portfolio and adding value to the 'Triple Bottom Line:'

1. Building U.S. Energy Independence: First, new, U.S.-based wind power makes America less dependent on foreign and fossil fuels. Locking in competitive, stable prices over the long-term with new clean power cuts security, energy and pollution risks to our people.

2. Improving Public Health and Sustainable Economic Growth: Second, new wind power creates cleaner air, cleaner water and improves public health. New, 21st century jobs and technology will be created.

3. Protecting Farmland and our Great Lakes: Third, new renewable energy projects cut air emissions and protect our valuable farmland and our Great Lakes heritage for future generations.

Response:
EPA believes that the final CAIR encourages the three general principles outlined by the commenter.

Comment:
Alliant Energy strongly supports an integrated, market-based approach to controlling multiple pollutants, and believes that the IAQR proposal represents a solid first step toward such an approach. ...Furthermore, the IAQR rule must better address broader issues as embodied in the Clear Skies legislation related to timing of reductions, certainty and flexibility; so as to ensure rules that are cost-effective and do not impact the reliability of the nation's power systems.

Response:
The timing of reductions, flexibility, cost-effectiveness, and potential impact of the reliability electricity grid of the CAIR are addressed in other parts of the CAIR NFR and response to comment document.

EPA recognizes that the power sector is subject to multiple requirements under the CAA and, for several of these requirements, the States have the flexibility to implement these requirements with

programs that meet their unique needs. To the extent that States choose to implement the CAIR emission reduction requirements through the EPA-administered regionwide cap and trade programs, EPA feels that power sector could be provided with some degree regulatory certainty.

Comment:
The City has determined that the proposed rule will have an impact on Chicago, because two coal-fired power plants are located within the City limits and three additional coal-fired power plants are located in the Chicago metropolitan area.

Because power plant emissions may significantly contribute to the City's nonattainment of the ozone and fine particulate matter (PM2.5) National Ambient Air Quality Standards (NAAQS), the City of Chicago strongly believes that an effective cap-and-trade program must address local reductions for areas of potential nonattainment. To that end, the City of Chicago favors a system that sets a federal cap and allows States to allocate allowances rather than a national system that provides allowances directly to utilities. This approach will allow States to plan and implement programs that will achieve ambient air quality improvements in the regions that need them most.

Response:
The CAIR is designed to reduce the regionwide transport of PM2.5 and ozone precursors (i.e., NOx and SO2) to assist States in achieving the PM2.5 and ozone NAAQS. While some non-attainment areas are projected to come into attainment as a result of the CAIR, some areas will remain in non-attainment. Consistent with the CAA, States will take additional local measures to address any persistent non-attainment issues.

The optional CAIR cap and trade programs provide States with a mechanism to cost-effectively reduce their emissions that contribute to interstate transport (with some local benefits). These cap and trade programs are not designed to achieve all of the reductions necessary to bring all non-attainment areas into attainment, but are designed to work in conjunction with any local measures that States include in their SIPs.

The final CAIR provides States with the flexibility for States to allocate the CAIR annual NOx allowances using whatever approach is best suited to their circumstances, including addressing any persistent non-attainment. EPA does not have the authority to alter the allocation of the Acid Rain Program's SO2 allowances, which are allocated directly to individual sources under title IV.

Comment:
While ERCC member companies welcome innovation in implementing the Clean Air Act ('the Act'), we recognize that the IAQR rule is at the beginning of an iterative process of rulemaking. At the outset, we wish to make clear that reasonable cap and trade programs can be a far more rational approach to reducing emissions than command-and-control regulations and frequent litigation. However, if multi-emissions proposals ultimately are adopted that sacrifice fuel diversity or electric reliability, the result will be unacceptable to both industry and consumers.

While ERCC member companies use a variety of fuels and technologies to provide electricity,

ERCC members strongly believe that rational clean air policy must recognize and support the continued use of America's vast coal resources.

ERCC supports policy options that preserve and protect human health and the environment while simultaneously encouraging energy efficiency and a reliable supply of low-cost electricity.

While ERCC is certainly in no position to endorse the IAQR rule as presently drafted, we are also cognizant that material misrepresentations are being made simple to undermine the confidence of the public in sensible reform.

The IAQR rule can improve the efficiency of the Act's implementation, and the current proposal is a start in that direction. If the regulatory program is structure properly, it can also achieve energy and environmental goals with all coal types remaining viable. ERCC member companies look forward to working with EPA in developing a regulatory program appropriate to both environmental and energy security objectives.

Response:
The commenter generally supports the CAIR and the EPA believes that the final CAIR accomplishes the goals of protecting the environment while encouraging efficient energy generation and a reliable supply of low-cost electricity. The EPA analysis in the RIA projects that the CAIR will not significantly impact the generation mix in the affected States nor will it result in significant coal switching. Additionally, in section IV of the preamble, the EPA summarizes its examination of the electricity reliability issue and its determination that CAIR will not provide a reliability problem to the nation's power supply.

Comment:
The rule could subsidize controls already installed by facilities under previous local and federal NOx programs in States with poor air quality. Allowing these States to receive credits for emissions under 0.15 lb/mmBtu would set up a mechanism by which they could sell allowances to offset the cost of previously required controls, not controls required by this rule. Therefore facilities in clean States which are now brought into a program for the first time, despite having no nonattainment areas, would potentially have to purchase emission credits on the market, thus; subsidizing previous controls in dirtier States.

Response:
EPA disagrees with the commenter's statement that "facilities in clean States which are now brought into a program for the first time, despite having no nonattainment areas, would potentially have to purchase emission credits on the market, thus; subsidizing previous controls in dirtier States." Sources must comply with any State or local emission reduction requirements to address persistent non-attainment issues both before and after implementation of the CAIR. States already account for these reductions in their SIP demonstrations.

EPA also disagrees with the comment that the CAIR should include a mechanism by which previously controlled facilities could "offset the cost of previously required controls." The cost of

complying with these State and local programs should be considered as part of their own regulatory development. Further, by using a cap-and-trade approach sources that comply with more stringent control requirements that are also subject to regional NOx cap-and-trade programs, such as the NOx SIP Call or the CAIR (for sources in States that choose to use the EPA-managed NOx cap-and-trade program) inherently benefit from early or over control. More specifically, EPA would allow them to bank excess NOx SIP Call allowances into the CAIR for compliance and they may also sell excess NOx SIP Call or CAIR allowances.

Comment:
Two options for compliance with the IAQR were proposed. The first option is an interstate cap and trade system that caps emissions from the electric generating sector, thereby reducing costs of emission reductions while ensuring that the required reductions are achieved. This system mirrors the acid rain systems and has economic advantages, therefore MEUEC supports this approach and is opposed to an approach that would issue the allowances to the States and allow the States to operate independently from cap and trade program across the control region.

Response:
This comment is generally supportive of the cap and trade approach taken in the final CAIR. The CAIR provides States with the flexibility to meet the mandated emission reductions using whatever approach best suites their needs. This includes flexibility in allocating CAIR NOx emission allowances.

Comment:
Experience with the SO2 allowance trading program under the CAA title IV Acid Rain program demonstrates that a market-based program will efficiently deliver emissions reductions. Thus, Alliant Energy strongly supports the IAQR proposal's cap and trade approach. However, we offer the comments below related to different aspects of the Proposal's trading provisions.

Trading should be allowed across the broadest possible interstate region to capitalize on all efficiencies. Unfortunately, the IAQR proposal leaves many issues subject to State-by-State variability and interpretation, which could result in a less efficient and comprehensive program. Of particular concern is that the IAQR allows States to exclude the Model Cap and Trade Rule from their SIP filings, which inevitably will limit national trading. Therefore, EPA should mandate State participation in broad interstate trading markets in the final rule.

Response:
EPA has provided States with the option of achieving the CAIR-mandated emission reductions through EPA-managed cap-and-trade programs that our modeling has shown to cost-effectively accomplish the programmatic goals. EPA may not supercede a State's right to achieve the NAAQS, and related emission reductions, through mechanisms of their choosing that they demonstrate to be effective. EPA does not have the authority under title I to mandate that States use a particular remedy (e.g., a regionwide cap-and-trade program) to reduce emissions.

Comment:

Buckeye is disappointed that EPA has yet to adequately account for the significant emissions reductions already made by Buckeye and other electric utilities under other programs. The Acid Rain Program has resulted in significant reduction of SO2 emissions from power plants. The more recent NOx SIP Call is ready to begin the significant reduction of NOx from the same sector. All of these reductions have cost hundreds of millions of dollars to achieve, a cost borne almost solely by Buckeye and the rest of the electric utility industry. Buckeye recently installed SCRs on both of its Cardinal units at a cost of nearly 200 million dollars. Buckeye asks that EPA develop a program that is as flexible and cost-effective as possible. To accomplish this, EPA will need to revise several aspects of its current proposal.

Response:
The cap-and-trade programs of Acid Rain Program (for SO2) and the NOx SIP Call are designed to provide incentives for sources that make significant reductions by creating a market on which they can sell excess allowances. This concept is carried forward into the CAIR which provides States with the option of achieving the EPA-mandated SO2 and NOx emission reductions through the use of EPA-managed cap-and-trade programs. Not only will sources have incentives to over-control emissions so that they can sell excess allowances once the CAIR has begun, but, because sources may also bank Acid Rain Program SO2 allowances and NOx SIP Call allowances into the CAIR for compliance, the public also benefits from early reductions of SO2 and NOx emissions.

Comment:
Two options for compliance with the IAQR were proposed. The first option is an interstate cap and trade system that caps emissions from the electric generating sector, thereby reducing costs of emission reductions while ensuring that the required reductions are achieved. This system mirrors the acid rain program, has economic advantages and streamlines implementation, therefore Associated supports this approach and is opposed to an approach that would issue the allowances to the States and allow the States to operate independently from a federal cap and trade program.

Response:
This comment is generally supportive of the approach taken in the final CAIR.

Comment:
Should the IAQR and Mercury rules be implemented as proposed, then a fundamental economic shift will occur in the allocation credit market. The IAQR will reduce the available credits for SO2 and NOx, causing their value to increase significantly. The agency's own projections show these credits increasing to about $1,000 per ton. Mercury credits are projected to be approximately $2,200 per ounce. With these credit prices, it may become economically advantageous for a lignite-fired EGU to fuel switch. Such a fuel switch would not be done for the purpose of reducing emission levels to prescribed levels, but rather to maximize available credits for sale and thus form a profit center for the EGU. We do not believe it is the intent of the CAA to create such an economic situation. This scenario would cause serious damage to the nation's lignite production industry and create economic hardships in a number of States and regions.

A lignite-fired EGU cannot easily switch to subbituminous coal. However, if the price of credits is high enough, it may become economically feasible. An EGU can change its coal feed and air delivery systems to make accommodations that will allow subbituminous coal to be burned in a lignite-fired boiler. These changes will not increase the EGU's overall efficiency and it may even degrade it. Emission controls, such as scrubbers, will not necessarily be added. However, the fuel switch can be enough to reduce emissions from baseline levels and thereby create more credits available for sale.

Income from credit sales ends up damaging the lignite industry, reducing fuel diversity, depressing the economies of several States, and costing thousands of jobs. The agency should not be creating a situation that will cause economic harm to several regions of the country and have no environmental benefit. This is not what Congress intended for the Clean Air Act nor should it be acceptable to the agency.

Response:
Under title IV, the CAA establishes an SO2 cap-and-trade program to control emissions that provides incentives for sources to control their emissions to the degree that is cost-effective for them. The SO2 market provides a mechanism for affected source category to find the least cost emission reductions. Building upon this successful program mandated by the CAA, the CAIR provides a optional cap-and-trade programs that States may choose to use to achieve the EPA-mandated emission reductions. EPA analysis has shown that the mandated emission reductions can be achieved in a highly cost-effective manner using the regionwide, EPA-managed cap-and-trade programs. Should a State elect to use the EPA-managed cap-and-trade programs, then each source would have the flexibility to develop it's own unique compliance strategy (e.g., including fuel-switching and/or installing post-combustion emission controls).

In addition, EPA modeling (provided in the August 6, 2004, CAIR NODA) projects lignite use to slightly increasing through 2015. The commenter did not provide analysis to support their claims that lignite industry would be damaged, fuel diversity would be diminished, and thousands of jobs would be lost as a result of CAIR.

Comment:
EPA proposes that EGUs in the SO2 cap and trade program be allowed to use their title IV SO2 allowances according to the following schedule: allowances dated Prior to 2010 at 1 allowance per each ton of SO2 emitted; allowances dated 2010 through 2014 at 2 allowances per each ton of SO2 emitted; and, allowances dated 2015 and beyond: 3 allowances per each ton of SO2 emitted. EPA has stipulated that any State participating in the cap and trade program must require its EGUs to submit title IV allowances at these ratios.

EPA has not requested comment on this issue, but it should have. The proposed ratios for allowance spending and trading are purely arbitrary. If SO2 control budgets were appropriately based on BACT, corresponding allowance retirement ratios would be significantly higher than proposed. At the very least, States may need to adjust these ratios to address either intra- or

interstate nonattainment concerns. EPA is signaling an unwillingness to cooperate with States in providing flexibility for individual attainment plans.

Response:
EPA has required those States choosing the achieve the mandated emission reductions through the use of the cap-and-trade programs to adopt the model rules (with some specific exceptions identified in the preamble), which use specific retirement ratios for different vintages of title IV SO2 allowances. EPA has required that States in the regionwide trading program adopt the model rules to provide consistency for sources from State-to-State. (See preamble for further discussion.) In addition, it is necessary for retirement ratios to be consistent across the trading States to ensure that the SO2 emission reduction goals are met independently of any potential shifts in generation between States. In brief, if utilization shift to a State with less stringent retirement ratios, fewer emission reductions would be required. (See SNPR preamble for further discussion.)

The CAIR is designed to address interstate emissions that contribute nonattainment in other States. It is meant to assist States in attaining the NAAQS and some States will need to additional, local measures to address their any persistent nonattainment issues. See section IV of the CAIR NFR for additional discussion of budget levels and BACT.

Comment:
As EPA moves forward in developing the supplemental rule establishing a model trading program, the agency must bear in mind that the proposed methods of allocating allowances will be central to the success of the rule. In particular, the overlay of the SO2 trading program on the existing Acid Rain Program will be important, as it is a complex and potentially confusing approach to achieving the goals of the program. Presumably, EPA will issue a model rule with allocation methodologies for SO2 and NOx and minimum program elements. States will then be free to adopt the EPA methodologies in toto or to develop a State-specific program based on the minimum program elements established by EPA. EPA must ensure that the minimum program elements include equitable distribution of allowances to affected sources, consistent allowance surrender provisions by those affected sources, consistent quantification of emissions, unimpeded trading of allowances and consistent banking provisions. States should have the flexibility to establish the appropriate unit specific emission limitations to allow trading which does not create local issues.

Response:
EPA's model cap-and-trade rules are designed based upon principles similar to those mentioned in this comment. As proposed in the SNPR, today's final rule provides States with the flexibility to allocate CAIR NOx allowances base upon their own methodology. EPA has provided an example NOx allocation approach, complete with regulatory language, that States may use. States do have some limited flexibility to allocate CAIR SO2 allowances, should they demonstrate that they achieve SO2 reductions in excess of the EPA-mandated levels. However, title IV allowances will continue to be allocated in accordance with CAA.

Comment:

As EPA moves forward in developing the supplemental rule establishing a model trading program, the agency must bear in mind that the proposed methods of allocating allowances will be central to the success of the rule. In particular, the overlay of the SO2 trading program on the existing Acid Rain Program will be important, as it is a complex and potentially confusing approach to achieving the goals of the program. EPA must ensure that the rules foster equitable distribution of allowances to affected sources. Presumably, EPA will issue a model rule with allocation methodologies for SO2 and NOx and minimum program elements. States will then be free to adopt the EPA methodologies in toto or to develop a State-specific program based on the minimum program elements established by EPA. This will allow States the flexibility to address equity issues within the States related to original Acid Rain allocations or other issues. Texas Genco supports the development of model rules that allow States this type of flexibility.

Texas Genco also recommends that EPA recognize Clean States in the development of the model rules. Congress acknowledged that certain States are already structurally low emitters of SO2, and chose to reward that fact by granting these States additional allowances. This was also an acknowledgment that the Acid Rain Program had the potential to disadvantage sources in these States significantly. As the proposed IAQR could amplify these unintended consequences, EPA should follow the precedent set by Congress in recognizing these States in the structure of the IAQR program.

Response:
See above response to comment from Reliant Resources, Inc. (OAR-2003-0053-0721). Further, the allocation approach of title IV, which allocated allowances to individual sources, will be continued unaffected by the CAIR because these are specified in the CAA.

Comment:
The proposed mercury rule and IAQR provide highly aggressive targets for reduction of mercury, SO2, and NOx. While some have criticized the proposed rules as achieving 'too little, too late,' let me assure you that this is far from the case. To take a step back, from the 1990s through 2005, Cinergy alone will have spent more than $1.7 billion on air pollution controls primarily for SO2 and NOx reductions under existing programs. While actual costs will depend on the final rules, we estimate Cinergy's costs for compliance to be over $1.5 billion; about as much or more than the cost of the earlier reductions. The proposed rule for a mercury cap and trade approach will reduce mercury emissions by 70% when fully implemented. In addition, SO2 and NOx emissions will be reduced by 70% and 65% respectively. Compliance with these aggressive targets will require an unprecedented effort on the part of the power generation industry.

Cinergy Proposes an Alternative Approach for Early Reduction Credits and Integrating the IAQR Cap-and-Trade Program With the NOx SIP call.

An Alternative Approach to Coordinating the NOx SIP Call NOx Trading Program With the IAQR's Regional NOx Cap-and-Trade Program Achieves Desired Results More Efficiently. Cinergy believes EPA should request comment in the SNPR on an alternative approach to transitioning from the current regulatory scheme to one, integrated program in 2015. The transition

program described herein would achieve substantial environmental benefits through earlier and greater reductions. Most notably, the program would permit SIP call sources to earn one allowance for every two tons of non-ozone season NOx reductions prior to 2010. EPA could prevent flooding of the bank and excessively high NOx emissions during subsequent ozone seasons by creating an integrated NOx SIP call/IAQR cap-and-trade program consisting of an ozone and non-ozone trading season. EPA could provide that ozone season allowances can be used year round, but non-ozone season allowances can be used only during non-ozone season.

Cinergy's Proposal Will Provide Significant Environmental Benefits. An integrated, bifurcated transition program would encourage early NOx emissions reductions by permitting sources to earn ERCs. NOx SIP call sources, as well as units that complete SCR installations prior to January 2010, will have the incentive to incur the expense of operating controls year round before the Phase I cap takes effect. Substantial environmental benefits will be achieved through early reductions that irreversibly benefit the environment. The program will achieve greater reductions because two ERCs would be retired for every ton of NOx reduced.

Cinergy's Proposal Will Ensure Electric Reliabiltiy, Provide Significant Cost Savings, Alleviate Control Installation Concerns, and Solve the 'Stranded' Non-EGU Problem. Non-EGUs subject to the SIP call but not subject to the IAQR would be swept into the bifurcated program. By enlarging, rather than bisecting, the trading market, EPA will stimulate the trading market which will maximize pollution control efficiency and cost savings. Expanding the market will also ease potential burdens with a January 2010 deadline by giving sources flexibility to defer installation of control technology, if necessary. Importantly, this approach avoids problems associated with an otherwise orphaned, non-viable non-EGU SIP call market, namely, that non-EGUs may not be able to generate credits sufficient to replace the EGU credits on which they have planned to rely for compliance. Including them in the IAQR ozone season market will gave them continued access to these allowances.

Flow Control Is Not Necessary to Prevent Allowance 'Flooding' in the Ozone Season. The NOx SIP call flow control provision would no longer be necessary under this alternative approach to integration. By permitting ozone season allowances to be used year round and non-ozone season allowances to be used only during non-ozone season, EPA will encourage the flow of allowances out of ozone season. In addition, emissions limitations required under the IAQR are more stringent than those required under the SIP call, making it more likely that allowances will flow from ozone season to non-ozone season. Finally, regularly scheduled non-ozone season maintenance will further enhance the flow of allowances to non-ozone season because sources will need allowances to cover emissions while SCR equipped units are taken offline.

Response:
EPA is finalizing the CAIR with an annual and ozone-season NOx reduction requirement. EPA has addressed specific issue, such as early reduction incentives, market restrictions, and flexibility for States to address emissions from NOx SIP Call non-EGUs in the CAIR NFR preamble and other sections of this response to comment document.

Comment:
Expanding the cap and trade program to include more States will benefit the environment by creating more emissions reductions and a more liquid allowance market. CE supports EPA's proposal for transitioning from title IV to IAQR for SO2. CE recommends that any adjustments to the original title IV SO2 allowance allocations be administered by EPA and the account owners.

Response:
The final CAIR includes those States that have been show to significantly contribute to nonattainment of the PM2.5 and ozone NAAQS. Further, the SO2 trading market will continue to encompass the contiguous United States as it will include all Acid Rain Program sources: maintaining its current liquidity. The liquidity of the EPA-managed CAIR NOx cap-and-trade programs will be influenced by the number of States that choose to participate, but EPA believes that, because the CAIR affects a larger region than the NOx SIP Call, the market should be viable. The final CAIR will not adjust the title IV allocations.

Comment:
Market-based cap and trade programs, such as the one proposed in the Interstate Air Quality Rule, have proven to be very effective. In fact, the existing cap and trade program currently in effect for SO2 has been very cost effective and industry has an almost perfect record of compliance. In a report to Congress in January of 2004, the Research Council of the National Academy of Science recommended that when regulating multiple pollutants from similar sources, the EPA should use a market-based cap and trade approach to address regional transport of pollution.

Response:
This comment is generally supportive of the approach taken in the final CAIR.

Comment:
Two options for compliance with IAQR were proposed. The first option is an interstate cap and trade system that caps emissions from the electric generating sector, thereby reducing costs of emissions reductions while ensuring that the required reductions are achieved. The second option requires meeting a State emission cap through measures selected by the State. Aquila recommends the first option be the only available option because it should allow for more economical reduction of emissions.

Response:
See response to comment submitted from Alliant Energy Corporate Services for Wisconsin Power & Light, Interstate Power & Light Alliant Energy Generation, and Alliant Energy Resources (OAR-2003-0053-0663).

Comment:
Our greatest concern with the Interstate Air Quality Rule (IAQR) as proposed is the reliance on cap-and-trade mechanisms, specifically with the proposed use of the title IV SO2 program, which would impose costs on all power plants. The rule as proposed, would effectively force even ultra-clean plants nationwide to subsidize clean-up at old, uncontrolled plants without any certainty that

reductions will in fact achieve the desired effects in non-attainment areas. Niche coal and lignite production could be put at risk in the process, as clean plants could consider switching to even lower sulfur or nitrogen coal options due to a shift in busbar fuel economics driven by new or higher emission allowance costs. This could impact negatively not only Westmoreland, but also the Crow and Northern Cheyenne Tribes and the State and local communities in Montana, North Dakota and rural Texas that rely on the substantial royalties, taxes, employment, and other economic and social benefits generated by our operations.

Response:
This comment is addressed elsewhere in this response to comment document.

Comment:
As proponents of market-based approaches to promote renewable energy,[1] we believe that the Environmental Protection Agency (EPA) must carefully structure its regulatory treatment of interstate pollution transport in ways that facilitate expansion of pollution prevention actions. These comments articulate our views on the EPA's June 10 supplemental proposal for interstate air transport and complement on the proposed Interstate Air Quality Rule

We commend the provisions of the supplemental rule that reaffirm the authority of the States to determine the choice of allowance allocation approaches under the proposed Federal cap-and-trade program for nitrogen oxides (NOx). We are pleased that the proposed rule emphasizes that 'for NOx allowances, States have the flexibility to allocate their EGU [electric generating unit] NOx budget to individual units however they choose.

Moreover, we support the useful guidance in the proposed rule that explains how the choice of allowance allocation approach influences the behavior of the electric generating industry. The proposed rule underscores the fact that certain allocation approaches (e.g., updating approaches, output-based systems, renewable set-asides) will: (1) spur the use of renewable energy (e.g., wind, solar generation); and (2) encourage utilities and other electric generators to improve the fuel efficiency of generating units. In addition, the proposed rule advises States that alternative allocation approaches (e.g., permanent allocations, input-based systems) will tend to favor continued electric generation from older fossil-fueled units.

Instead of providing a single model rule, we recommend that EPA provide the States with several alternative approaches. In particular, we urge the agency to draft detailed regulatory language that provides the States with a model rule that encourages renewable energy development through the NOx allowance allocation process. Such detailed language would spell out alternatives, including output-based allocation approaches for new and existing sources and early and frequent updating of allowance allocations.

Response:
Today's final CAIR maintains States' ability to achieve the EPA-mandated emission reductions using an approach of their choosing.

Comment:
Necessity of Defining the Effect of IAQR Trading Outside the IAQR Regions: EPA has outlined, in the Preamble, how the regional trading programs and the increasing allowance surrender ratio will operate. What is not described is how the IAQR will affect States that are not included in the IAQR regions. If trading between IAQR States and non-IAQR States is available, will that drive up allowance prices, thus impacting those States even though they are not part of the program?

We operate generation facilities in New Hampshire, a State that is not included in either region. States that are not adversely affecting another State's air quality should not be disadvantaged by the implementation of the IAQR. Our concern is that the flow of allowances into the IAQR region will decrease the availability of allowances to non-IAQR States. Therefore, NUSCo requests clarification of how the IAQR will affect existing Acid Rain and NOx trading programs in States that are not part of the IAQR regions.

Response:
title IV affected units in States outside of the CAIR region would continue to receive SO2 allowances in accordance with their original title IV allowances. EPA projects that the CAIR would not significantly affect, over the long-term, the value of SO2 allowance prices. For NOx, States outside of NOx SIP Call region would not be affected by the CAIR NOx requirements. The State of New Hampshire can continue to operate its seasonal NOx reduction program, which is not a part of the NOx SIP Call and uses separate NH NOx allowances for that program. Should the State of New Hampshire voluntarily participate in the CAIR NOx trading program through a special provision in the final action on CAIR, sources in the State would receive CAIR NOx allowances as described in the preamble of today's rulemaking.

Comment:
We fully support the major premise of the Environmental Protection Agency's (EPA) IAQR that those market-based mechanisms should be utilized to reduce compliance costs.

Response:
This comment is generally supportive of the approach taken in the final CAIR.

Comment:
Examine the creation of smaller trading regions (e.g., Texas, Louisiana, Arkansas, and Oklahoma) that would maximize the benefits to downwind States' non-attainment and near nonattainment areas of the NOx reductions required in upwind States.

Response:
The CAIR model cap-and-trade programs are patterned off of the successful Acid Rain SO2 Program, which has reduced millions of tons of SO2 and NOx. For the CAIR region, sources would need to reduce emissions even more, ultimately achieving a 60-70% reduction in the region. Furthermore, EPA analysis has shown that emissions reductions occur where they are needed most, since the most cost-effective sources to control are usually the dirtiest. A cap and trade program like CAIR helps ensure that significant reductions are achieved as cheaply as possible,

without disruptions to electricity markets and energy supplies. EPA analysis shows that limiting the geographic scope of the program can increase costs without necessarily providing increased benefit or greater emission reductions. As a design principle, including a large number of sources with a range of compliance costs without limitation to trading or geographical restrictions improves the market and achieves the necessary reductions in the most cost-effective manner.

Comment:
MOG and individual MOG members reserve the right to submit more detailed comments on EPA's proposed cap-and-trade program after EPA publishes its supplemental notice of proposed rulemaking.: EPA raises the possibility of requiring States that elect to participate in the EPA-managed NOx cap and trade program be required to participate in the EPA-managed SO2 program, and vice-versa. 69 Fed. Reg. 4633. EPA's concerns that such a proposal would intrude upon the prerogatives of the States in developing their SIPS are valid. The U.S. Court of Appeals for the District of Columbia Circuit very clearly States, '. .. That Congress did not give EPA authority to choose the control measures or mix of measures States would put into their implementation plans.' Virginia v. EPA, 108 F.3d 1397, 1410 (D.C. Cir. 1997). It is also troubling that EPA, in its recently developed transport plan strategy, would presume that the selection of controls for one national ambient air quality standard (NAAQS) could be used as a tool for forcing selection of a control for another NAAQS. There is no standard or basis for such an assumption.

Stepping back from the legal flaws of EPA's suggested proposal, a question arises as to the practical basis for even considering the stated plan. EPA itself explains the success of its historical cap and trade programs, placing specific emphasis upon the NOx SIP Call. 69 Fed. Reg. 4628-4630. Nowhere in those discussions, does EPA suggest that there were States' that had refused to participate in the cap and trade program and therefore had derailed the success of it as a tool for attaining regional improvements. Every affected State joined in the EPA cap and trade program of the NOx SIP Call. EPA itself lauds the advantages over the traditional command-and-control strategies for a market-based approach and yet is tempted to apply the old school of EPA directives.

MOG does not support any effort by EPA to erode the autonomy of the States to develop their own SIPs. MOG urges the implementation of a uniform cap and trade program. EPA needs to recognize the impact of market pressures the States will be forced to address as an important impetus for adoption of a uniform cap and trade program and resist the temptation to apply some regulatory directive.

Response:
Today's rule finalizes provisions that would allow a State to participate on one or both the EPA-managed cap-and-trade programs. Those States that elect to participate in the EPA-managed trading programs will be required to adopt the provisions of the model rule with exception of a few programmatic elements for which there is some State flexibility.

Comment:
Part VIII.C.3. of the preamble speaks of the possibility of updating allocation of control requirements as an alternative to permanent allocation. We strongly urge the EPA to choose permanent allocation. Controls are expensive, and the ability to plan is much more efficient than attempting to hit a moving target. (We recognize that complete permanence is not in the cards, as is dramatically illustrated in the example of the title IV SO2 allowance program and the current proposal. But going into a new program with a discrete purpose, we urge that maximum stability is a sound goal.)

Response:
In today's SO2 model rule, title IV allowances would continue to be allocated as specified by the CAA. States have flexibility in the NOx allowance allocation methodology and, should the State demonstrate that they are achieving additional SO2 emission reductions, limited flexibility in allocating additional CAIR SO2 allowances. EPA believes it is important to provide States with as much flexibility as possible to meet national environmental standards while requiring State-by-State consistency for those elements that are necessary to seamlessly implement interstate programs. There is no practical basis to prescribe a NOx allocation approach for States. (This excludes some aspects of the allocation methodology, such as the deadlines for States to notify EPA of the unit-by-unit allocations, that need to be consistent across the States.) (See the preamble for further discussion of flexibilities and requirements for allocation approaches.)

Comment:
To date, we have seen no analysis for this proposal that would demonstrate sufficient levels of NOx reductions in during the ozone season ensuring that there is no backsliding when transitioning from the summer-time NOx SIP call program to an annual IAQR trading scheme. There should be a nested, eastern ozone season cap to ensure that excessive allowances are not used in the summer months - exactly at the time when reductions are needed the most.

Any trading under an annual NOx cap should include a mechanism ensuring significant ozone season reductions.

Response:
The final CAIR includes an ozone-season NOx program.

Comment:
We fully support the major premise of the Environmental Protection Agency's (EPA) rule that market-based mechanisms should be utilized to reduce compliance costs.

Response:
This comment is generally supportive of the approach taken in the final CAIR.

Comment:
For a trading and banking structure to truly perform equivalently to a performance-based approach, on an environmental basis, the program has to operate as a viable market on the margin

of the system, enabling the risks associated with going beyond the minimum environmental needs. The proposed program instead operates at a level of residual emissions that does not come close to addressing the core environmental need. The current acid rain allowance market and this proposed title 1 NOx and SOx allowance market rewards poor levels, not exceptional levels, of environmental management specifically because the market is tuned toward sustaining a residual emissions pool far higher than the regional ambient air quality can support.

Several approaches can be pursued to ensure that air quality is improved where and when needed. One potential allocation mechanism provides two levels of currency. One level is associated with credit allocated for the marginal reductions that go beyond a 'best' level of control by boiler technology type reflective of our much lower recommended Phase 2 allocation targets [see following section]. This portion of allocations should be consistent between Phase 1 and Phase 2 and these credits should be usable in the broadest geographic market for the longest time frame associated with any banking/trading structure.

A second, more transitional currency can be established to identify the emission allocations that reflect the difference between Phase 1 and Phase 2 level. This should also be limited by a certain minimum performance level, somewhat less stringent than prior currency. Any such Phase 1 'excess' currency should be usable in only a geographically constrained market to ensure some early year improvement in local air quality. For instance, this type allocation might be marked as a 'Lake Michigan Phase-1 NOx allowance' as opposed to a more generalized 'Phase-2 Maximum NOx Control allowance'.

The importance of this more limited trading structure is that instead of creating a general allowance pool with unlimited life and utilization, based on either the base year allocation or the proposed somewhat lower Phase 1 allocation, these performance-based allowances are generated only by the difference between a high relative performance level and any lower actual emission level. The Phase 1 allowances should reflect a small multiple to the BACT-type performance level such as 1.25 to 1 and the Phase 2 allowance should be limited to that increment below a BACT performance level.

Response:
See response to comment from Alcoa Corporate Center (OAR-2003-0053-0729).

Comment:
A Cap and Trade Program Is the Most Effective Approach for Multi-pollutant Reductions: As a matter of principle, the FMEA supports a cap and trade program for addressing reductions of SO2 to reduce interstate transport of fine particulate matter (PM2.5) and ozone. We agree with EPA that the title IV Acid Rain Program of the Clean Air Act Amendments of 1990 has been a major success in obtaining significant reductions of SO2 quickly in a highly cost effective manner. We further agree with EPA that cap and trade programs create financial incentives for EGUs to develop improved pollution control equipment that lower costs and, when combined with appropriate monitoring and reporting requirements, will produce near universal compliance and radically lower the costs of enforcement compared with command and control programs. Most

importantly, a properly designed cap and trade program can protect electric power consumers from excessive rate increases. Command and control programs with truncated deadlines are more likely to cause fuel switching that will threaten fuel diversity, a key to affordable electric rates and natural gas prices, and result in higher implementation costs as too many utilities bid up the price of limited labor and other costs of install control technologies.

Response:
This comment is generally supportive of the approach taken in the final CAIR.

Comment:
5. Non-Emitting Sources Should not be Rewarded by the Rule The proposed rules place no limitations on a States ability to incent or reward non-emitting sources of electric generation through the State-specific allocation of allowances and, as long as those sources are EGUs, the State may participate in the EPA administered multi-State trading program. This approach creates a perverse result when considering the fact that a State cannot seek emissions reductions that make a difference in interstate air quality from sources outside the EGU sector without the consequence of limiting the ability of sources within that State to participate in a broader, market-based trading system while EGU sources that do not emit SO2 and NOx can fully participate in such a broad, market-based trading system. MidAmerican encourages EPA to examine the fundamental purpose of the proposed rules the reduction of SO2 and NOx emissions that significantly contributes to non-attainment of the ambient air quality standards for PM 2.5 and ozone and revise the proposed rules to prohibit non-emitting sources from being allocated allowances.

Response:
The regionwide emission budgets, and the corresponding State-level budgets, are designed to cost-effectively achieve levels of SO2 and NOx emission reductions necessary to accomplish the programs environmental goals. The budgets (i.e., the number of emission allowances created) are the key to getting emission reductions. States can choose to participate in the EPA-managed cap-and-trade programs, which EPA analysis has shown to be highly cost-effective mechanisms for achieving the EPA-mandated emission reductions. EPA believes that States should have as much flexibility in meeting the national emission standards as practicable and has identified some programmatic elements where States can design their own approaches. One such area is the NOx allocation approach, where today's final rule maintains a State's ability to develop their own NOx allocation methodology for use in the EPA-managed cap-and-trade program. See response to comment from Alcoa Corporate Center (OAR-2003-0053-0729).

Comment:
The program structure for trading and banking of allocations needs to be simplified such that the States are certain of emission reductions and resulting air quality impacts. Currently, the emission reductions and air quality impacts of CAIR are determined in a top-down manner. Then the program allows for unrestricted trading, use of both acid rain banked credits and future generated credits, and potential for special State allowances under CAIR. This results in a complex interaction for which it is very difficult to sufficiently estimate actual emission reductions for SIP purposes. This places the burden of uncertainty of a federal program on the States that must

develop attainment demonstration SIPs. The federal program should be able to prove the same certainty of reduction that EPA requires in approving SIPs. For example, when Wisconsin submitted a NOx rule for demonstrating attainment with the 1-hour ozone standard, EPA required an overall mass limit of ozone season NOx emissions under the trading and averaging provisions of the rule in order to gain EPA approval.

The structure of a CAIR-type broad region trading program necessitates a program-wide control level that demonstrates attainment or very near-attainment for the entire area. The proposed program, with no regional restrictions allows emission credits to flow to non-attainment areas with no certainty of actual reductions. Under such a structure, it is the responsibility of EPA to structure the program to ensure all cost-effective controls are actually installed such that attainment is or can be reached for all areas under the program. The average control level must compensate for the potential trading of emission credits and banked allocations into non-attainment areas to such a degree that average reduction levels are not met locally. This compensation is required of any State SIP for attainment demonstration and progress credit purposes.

Response:
The regionwide approach of CAIR is aimed at reducing interstate transport of SO2 and NOx emissions to assist States in achieving the NAAQS. CAIR is not designed to achieve local attainment of the NAAQS on its own. This approach is consistent with the NOx SIP Call. EPA modeling does show that highly cost-effective control levels are achieved through CAIR. (For States that choose to use the EPA-managed cap-and-trade program, sources would have flexibility to determine their best compliance strategy for meeting these control levels.) This analysis, and subsequent demonstration that the control levels are highly cost-effective, includes a mechanism for banking into the CAIR. States can develop local control requirements to address persistent local non-attainment issues that work together with the regionwide reductions of CAIR.

Comment:
Duke Energy is a strong proponent of emissions trading (cap-and-trade) as the most cost-effective way of achieving a given level of reduction. However, the method in which a cap-and-trade program is implemented, principally, the way in which allowances are allocated, is critically important to its overall success. Therefore, a primary objective of any cap-and-trade program must be the equitable allocation of allowances to all affected sources. A cap-and-trade program that allocates allowances unfairly will diminish its overall success by imposing excessive and unwarranted costs on entities that receive an inequitable allocation.

The allocation of allowances can be one of the most, if not the most, controversial aspects of a cap-and-trade program, because the way in which allowances are allocated, if not done fairly, will determine ‘winners’ and ‘losers.’ That is why the allocation of allowances must be as equitable to all participants as possible.

Response:
Allocation of emission allowances is addressed in section XIII..E and F of this response to comment docucument.

Comment:
HPBA supports EPA's proposal to create as part of CAIR's federal cap-and-trade system an allowance set-aside that states could use to promote innovative emission reduction programs. HPBA, however, urges EPA to go beyond that proposal in two ways. First, if EPA does create such a side aside, it should encourage states to use it in part to promote changeouts from old-technology residential wood combustion (RWC) appliances to newer, less-polluting appliances. Second, and more importantly, EPA should splice onto CAIR's cap-and-trade system a program that would allow any person to earn tradeable allowances by causing such changeouts. [[(p.1)]] In its January 2004 report, the National Research Council of the National Academies (NRC) strongly recommended that, in implementing NAAQS, EPA allow maximum use of innovative, market-based programs and leeway for experimentation. Specifically, the NRC urged EPA to model its management of the SIP system after the iterative scientific method that is, by 'encouraging the development and testing of innovative strategies and technologies by not requiring predetermined and agreed-upon benefits for every strategy but periodically evaluating their effectiveness.' In a March 2004 memorandum, OAR's Principal Deputy Assistant Administrator, Rob Brenner, indicated that OAR had taken the NRCs recommendations to heart and wanted to consult with the Clean Air Act Advisory Committee (CAAC) about how best to implement them. [[(p.6)]]

Conventional RWC appliances offer a perfect opportunity for the approach recommended by the NRC. HPBA estimates that the number of such appliances in the CAIR region is 10.8 million (see attached Table 2). The traditional command and-control approaches, such as emission limitations or burn bans, are simply not workable ways to generate changeouts on a massive scale within the timeframe for attainment of the PM-2.5 NAAQS. There are, however, several innovative approaches that collectively do offer some hope of generating a useful number of changeouts. Examples are Supplemental Environmental Projects (SEPs) in the enforcement context, NSR offsets, and Clean Air Investment Funds (CAIFs). [[(p.6)]] [[(See p. 11 for Table 2)]] The June supplement to the CAIR proposal suggested yet another innovative approach namely, SO2 allowance set-asides that individual states could use to further their own goals, including conceivably local changeouts of RWC appliances. HPBA strongly supports this suggestion, but urges that EPA, in its final action package, spotlight conventional RWC appliances as an appropriate target for a program using such reserved allowances. [[(p.6)]] HPBA, however, wishes to offer an additional idea: the simple grant of allowances in exchange for proof of a certain number of changeouts of conventional RWC appliances. In other words, HPBA urges EPA to add to the CAIR cap-and-trade system a program under which EPA would issue a SO2 (or Nox) allowance annually to any person who presents proof that (1) a certain number of changeouts have occurred (i.e., proof of permanent and environmentally proper disposal of the old appliance, and installation in its place of a new-technology appliance) and (2) the person was the triggering cause of the changeouts. The person would be free to use the allowances to meet the persons obligations under the cap-and trade program, to bank them, or to trade them. [[(p.7)]] Such a 'bounty' program would not only be a valuable addition to the suite of innovative measures that have some hope of reducing RWC emissions, but also it would be consistent with the basic design of the CAIR cap-and-trade program. The emissions from conventional RWC appliances are surely contributing to PM-2.5 nonattainment to some extent, at least in some local situations and

probably also through regional transport. There is, therefore, some correlation between the value of reductions in RWC emissions and reductions in emissions of SO2 and Nox from EGUs. What that correlation is and hence the appropriate ratio of changeouts to allowances will have to be studied and determined. But it is clear that the reduction in PM-2.5 and VOCs from the changeouts would 'make room' for a corresponding contribution to atmospheric loadings of PM-2.5 by EGUs. Hence, the allowances given in exchange for the changeouts need not come from a pool of reserved allowances, nor should there be a fatal concern about exchanging SO2 (or Nox) allowances for reductions in PM-2.5 from changeouts. [[(p.7)]] Such a 'bounty' program also would satisfy the central requirements that EPA has established for innovative programs, as set forth in the following documents: (1) OAQPS's Final Policy on 'Incorporating Voluntary Programs Into State Implementation Plans' [Memorandum dated January 19, 2000, from Seitz to Air Division Directors] and (2) OAR's 'Improving Air Quality with Economic Incentive Programs,' (EPA-452/R-01-001, January 2001). [[(p.7)]] (See pp. 7-8 for reasons why a bounty program would satisfy the central requirements that EPA established for innovative programs) In proposing in June to establish an allowance set-aside for state use, EPA seems to be expressing a strong desire for keeping decision- making and administration at the state level. That does not appear to be a workable approach in the case of the 'bounty' program that HPBA is proposing here. Certainly, each state that adopts the CAIR cap-and-trade program should consent to the 'bounty' program. But it does not make sense that each such state should be a 'bounty' provider. First, that would unnecessarily complicate the work of a 'bounty' hunter who wants to institute a multi-state changeout program, such as the Great Lakes Great Stove Changeout program described above. Second, the benefits of a changeout program are not just local, but most probably regional. Finally, the job of the 'bounty' provider is entirely ministerial (i.e., confirming the adequacy of the proof against the template in the final EPA regulation, and then accounting for the grant and disposition of the allowances). All of the policy decisions would have been made by the promulgation of the program at the national level, and the consent to the program at the state level. In short, there should be one 'bounty' provider, and it should be EPA. [[(p.8)]] Finally, it deserves emphasis that the 'bounty' program HPBA is proposing here for PM-2.5 purposes will have many important side-benefits, namely, substantial reductions in: (1) emissions of VOCs; (2) impairment of visibility in Class I areas; (3) emissions of HAPs; and (4) wood consumption. [[(p.8)]]

Response:
EPA will consider these suggestions as it works with States to implement the PM2.5 NAAQS and as it responds to the recommendations from the NAS committee on air quality management.

XIII.D. Compliance allowance retirement ratios and vintage restrictions

Comment:
DOE favors simply allocating a proportional reduction in Phase II allowances that matches the Phase II caps. In other words, allocate allowances on a basis of 2.86:1 retirement ratio. We have not offered specific language, but changes are needed in both Chapter II and in all references to a '3:1' retirement ratio in other chapters.

Response:
EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR.

Comment:
SO2 under the CAIR. We believe that trading is essential to the success of this program, just as it is to the Acid Rain program. We share UARG's concern over the ability of EPA's proposed surrender ratios for Acid Rain allowances to go unchallenged. UARG has proposed reasonable back up strategies for EPA. We believe it would be prudent for EPA to incorporate those recommendations.

Response:
See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
In the CAIR Proposal, EPA describes how the proposed 65 percent SO2 reductions that will be required in Phase II of the rule beginning 2015 will use an SO2 allowance retirement ratio of 3- 1. EPA explains that this 3-1 allowance retirement ratio will result in slightly more SO2 emissions reductions than are necessary. EPA proposes two alternatives for addressing this issue, including the alternative of keeping the 3-1 allowance retirement ratio, permitting States to convert these additional reductions into special, reserved 'CAIR SO2 allowances,' and allowing States to allocate such allowance reserves as they see fit, including allowing States to distribute them as incentives to reach policy goals. CAIR Proposal p. 32686.

MMEA and the Michigan Municipal Generators strongly support the approach of retaining the 3-1 retirement ratio, so that CAR SO2 Allowances can be used by States like Michigan to achieve policy goals, including the goal of distributing extra 'hardship allowances' to small public power systems and small EGUs that will otherwise suffer disproportionate costs and impacts under these rules. As explained in MMEA's previous comments to this docket, small EGUs have much more limited and much more expensive compliance options when compared to larger EGUs. Because the SO2 allowance allocation system proposed under CAIR is tied to Clean Air Act title IV SO2 allocation schemes, and are thus so rigid as to preclude any State discretion in allowance allocations, see CAIR Proposal at 32710, the proposal to use excess emissions to create special CAIR SO2 Allowances is a sound and needed approach. It will, as EPA highlights, allow States to pursue a variety of positive clean air policy goals. One such goal should be to support small public power communities and the economically vulnerable, yet critical, units they own and operate.

Response:
EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR.

Comment:
SO2 allowance allocation equity: The Clean Air Interstate Rule (CAIR) proposes that the Clean Air Act title IV, Acid Rain Program SO2 allowance allocation formula remain the same and that the surrender rate of allowances be shifted to 2:1 in 2010 and 3:1 in 2015 (allowances per ton emissions). Minnesota Power has already provided for significant scrubbing on its regulated units (over 80%) and burns low sulfur western subbituminous coal.

Consequently, MP emission rates are only about half the national average for coal combustion. The MP allowance allocation in 2010 without the CAIR rule is about in balance with actual SO2 emissions. However, CAIR proposes that two or three times as many allowances will be required in 2010 and 2015 respectively, leaving MP short in its allowance allocation despite low coal plant SO2 emission rates. A more equitable approach would be to give credit to existing coal unit low SO2 emissions by establishing a set aside pool of allowances. Coal units that are already emitting below the CAIR targeted average coal unit emission rate (e.g. 0.5 lbs/mmBtu) or that did not receive an allocation under title IV would receive a Phase 1 and Phase 2 core allowance allocation sufficient to operate at the CAIR targeted average coal unit emission rates for Phase 1 and 2. This

would assure that units that are already operating with low SO2 emissions receive an allocation sufficient to support operations without being required to purchase supplemental allowances. Otherwise, units that are already scrubbed or burning performance coal could end up paying twice: once to provide for low SO2 emissions and again to buy supplemental allowances created by units that delayed providing for emission reductions until the more stringent CAIR requirements were promulgated.

Response:
EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR.

The criteria for which States are included as part of the Final CAIR is dependant upon a State's contribution to a downwind State's nonattainment. The criteria is not average State emission rate. Sources in Minnesota were found to contribute to a downwind nonattainment area (Chicago), and are thus subject to inclusion in CAIR.

EPA has developed CAIR to provide some flexibility to States regarding allowance allocations. The recommended approach for allocating NOx allowances includes a set-aside starting at 5% of total NOx allowances for new units. States have some flexibility as to how to allocate NOx allowances, and are able to allocate more allowances (greater than 5%) to new units if deemed appropriate by the State. (See final rule preamble for further discussion)

Comment:
EPA Should Set a 3-to-1 Offset Ratio For Post-2014 Allowances: This comment is relevant if EPA insists on not separating CAIR and the Acid Rain Program.

EPA has determined that the 3-to-1 offset ratio originally proposed would result in greater than a 65 percent reduction from Phase II Acid Rain Program allowance allocations. The Agency is soliciting comments on two alternatives for dealing with these surplus reductions -a 2.86-to-1 ratio or a 3-to-1 ratio. The second alternative is to leave the 3-to-1 ratio intact, but to allow the States to convert the extra reductions resulting from the use of the 3-to-1 ratio into special 'reserve' allowances that the States could distribute as they deem appropriate - preferably to new generation units. Of these two options, AECC recommends that EPA choose the 3-to-1 ratio.

Response:
EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR.

Comment:
GCA Supports A 2.86-to-1 Retirement Ratio

With respect to the proposed CAIR Phase 2 SO2 allowance surrender ratio, EPA requests comment on whether affected EGUs should be required to retire vintage-2015 and older title IV allowances at a rate of 2.86-to-1 rather than 3-to-1. GCA supports a 2.86-to-1 retirement ratio as the most equitable and legally supportable way to reduce SO2 transport in the CAIR region. Based on EPAs analysis of air quality benefits and the cost-effectiveness of CAIR controls, EPA determined that the level of reductions that would be highly cost effective corresponds to an annual SO2 emissions cap of 2.7 million tons in 28 States and DC. An annual 2.7-million reduction in SO2 emissions represents a region-wide reduction from title IV Phase 2 allowance levels of 65%.7 The 65% reduction, in turn, is equivalent to a 2.86-to-1 surrender ratio for title IV allowances. By contrast, a 3-to-1 surrender ratio would require a 66% reduction, a level that is not consistent with EPA's 'significant contribution' analysis for the CAIR proposal. EPA has the legal authority to require a 65% reduction region-wide in SO2 emissions because EPA has determined that such reductions are 'highly cost effective.' However, EPA has not determined that a 66% reduction is highly cost effective. Accordingly, GCA urges EPA to adopt a 2.86-to-1 retirement ratio based on EPA's determination that a 65% reduction in SO2 title IV allowances –not 66% –is highly cost effective.

Response:
EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR.

Comment:
EPA must, at a minimum, require all States to use a 2 to 1 retirement ratio for vintage 2010 through 2014 SO2 allowances and a 3 to 1 retirement ratio for vintage 2015 allowances and later to reasonably address concerns about title IV allowances that exceed State budgets. These retirement ratios are the minima necessary to effectuate EPA's proposed emission budgets.

As discussed elsewhere in these comments, Environmental Defense also believes that tighter emission budgets for SO2 and NOx are highly cost effective and necessary to faithfully carry out EPA's responsibility under section 110(a)(2)(D). The allowances retirement ratios should therefore be likewise strengthened to ensure that the lower emissions budgets that reflect highly cost effective reductions and are necessary under section 110(a)(2)(D) to protect human health and the environment from upwind SO2 and NOx pollution are in fact achieved. In sum, the allowance retirement ratio is key to EPA in fact realizing the human health and environmental protections that are the basis for its proposed rule. Without rigorous allowance retirement ratios, the basic foundation of EPA's rule will be severely undermined.

Response:
EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR.

Comment:
title IV SO2 allowance forced retirements at other than a 1:1 ratio under CAIR present significant uncertainties regarding the legality of the CAIR SO2 cap and trade program and should, therefore, be abandoned as CAIR SO2 cap and trade currency beginning in Phase I, notwithstanding allowing the use of vintage 2009 title IV allowances for CAIR compliance.

Response:
See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
title IV SO2 allowance forced retirements at other than a 1-to-1 ratio under CAIR present significant uncertainties regarding the legality of the CAIR SO2 cap and trade program and should, therefore, be abandon as CAIR SO2 cap and trade currency beginning in Phase I, notwithstanding allowing the use of title IV allowances banked prior to CAIR for CAIR compliance.

Under a title IV SO2 allocation system for CAIR, a Phase II the 3-to-1 retirement ratio should be employed to allow allocations to new units. First, we reiterate our earlier comments that urge EPA to scrap the title IV SO2 allocation system beginning in CAIR Phase I, while retaining the 1-for-1 exchange of title IV allowances banked prior to CAIR to meet CAIR requirements. EPA requests comment on whether, under a title IV system, the CAIR Phase II retirement ratio should be 3-to-1 or 2.86-to-1, at 32686 col. 3. At '2.86,' the 65 percent required reductions under Phase II would be met, and at '3,' allowance accounting would be easier and, more importantly, States would have leeway to allocate the excess SO2 allowances-in effect the additional reductions above 65 percent-to further State policies. We support retirement the 3-to-1 ratio, and we urge EPA to strongly recommend to States the extra allowances be given to new EGU units that receive no allowance allocations under title IV.

Response:
EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
We urge that EPA not adopt any allowance trading program that would deprive North Carolina (or any State) of the elimination of emissions that EPA already has determined to contribute significantly to a downwind State's attainment or maintenance difficulties. For example, consider

that under an unrestricted trading program, sources in a State such as West Virginia or Ohio, which contribute to North Carolina's nonattainment, may acquire allowances from sources in States such as Massachusetts and Kansas, which do not legally contribute to our air quality problems. In addition, EPA indicates that through early reductions of SO2 and NOx, sources may be permitted to extend the time during which they emit in violation of the prohibitions of sections 110 and 126. See IAQR, 69 Fed. Reg. At 4618.

This is not to say that adequate safeguards cannot be created in an allowance system that will protect against such results.

Response:
The CAIR model cap-and-trade programs are patterned off of the successful Acid Rain SO2 Program, which has reduced millions of tons of SO2 and NOx. For the CAIR region, sources would need to reduce emissions even more, ultimately achieving a 60-70% reduction in the region. Furthermore, EPA analysis has shown that emissions reductions occur where they are needed most, since the most cost-effective sources to control are usually the dirtiest. A cap and trade program like CAIR helps ensure that significant reductions are achieved as cheaply as possible, without disruptions to electricity markets and energy supplies. EPA analysis shows that limiting the flow of allowances can increase costs without necessarily providing increased benefit or greater emission reductions, and can disrupt allowance markets. As a design principle, including a large number of sources with a range of compliance costs without limitation to trading or geographical restrictions improves the market and achieves the necessary reductions in the most cost-effective manner. Sources in States that contribute to North Carolina are projected to reduce emissions of SO2 and NOx. With CAIR, EPA anticipates that all counties in North Carolina will be in attainment by 2010.

Comment:
EPSA acknowledges the great challenge of achieving this objective particularly in case of the new SO2 trading program. The existing acid rain trading program is prescribed by statute and the allowances for that program have already been allocated. Although further analysis is necessary, and some EPSA members may have differing views, we generally believe that the use of increased SO2 allowance retirement ratios may be an effective mechanism for correcting the 'allowance allocation' inequities under the current acid rain program. Such an approach, when combined with flexible allocation schemes may be an effective mechanism to addressing these inequities.

It may be appropriate for States to establish different SO2 allowance retirement ratios, which provides an avenue for correcting inequities in the current title IV scheme for allowance allocations.

Response:
EPA has developed CAIR to provide some flexibility to States regarding allowance allocations. The recommended approach for allocating NOx allowances includes a set-aside starting at 5% of total NOx allowances for new units. States have some flexibility as to how to allocate NOx allowances, and are able to allocate more allowances (greater than 5%) to new units if deemed

appropriate by the State. EPA does not agree that it may be appropriate for States to establish different allowance retirement ratios for SO2. Any cap and trade program among States must ensure consistency and simplicity, and requiring different retirement ratios for various sources because of the inequities of the existing title IV allowance allocation would extremely complicated to administer and would add necessary complexity. (See final rule preamble for further discussion)

Comment:
The Agency poses the following dilemma for further public comment: that the proposed retirement in 2015 and beyond of sulfur dioxide allowances at a ratio of 3 allowances per ton will result in slightly increased reductions in emissions beyond levels envisioned by the Agency. In other words, the cap on sulfur emissions might actually be lower than initially proposed. The Agency treats this as a dilemma with only two answers: The first is to reduce the proposition to 2.86 allowances per ton. The second option is to retain the 3 to 1 retirement ratio, but allow the States to pool the excess allowances and to distribute them as they see fit. We would propose a third option: no change. Retaining the 3 to 1 retirement ratio will result in fewer emissions and we believe, in a more rapid diminishment of banked allowances. Public comments already received by EPA in the docket support this third option.

Response:
EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR.

Comment:
title IV Allowances: EPA has proposed to allow title IV SO2 allowances to be used in the IAQR program. Under the proposed approach, title IV allowances could be banked before the 2010 compliance date and used for compliance with the new program on a one-to-one ratio at any time. Allowances banked in 2010 through 2014 could be used at a two-to-one ratio, and 2015 and later allowances at a three-to-one ratio. Delaware believes that this arrangement will cause delays in achieving the transport reduction goals by the deadlines. The title IV and IAQR programs are discrete programs with separate goals. Therefore, we recommend that no inter-program trading be allowed.

Response:
The CAIR model cap-and-trade programs are patterned off of the successful Acid Rain SO2 Program, which has reduced millions of tons of SO2 and NOx. For the CAIR region, sources would need to reduce emissions even more, ultimately achieving a 60-70% reduction in the region. Furthermore, EPA analysis has shown that emissions reductions occur where they are needed most, since the most cost-effective sources to control are usually the dirtiest. A cap and trade program like CAIR helps ensure that significant reductions are achieved as cheaply as possible, without disruptions to electricity markets and energy supplies. Allowing the use of title IV Acid Rain Program SO2 allowances for purposes of CAIR facilitates the goal of attainment for the CAIR region, and reasons and justification for doing so can be found in Section IX-B of the final rule preamble.

Comment:
EPA has proposed a 2:1 SO2 retirement ratio for 2010 and a 2.86:1 retirement ratio for 2015, instead of 3:1. EPA explains that the fractional ratio 2.86:1 effectively eliminates the difference between the 2015 SO2 cap and excess SO2 reductions driven by a 3:1 ratio. As an alternative to this fractional ratio approach, EPA suggests a two-step process by requiring retirement of 2015 and later allowances at a 3:1 ratio, and allowing States to retain 'special CAIR SO2 allowances' equivalent to the difference of the 3:1 retirement ratio and the 2015 SO2 cap. This approach increases the administrative burden on affected States, but also allows States to use the special allowances to distribute to EGUs, create a set-aside for new sources, create incentive for local emission reductions to achieve attainment under the PM2.5 NAAQS, auction allowances, or offer SO2 allowances for reductions in other pollutants causing PM2.5 (based on modeling).

Instead of changing the 2015 SO2 allowance retirement ratio from 3:1 to 2.86:1, EPA may consider keeping the 3:1 retirement ratio and reducing the SO2 cap to meet it. This approach further ensures SO2 reductions, while eliminating any potential problems that could arise from fractional allowance trading. Keeping a 3:1 retirement ratio also reduces the effect of no flow control in the Acid Rain Program within the CAIR region.

Response:
EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR.

Comment:
Exelon would like to focus its comments here on the issue of how EPA should implement the proposed IAQR SO2 emission caps. We understand the high-level concerns expressed by EPA in the IAQR that the Agency wants 'to preserve the environmental benefits achieved through title IV and [to] maintain the integrity of the title IV market for SO2 allowances'. However, we are very concerned that EPA's preferred implementation approach appears to be to pursue a one-size-fits-all devaluation of post-2009 SO2 allowances (e.g. setting a 2-to-1 surrender ratio for 2010-2014 vintage allowances and a 3-to-1 ratio for 2015 and later year vintages). Our comments will focus on the inequity of this approach to low emission rate generating units and offer an alternative approach to create a more equitable implementation system.

If all underlying SO2 allocations resulting from the 1990 Clean Air Act Amendments (CAAA) had been made on the same basis (e.g. all unit allocations based on an SO2 emission rate of 1.2 lb/mmBtu), we would agree with EPA's suggested approach as it would result in a more equitable outcome and be relatively easy to implement from an administrative perspective. Unfortunately, the CAAA did not allocate allowances to all units on the same basis. For example, units with permit emission rates below the national allocation standard (1.2 lb/mmBtu) received SO2 allocations based on their permit emission rate and not the more generous 1.2 lb/mmBtu emission rate afforded to the vast majority of generating units that were uncontrolled in 1985-1987 (many of which remain uncontrolled today).

Recommendation to Address Low Emission Rate Units:

Establish equitable ratios for SO2 allowances by utilizing the existing SO2 allowance serial number system. Based on the 2-for-1 surrender of allowance ratio, the effective IAQR region SO2 emission rate in 2010 will be approximately 0.6 lb/mmBtu. Acid Rain units that were initially allocated allowances based on an emission rate of 0.6 lb/mmBtu or lower should maintain their existing Acid Rain Phase II value (1:1), so long as their operating permit continues to restrict emissions to below 0.6 lb/mmBtu. This 1:1 ratio would continue past 2015 so long as the underlying unit Acid Rain baseline emission rate remains below the effective IAQR-region SO2 emission rate derived from the regional cap level. Those units that were initially allocated allowances based on an emission rate of greater than 0.6 Ib/mmBtu and less than 1.2 Ib/mmBtu could surrender allowances from 2010 to 2014 on a 2:l ratio. In 2015 and beyond, these units could surrender allowances on a 3:l ratio. Finally, those units that were initially allocated allowances based on an emission rate of 1.2 lb/mmBtu could surrender allowances from 2010 to 2014 on a 2.5:1 ratio. These units could surrender allowances on a 3.5:1 ratio in 2015 and beyond. The exact ratios needed to maintain the IAQR-region SO2 cap would be established based on existing data regarding Acid Rain baseline emission rates and emission allocations that is readily available from EPA's National Allowance Database and 1998 rule 'Acid Rain Program: 1998 Reallocation of Allowances; Final Rule' (63 FR 51706).

Response:

The CAIR model cap-and-trade programs are patterned off of the successful Acid Rain SO2 Program, which has reduced millions of tons of SO2 and NOx. For the CAIR region, sources would need to reduce emissions even more, ultimately achieving a 60-70% reduction in the region. Furthermore, EPA analysis has shown that emissions reductions occur where they are needed most, since the most cost-effective sources to control are usually the dirtiest. A cap and trade program like CAIR helps ensure that significant reductions are achieved as cheaply as possible, without disruptions to electricity markets and energy supplies. Requiring different retirement ratios for various sources within the CAIR region can create market disruptions and uncertainty regarding what ratio each source must use. The more ratios that are allowed (in the case of the commenter it would be three ratios for the same vintages post-2015) could create administrative difficulties. As a design principle, including a large number of sources with a range of compliance costs without limitation to trading, geographical restrictions, or overly complicated allowance requirements improves the market and achieves the necessary reductions in the most cost-effective manner.

EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
Under a title IV SO2 allocation system for CAIR, in Phase II the 3 to 1 retirement ratio should be employed to allow allocations to new units.

Old Dominion urges EPA to scrap the title IV SO2 allocation system beginning in CAIR Phase I, while retaining the 1 for 1 exchange of 2009 vintage title IV allowances for 1 ton of CAIR emissions. EPA requests comment on whether, under a title IV system, the CAIR Phase II retirement ratio should be 3 to 1 or 2.86 to 1 (32686 col. 3). At ‘2.86,’ the 65 percent required reductions under Phase II would be met, and at ‘3,’ allowance accounting would be easier and, more importantly, States would have leeway to allocate the excess SO2 allowances-in effect the additional reductions above 65 percent-to further State policies.

We support retirement at the 3 to 1 ratio, and we urge EPA to strongly recommend to States the extra allowances be given to new EGU units that receive no allowance allocations under title IV.

Response:
There is no title IV SO2 allocation system under CAIR to be 'scraped.' CAIR requires CAIR sources to use title IV SO2 allowances of vintage year 2010-2014 at a ratio of two to one, and if the commenter meant instead for EPA to eliminate this Phase I requirement, EPA would respond that it would prevent the necessary 50% Phase I reductions to occur and delay (or prevent) attainment for many counties. EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution. Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
The inadequacies of the Proposed Rule in this regard are likely to be exacerbated by EPAs intent to allow SO2 allowances generated prior to 2010 to be used after 2010 at a 1:1 ratio (as opposed to the 50% discount for vintage 2010 allowances and later). As a result, sources will likely horde pre-2010 allowances and use them after 2010 to achieve compliance with the trading program envisioned by the Proposed Rule. The result will be even greater delays in achieving emission reductions under the Proposed Rule.

Response:
The commenter's use of the word 'horde' is a misrepresentation of what can happen under a cap and trade program, like CAIR. Allowing use of banked (pre-2010) allowances at full value (one to one) creates incentives to reduce emissions prior to the 2010 cap (which results in earlier benefits and facilitates attainment) and at the same time maintains the existing title IV bank of SO2 allowances. The existing bank of allowances exists because companies have reduced emissions early as a part of that program (which resulted in earlier benefits and facilitated the reduction of Acid Rain). Surely one has to believe that early reductions are a positive outcome of any program seeking to reduce emissions. The trade-off exists when these sources eventually use the allowances once the cap levels become more stringent, as they time their compliance strategy in the most cost-effective manner. To eliminate the bank entirely would create adverse market impacts because companies would no longer believe in the integrity and continuity of cap and trade programs (and consequently, would resist all efforts requiring them to make capital

investments for reducing emissions). Clear market signals lead to robust trading programs, and the design of CAIR recognizes this. Analysis done in support of the Final CAIR accounted for the effect of the existing bank, and indicates that early reductions will occur, providing a significant environmental benefit prior to 2010, which is the first Phase of CAIR.

Comment:
Cinergy urges EPA to adopt a 2.86-to-1 surrender ratio rather than a 3-to-1 ratio because EPA determined that emissions equal to 65% - not 66% - of title IV allowance levels contribute significantly to downwind nonattainment.

Response:
EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
For States that will regulate EGUs in their IAQR SIPS and will participate in an interstate trading program, EPA proposes to require a 2 for 1 surrender of 2010 -2014 vintage title IV SO2 allowances and a 3 for 1 surrender of 2015 and later vintage title IV allowances. Regardless of whether a given State participates in trading, EPA also maintains that such State would have to require the retirement or elimination of ‘surplus’ title IV allowances, with the surplus being the difference between the total SO2 allowances allocated to sources in the State under the CAAA and the State’s EGU SO2 budget in the IAQR. Given the restraints on States’ ability to adopt and EPA’s ability to approve SIP revisions that may alter federal statutory provisions such as those found in title IV of the CAAA, there are questions about the consistency of this element of the IAQR proposal with the CAA.

For SO2, the use of banked pre-2010 vintage SO2 allowances in the SO2 cap and trade program should also be expressly authorized, giving an incentive to the holders of such allowances to reduce emissions of SO2 earlier than would otherwise occur.

Response:

EPA believes that there are considerable advantages for States to participate in the CAIR model cap and trade program instead of obtaining emission reductions from other source categories or from controlling EGUs without a cap and trade program. If a State does not participate in the trading program for EGUs, then any excess allowances beyond the States' budget and its title IV allocation would need to be retired. EPA has the authority through the Clean Air Act to require additional emission reductions to help States achieve attainment, and the Agency's federal authority is such that it can require directly (or through the States) the retirement of additional allowances to meet these air quality goals.

EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
Empire also supports EPA proposal to provide for inclusion of title IV SO2 allowance, in the IAQ Rule cap and trade program by discounting title IV allowance on a 2 to 1 basis in 2010 and on a 3 to 1 basis in 2015. Research by EEI has indicated that 'hot spots' should not occur. However, in the event of a hot spot occurrence, local ambient air quality regulations would provide adequate protection of the public health.

Response:
EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same

ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
EPA's alternative proposal to require a 2.86 for-1 surrender of 2015-and later title IV allowances would be subject to legal challenge in court for the same reasons as EPA's proposals to require a 2-for-1 surrender of 2010 to-2014 title IV allowances and 3-for-1 surrender of 2015-and-later title IV allowances. A successful legal challenge would invalidate the SO2 trading program and the entire CAIR. The SO2 Acid Rain Trading Program under title IV has worked well and achieved significant reductions of SO2 emissions. MOG urges EPA to leave the Acid Rain Trading Program as is and to develop a new SO2 model trading program under the CAIR as suggested by UARG in its comments.

Response:
EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
EPA is withdrawing the proposed flexibility options for retirement of title IV allowances and is re-proposing that all States use the same retirement ratios for title IV allowances (32687), because the flexibility could lead the level of the regional cap on emissions to increase or decrease, depending on which individual States tightened the retirement ratios.

In the January 2004 proposal, EPA proposed that, to meet the 65 percent reduction a source would have to retire allowances at a ratio of 3-to-1. EPA is now proposing two alternatives (32686):

1. A new ratio of 2.86-to-1

2. A 3-to-1 ratio, allowing States to convert additional reductions into allowances. Regarding the retirement ratio, our modeling has demonstrated that one of the biggest impediments to achieving significant reductions early in the program is the glut of banked allowances coming from the title IV program. Our modeling also demonstrates that a discount ratio employing a mechanism such as a flow control could achieve greater reductions in Phase I of the program. This makes it difficult to understand the logic of a 3:1 discount ratio that only applies to a limited amount of banked allowances, and even more difficult to understand reducing the ratio to the proposed 2.86:1 ratio. With the size of bank title IV allowances going into this program, the size of the cap is largely inconsequential during the first phase of the program. In not addressing this issue, EPA not only delays the glide path of reductions toward the end of the program, and well beyond the attainment deadlines of most all States, but creates the potential of 'hotspots' where many sources will have no incentive to seek additional reductions when allowances are abundant.

Response:
EPA originally proposed (January, 2004) that the Phase II CAIR cap achieve a 65% reduction from the final phase of the Acid Rain Program (title IV of the CAA), which occurs in 2010. The reductions at this level were found to be highly cost-effective (see CAIR NPR Preamble, Section VI, and Final CAIR Preamble, Section IV). At a 65% reduction in the 2010 Acid Rain Program allocation (cap), the appropriate ratio for use in CAIR is 2.86-to-one for Phase II of the program. EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Allowing the use of banked title IV allowances for use in CAIR at a one-to-one ratio actually creates an incentive for early reductions (pre-2010), contrary to the statement by the commenter. Early reductions facilitate earlier attainment. However, a trade-off exists when those allowances are used at a later date. EPA analysis shows that facilities will reduce emissions immediately and gradually, starting as soon as CAIR is adopted by the States. The nature of cap and trade is to provide economic incentives for facilities to reduce emissions to improve air quality, and the treatment of banked allowances in CAIR will help make sure that those reductions occur earlier than they would have without a cap and trade program like CAIR.

Generally speaking, unrestricted banking has several advantages: it can encourage earlier or greater reductions than are required from sources, stimulate the market and encourage efficiency, and provide flexibility in achieving emissions reduction goals. The design of CAIR accounts for the existing bank, and EPA projects that early reductions will occur, facilitating the glide-path of emission reductions as sources use the flexibility granted to them to reduce emissions over time in the most cost-effective manner. On another note, the commenter provides no evidence or analysis regarding the claim of "hot-spots." Experience with the SO2 trading program under title IV indicates that hot-spots do not exist, and outside groups, like Resources for the Future, have also done studies which refute the existence of the concept of hot-spots.

EPA maintains that the benefits of utilizing flow control procedures are questionable. EPA has analyzed the use of the flow control procedures in a paper released in March 2004, "Progressive Flow Control in the OTC NOx Budget Program: Issues to Consider at the Close of the 1999 to 2002 Period". The lessons learned from this analysis were as follows:

1) Flow control can create market pricing complexity and uncertainty. The need for implementation of flow control for a particular control period is not known more than a few months in advance, and the value of banked allowances varies from year to year, depending on whether flow control has been triggered for the particular year. Therefore, when deciding how much to control, a source has some increased uncertainty about the value of any excess allowances it generates.
2) Flow control can have a bigger impact on small entities than on large entities. Large firms with multiple allowance accounts can shift banked allowances among those accounts to minimize the number of banked allowances surrendered at a discounted rate.
3) Flow control does not directly affect short-term emissions, so it may not serve the environmental goals for which it was created.

Incorporating these lessons learned, EPA is finalizing the CAIR NOx and SO2 cap-and-trade programs with no flow control mechanism. Allowing unrestricted banking and the use of banked allowances is consistent with the existing Acid Rain SO2 cap-and-trade program. See final rule preamble for further discussion (Section VIII).

Comment:
title IV SO2 Retirement Ratios. At 69 Fed. Reg. 32688 (and 69 Fed. Reg. 4632) EPA discusses requiring EGUs to retire title IV SO2 allowances in a manner totally different from that specified in title IV of the 1990 CAA Amendments. If EPA decides that EGUs can only emit a fraction of the SO2 authorized under title IV, then it is incumbent upon EPA to develop a separate SO2 trading program.

Response:
See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:

The EPA solicited comments on whether the retirement ratio in phase II for title IV allowance should be either 3:1 or 2.86:1. See 69 FR 32686. The 3:1 ratio results in slightly more reductions than EPA has proposed are necessary. The EPA proposes that any reduction over the necessary amount due to the 3:1 ratio would result in special State CAIR SO2 allowances that each State could reallocate as it saw fit. If the EPA decides not to use higher retirement ratios as recommended earlier by Wisconsin, Wisconsin recommends that EPA use the 3:1 ratio with a caveat. Wisconsin is opposed to allowing States retain special State CAIR SO2 allowances for two reasons. First, this special allowance would add unnecessary administrative complexity to the cap and trade program for a small difference in emissions. The State would have to set up additional regulatory structure to allocate the State CAIR SO2 allowances as well as having to deal with the complexity of three different types of allowances -title IV banked and State CAIR allowances. Second, Wisconsin reiterates its comment that the current emission cap set by the EPA will not be sufficient to reach attainment and therefore any amount of emissions reductions above the current level will assist Wisconsin and surrounding States in reaching attainment. Wisconsin is strongly opposed to allowing States reallocate 'excess allocations.' Instead, the State budgets should be adjusted to reflect the 3:1 retirement ratio such that there will be no excess allocations. This would be reflected as a 67 percent reduction in phase II.

In the alternative, Wisconsin recommends that limits be placed on the reallocation of these special allowances. The special allowances should be restricted to allow reallocation only to new energy efficient facilities, existing energy efficient facilities or taken completely out of circulation.

The recommendation that the EPA use a 3:1 ratio is not an approval by Wisconsin of the EPA's retirement ratios. Wisconsin is opposed to the current retirement ratios, because it reflects a cap on emissions that is not sufficient to meet attainment. If these retirement ratios are to be used, Wisconsin would prefer the 3:1 ratio without reallocation of special CAIR allowances.

Response:
EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
API Supports EPA Maintaining a Three-to-One Retirement Ratio for SO2 Emissions: EPA asks for comment on whether it should adjust its proposed 3-to-1 retirement ratio for SO2 emissions because it would produce more reductions than necessary to achieve the 2015 CAIR emissions cap. Instead, EPA suggests that a ratio of 2.86 to 1 will suffice.
API supports retention of the originally proposed 3 to 1 ratio. The Agency based its emission caps on 'highly cost-effective' controls. Indeed, as API pointed out in our IAQR comments, similar reductions from non-EGU sources such as API members' boilers, heaters and turbines would cost more than twice as much. Consequently, any 'over control' that occurs from this program would still be achieving reductions far more cheaply than by other means.

In addition, as we noted in our IAQR comments, the models EPA uses to predict attainment are subject to some error and EPA's proposed emission cap may not produce all of the benefits the Agency anticipates. Consequently, EPA should not adjust the retirement ratios based on a false sense of precision.

API Supports All States Using the Same Retirement Ratios for title IV Allowances: API also supports all States using the same retirement program for title IV allowances. As the Agency illustrated in the proposed rule, allowing States to deviate from these retirement ratios could result in the caps not being achieved.

Response:
EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
SO2 Allowance Ratios: EPA has determined that the SO2 allowance retirement ratio for Phase 2 of CAIR identified in its January notice will result in more reductions than are needed to achieve the Phase 2 reduction goal. Unlike some utilities, TVA does not oppose integrating CAIR's reduction requirements with those of the acid rain control program, title IV. To do so, EPA has proposed establishing a ratio for retiring title IV SO2 allowances at an increased rate. From 2010

to 2015, the retirement ratio would be 2 for 1. Starting in 2015 and thereafter, the vintage retirement ratio proposed in the January notice was 3 for 1. Additional EPA analyses now indicate that a more appropriate retirement ratio for vintage 2015 and beyond title IV allowances would be 2.86 to 1 for Phase 2. EPA asks for comments on whether it should simply specify this more accurate retirement ratio or continue to use a 3 to 1 ratio and encourage States to capture the excess reductions and use them for other objectives. This could include increasing State revenues by auctioning the resulting excess allowances.

TVA strongly opposes the second alternative and urges EPA to specify a retirement ratio of 2.86 to 1 during the second phase of CAIR for vintage SO2 allowances. Continuing to use a 3 to 1 ratio and encouraging States to use the excess reductions for non-air quality purposes would establish a very bad precedent. CAIR is going to be very expensive for the impacted utilities and the publics they serve. EPA's alternative will unnecessarily exacerbate this impact. In economic terms, it will also distort the price signal. The public will believe that the resulting increase in their energy costs is due to the cost of further reducing emissions and continuing the improvement in air quality. This will not be true under the alternative proposal because some part of the increase in energy costs will be going to fund other State initiatives. Once EPA accepts this as appropriate, it will be difficult to argue against similar proposals in the future. Eventually, a number of non-air quality activities will be funded in the guise of improving air quality. This deception when it becomes well known, will undermine public support for the Clean Air Act.

Response:
EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
EPA Should Not Require Sources in States Not Participating in the Trading Program To Surrender Acid Rain Program Allowances at Ratios of 2:1 and 3:1: According to the SNPR, States must use the final retirement ratios set by EPA to require the surrender of Acid Rain Program allowances by EGUs regardless of whether the States participate in the interstate trading program and regardless of whether the States achieve all the required SO2 emissions reductions through controls on EGUs.

In other words, even if a State decides to meet its SO2 emission budget through a program other than the interstate trading rule, EGUs in the State must surrender Acid Rain Program allowances after 2010 in the ratios established in the final CAIR rule. The Class of '85 believes that this requirement is unwarranted and would make it far more difficult for States to fashion State programs that seek emissions reductions from other industrial and mobile sources. A State seeking to obtain reductions from non-EGUs effectively would have to reverse the impact of the retirement ratios on EGUs through some regulatory mechanism before it could require reductions from other sources. This makes no logical sense and layers an additional regulatory developmental hurdle where none is needed. A State opting out of the regional trading program should be free to develop a program to meet its State budget that is not encumbered by the CAIR rule's retirement ratio requirements.

If EPA Requires the Surrender of Acid Rain Program Allowances, the Agency Should Set a Three-to-One Offset Ratio For Post-2014 Allowances: EPA has determined that the three to one offset ratio would result in greater than a 65 percent reduction from Phase II Acid Rain Program allowance allocations. The Agency is soliciting comments on two alternatives for dealing with these surplus reductions. The first alternative would be to require post-2014 vintage allowances to be retired at a ratio of 2.86-to-one rather than three-to-one. The second alternative is to leave the three-to-one ratio intact, but to allow the States to convert the extra reductions resulting from the use of the three-to-one ratio into special 'CAIR SO2 allowances' that the States could distribute as they deem appropriate.

As noted in the Group's comments on the Proposal, the Class of '85 is opposed to the use of Acid Rain Program allowances as the currency of the CAIR rule, and recommends a separate SO2 allowance program. However, to the extent EPA finalizes the CAIR rule as proposed, the Group recommends that EPA choose the second alternative set forth above, allowing the creation of CAIR allowances for distribution by the States. However, the Class of '85 only supports this alternative if EPA ensures that such CAIR allowances are awarded by the States to power generators in a manner to help alleviate the adverse effects on certain EGUs resulting from the CAIR rule's reliance on the Acid Rain Program s allocation methodology.

Furthermore, if EPA insists on wrapping the CAIR into the Acid Rain Program, additional measures are available for EPA to address the allocation issues to ensure that the result is a sound environmental, economic and energy policy that reaches the desired result of remedying significant contributions to downwind nonattainment. EPA also could alter the turn-in ratios to reflect heat input changes since 1985 , with turn-in ratios varying from unit to unit and State to State. This approach could mitigate some of the problems caused by basing the CAIR on the Acid Rain Program. EPA also could allow an 'opt-out' provision for sources with emissions less than the implied emission rate targets for the entire program. For example, Phase I of the CAIR has an implied SO2 emission rate of approximately 0.36lb/mmBtu for oil- and coal-fired units. EPA could allow any covered unit emitting less than the implied emission rate of 0.36 Ib/mmBtu of SO2 (or such other rate calculated by EPA) to opt-out of the 2:1 and 3:1 allowance surrender requirements. Such an approach would result in a minimal SO2 emissions increase regionally

compared to the CAIR as proposed, yet the result would be to relieve many of the programmatic inequities of the Acid Rain Program.

Response:
EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
We also commented that if EPA combines implementation of the two programs, it should establish much more stringent use ratios than those proposed. EPA now requests comment on whether the 3-to-1 retirement ratio EPA proposed with respect to Acid Rain program allowances for 2015 and beyond should be changed to 2.86-to-1. EPA's rationale for considering this change in the retirement ratio is that a 3-to-1 ratio results in slightly more reductions than are needed to eliminate the significant contribution of an upwind State. Given the uncertainties in EPA's technical analyses related to the elimination of significant contribution in downwind States and the failure of even the 3-to- 1 ratio to eliminate contribution to downwind attainment, we strongly encourage EPA to require a 3-to-1 ratio at a minimum.

DEP is not in favor of EPA's suggestion that it might allocate to the States for their use as they see fit, the difference between allocation ratios of 2.86-to-1 versus 3-to-1. There is no guarantee that the allowances representing the difference between these two ratios, if made available to upwind States, will not be distributed to upwind emitters or that allowances made available to downwind States will not be purchased and used by upwind emitters.

Response:
EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
Ameren Supports the Use of title IV SO2 Allowances for Compliance with CAIR:

a) EPA should continue to use the title IV allowance allocations. Allowances issued prior to 2010 should remain and be useable for compliance for years 2010 and beyond. However, it is highly questionable whether EPA can change the value of vintage 2010 and beyond allowances. title IV of the CAA of 1990 clearly States that an 'allowance' is 'an authorization . . . to emit, during or after a specified calendar year, one ton of sulfur dioxide,' CAA § 402(3). It appears EPA cannot arbitrarily change this value to suit the needs of another program without the action of Congress. EPA should give serious consideration to the ramifications of this approach since the trading program is a major tenet of CAIR and vital to its success.

B) EPA should not allocate fewer allowances than originally proposed. EPA has suggested the use of a 3 to 1 allowance retirement ratio for vintage 2015 and beyond. This equates to a little more than a 68% reduction. EPA has shown that only a 65% reduction is necessary in 2015 to eliminate the significant contribution to an upwind State. The allocations EPA ultimately arrives at should reflect only a 65% reduction.

Response:
EPA agrees with the commenter regarding the integration of the existing title IV SO2 allowance market with CAIR. EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further

discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B)..

Comment:
Although investments will have to be made to update existing planning and tracking systems, AEP supports the use of the existing title IV infrastructure and allowance allocations to implement the SO2 reductions required by the final CAIR. Impacted sources should only have to surrender the number of allowances necessary to achieve the SO2 reductions needed to reduce significant levels of transport. Therefore, AEP supports the use of a Phase II SO2 surrender ratio of 2.86 to 1 within the established title IV allowance system. The final rule should not require a Phase II surrender ratio of 3 to 1. However, if it does, it should also include provisions for the automatic reallocation of excess allowances to the sources that over surrender them.

With respect to 2010 SO2 allowances auctioned under the title IV program prior to the initial proposed CAIR rules, AEP recommends that these auctioned allowances not be subject to the 2:1 surrender ratio under Phase I.

Response:
EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
If EPA insists on integrating the title IV SO2 program with the CAIR program, NCDAQ offers the following comments. EPA requests comments on changing the post 2015 title IV allowance retirement ratio from 3-to-1 to 2.86-to-1 as the change to the lower retirement rate better matches the actual emission reductions required by CAIR. First, NCDAQ urges EPA to implement a more aggressive retirement ratio for all title IV allowances. The use of a 1-to-1 retirement ratio for pre-2010 banked allowances significantly lengthens the actual compliance period for CAIR. NCDAQ recommends a 3-to-1 retirement ratio for all title IV SO2 allowances. Second, NCDAQ recommends that EPA keep the 2015 and beyond allowance retirement ratio at 3-to-1 and allow the States to determine the best use of any additional reductions beyond the CAIR requirements.

Finally, NCDAQ does not agree that a workable system could not be developed to allow States to determine their own retirement ratios. The national allowance tracking system could include the individual States retirement ratios and those could be used for all transactions within the system. The State SO2 and NOx emission caps are what are going to be enforced, not the regional caps. States should be able to define their own retirement ratios if EPA insists on integrating the SO2 title IV program with CAIR.

Response:
EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
Exelon's March 26, 2004 comments to EPA regarding its CAIR Notice of Proposed Rulemaking (NPR) described in detail our view on the inequities of EPA's proposed approach to implementing the new CAIR SO2 caps. Specifically, the proposed one-size-fits-all surrender ratios significantly penalize Acid Rain units that had low SO2 emission rates during the 1985-87 Acid Rain baseline period.

For example, each of Exelon's three coal-fired units operated SO2 scrubbers during the Acid Rain baseline period and received Acid Rain SO2 allocations based on their permit emission rates that were substantially lower than the national 1.2 lb/mmBtu SO2 allocation rate that applied to most units. In a relative sense, the proposed one-size-fits all surrender ratio approach effectively penalizes units that installed post- combustion controls early and rewards units that never installed post-combustion controls. Please see the attached 'Appendix' that contains a copy of our 3/26/04 comments to EPA on this topic. Our earlier comments include options that EPA could adopt to address our concerns, such as adjusting allowance surrender ratios (higher for units uncontrolled during the Acid Rain baseline, lower for units with low Acid Rain baseline year emission rates). The approaches we suggest can still reference the existing Acid Rain program SO2 allocations as EPA has indicated it needs to do based on the Agency's statutory analysis.

Response:

For States found to contribute to another States nonattainment, EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
Sixth, the NESCAUM States oppose EPA's proposal that the SO2 allowance retirement ratio be changed from 3-to-1 to 2.86-to-1. EPA's justification for the change was that the former ratio would result in emissions reductions beyond the 65% reduction initially proposed. EPA has already made a determination that the 3-to-1 allowance ratio is cost-effective. In addition, EPA acknowledges that banked SO2 allowances from the current Acid Rain Program are not expected to be used up until sometime after 2020 (69 FR 32705). This means that the Transport Rule's emissions caps set for 2015 will actually not be achieved until after 2020. Therefore, we see no justification for a lower retirement ratio that would support further delay in meeting the SO2 cap. In addition, EPA should employ an allocation retirement mechanism that would factor in energy efficiency by varying the retirement ratios on an output-basis. This would promote energy efficiency and provide greater environmental protection.

At 69 FR 32686, EPA indicates that its original retirement ratio for SO2 allowances of 3-to-1 'results in slightly more reductions than EPA has proposed are necessary to eliminate the significant contribution of an upwind State.' EPA therefore proposes either a new retirement ratio of 2.86-to-1 or maintaining the 3-to-1 ratio and 'permitting States to convert these additional reductions into allowances in their rules' so that those allowances could be distributed by the States 'however they deem appropriate.' (69 FR 32686). NESCAUM urges EPA to at least maintain the retirement ratio of 3-to-1 as proposed in the January 30, 2004 NPR, if not adopt a higher retirement ratio. EPA has already determined reductions under the 3-to-1 scenario are highly cost-effective. According to its own economic analysis, EPA has still not maximized the potential cost-benefits of the program.. EPA could thus set more stringent caps and retirement ratios and achieve greater benefits while still having low costs. There is no economic reason not to at least maintain the 3-to-1 retirement ratio. By doing so, EPA could provide a greater level of assurance with regard to achieving actual emission reductions. Given that there are still a great number of allowances in the allowance bank, an even higher retirement ratio would reduce the

number of those banked allowances, and therefore result in more timely real reductions, public health, and environmental benefits. Conversely, the 2.86- to-1 proposal would result in less timely reductions. EPA's proposed 2.86-to-1 allowance retirement ratio abdicates responsibility to cost effectively expedite attainment of the NAAQS.

Given that EPA is electing to use the Acid Rain allocations to further control SO2 through the Transport Rule, one way to improve this linkage would be through an enhanced retirement ratio, whereby EPA would employ an allocation retirement mechanism that varies the retirement ratio on an output-basis in order to account for unit efficiency. For example for EGUs, the retirement ratio would be based on megawatt hours generated. This approach would help promote energy efficiency, as well as address some of the issues that the NESCAUM States have identified with the Acid Rain Program, including basing current allocations on outdated, 1980's data.

Response:
EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
SO2 Retirement Ratio: EPA should retain the 3 to 1 SO2 allowance retirement ratio for 2015 and beyond as originally proposed. In fact, it should increase the ratio, both to effectuate a lower cap and to reduce the huge existing supply of banked SO2 allowances.

We also note that EPA acknowledges for what we believe is the first time the inclusion of 250,000 SO2 allowances in the 'Special Allowance Reserve' in the annual CAIR State SO2 budgets. EPA must clearly explain the existence and purpose of these allowances and the rationale for their inclusion in the State caps. It appears that these allowances simply inflate the cap and should be eliminated. If they must be retained due to title IV requirements, EPA needs to demonstrate this, retain or increase the 3 to 1 retirement ratio (EPA estimates the difference between a 2.86:1 and a 3:1 ratio at about 150,000 allowances, less than the increase resulting from the allowance reserve), and provide in the model cap and trade rule that any allowances in the State budgets attributable to

the 'Special Allowance Reserve' are to be allocated for clean, renewable energy projects and energy efficiency programs.

Response:
EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B). EPA has used the final title IV SO2 allocation as a basis for determining the 50% in 2010 and 65% in 2015 reduction required under CAIR for SO2. For the region, it includes the portion of the 250,000 allowances that were given to States affected by CAIR.

Comment:
title IV SO2 allowance forced retirements at other than a 1 to 1 ratio under CAIR present significant uncertainties regarding the legality of the CAIR SO2 cap and trade program and should, therefore, be abandon as CAIR SO2 cap and trade currency beginning in Phase I, notwithstanding allowing the use of vintage 2009 title IV allowances for CAIR compliance.

Response:
See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
The TCEQ supports the requirement that all States use the same retirement ratio for title IV SO2 allowances.

Response:
EPA agrees with the commenter. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
EPA proposes to allow States to use a more stringent retirement ratio to provide budgets for their non-title IV EGUs. Such a provision would illegally deviate from the intent of Congress that non-title IV EGUs purchase needed emission allowances from the market. It would also introduce a

fractional retirement ratio, which would needlessly complicate compliance planning. In its final rule, EPA should require States to conform to the title IV allocation and to not adjust the retirement ratio to provide an accommodation for non-title IV sources.

Response:
EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
As stated in the supplemental proposal, EPA has proposed that each State within the regional trading program would be required to include specific retirement ratios to achieve the necessary reductions. EPA indicates that the proposed three to one (3:1) retirement ratio in 2015 and beyond would actually result in 'slightly more' reductions than are necessary and requests comment on alternatives. One alternative is to change the retirement ratio to 2.86:1 or to use the 3:1 ratio and transfer the difference between 2.86 and 3 to the individual States for use with local reductions.

IDEM supports the use of a straight 3:1 retirement ratio. As with the Acid Rain Program, the OTC NOx Program and the NOx SIP Call, allowances are allocated, transferred and deducted using only 'whole' tons. In allocating allowances to affected units under the various programs, the 2.86 would be rounded to 3. In addition, EPA has not proposed in any of these programs that deductions for compliance would involve anything other than whole tons. For simplicity sake, EPA should continue implementing all portions of the program using whole numbers.

There is also the question of what is 'slightly more' than necessary. While IDEM would welcome the ability to have additional allowances available to use for local reductions, where needed, EPA does not provide any information about the amount of allowances that would be available. There is also no specific information or guidance provided concerning the proper transfer and use of the additional allowances by individual States.

Response:

EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
EPA solicits comments on requiring the use of a 2.86-to-1 surrender ratio in lieu of a 3- to-1 surrender ratio for Phase II of CAIR. Both options suffer from the same legal flaw. The existing Clean Air Act does not, as a matter of law, allow EPA to require that State SIPs compel title IV affected sources to surrender any title IV allowances for CAIR compliance, and certainly not at a greater than 1-to-1 ratio. Duke Energy therefore does not support either ratio. The solution again is for EPA to abandon its attempt to use the title IV SO2 program under CAIR and instead establish an entirely new, independent and legal SO2 trading program.

Response:
The existing CAA does, as a matter of law, grant the authority to EPA to address nonattainment and specifically instructs EPA to help States develop SIPs to address the transport of pollutants across State boundaries. EPA has determined that the best way to do this is through an optional cap and trade program that States can adopt. The programs largely builds off the successful Acid Rain Program (title IV of the CAA), and incorporates the use of title IV SO2 allowances in the CAIR program. This creates continuity between the two programs, maintains the existing title IV requirements, and preserves the existing SO2 market for allowances for those States who do not fall within the geographic scope of CAIR. Utilities like Duke Energy have made investments in SO2 allowances and pollution control technologies based on the framework of title IV. EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As

explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B). In addition, EPA has developed CAIR to provide some flexibility to States regarding allowance allocations. The recommended approach for allocating NOx allowances includes a set-aside starting at 5% of total NOx allowances for new units. States have some flexibility as to how to allocate NOx allowances, and are able to allocate more allowances (greater than 5%) to new units if deemed appropriate by the State. (See final rule preamble for further discussion). Finally, EPA has the authority through the Clean Air Act to require additional emission reductions to help States achieve attainment, and the Agency's federal authority is such that it can require directly (or through the States) the retirement of additional allowances to meet these air quality goals.

Comment:
Examine the creation of smaller trading regions (e.g., Texas, Louisiana, Arkansas, and Oklahoma) that would maximize the benefits to downwind States' non-attainment and near non-attainment areas of the NOx reductions required in upwind States.

Response:
The CAIR model cap-and-trade programs are patterned off of the successful Acid Rain SO2 Program, which has reduced millions of tons of SO2 and NOx. For the CAIR region, sources would need to reduce emissions even more, ultimately achieving a 60-70% reduction in the region. Furthermore, EPA analysis has shown that emissions reductions occur where they are needed most, since the most cost-effective sources to control are usually the dirtiest. A cap and trade program like CAIR helps ensure that significant reductions are achieved as cheaply as possible, without disruptions to electricity markets and energy supplies. EPA analysis shows that limiting the flow of allowances can increase costs without necessarily providing increased benefit or greater emission reductions, and can disrupt allowance markets. As a design principle, including a large number of sources with a range of compliance costs without limitation to trading or geographical restrictions improves the market and achieves the necessary reductions in the most cost-effective manner.

Comment:
The IAQR proposed the use of a 3-to-1 ratio for the retirement of SO2 credits issued during and beyond 2015. However, EPA received comments confirming that this ratio would achieve more than the level of reductions deemed cost effective. In response to these comments, the CAIR proposal suggests either: (1) changing this ratio to 2.86-to-1 to more accurately reflect the level of sought after reductions; or (2) allowing States to utilize the .14 difference to create additional SO2 credits that can be distributed as they see fit. 69 FED. REG. 32686. As detailed in Section II above, States can and should be granted ample flexibility to reallocate SO2 credits as they see fit. While AMP-Ohio supports the '.14 retention proposal' in the event that no other broader reallocation flexibility is provided, this proposal alone appears insufficient to adequately address the reallocation needs posed by title IV's outdated allocation scheme.

Presuming, EPA allows States the greater flexibility to reallocate SO2 credits endorsed in Section II above, implementation of the 2.86-to-1 ratio for allowances issued during and beyond 2015 is appropriate. As nearly all market participants are sophisticated entities with market trading experience from title IV and/or other programs, the use of fractional credits would not be problematic. Rather, the only additional burden on participants and regulators would be a very minor increase in accounting efforts. Ensuring that the proper regulatory levels are mandated is well worth this small additional investment of time and energy.

Response:
EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
For States that will regulate EGUs in their CAIR SIPs and will participate in an interstate trading program, EPA proposes to require a 2 for 1 surrender of 2010 - 2014 vintage title IV SO2 allowances and a 3 for 1 surrender of 2015 and later vintage title IV allowances.) In the January 30th proposed CAIR, EPA characterized these ratios as a reduction of the title IV cap.4 Regardless of whether a given State participates in trading, EPA also maintains that such State would have to require the retirement or elimination of ‘surplus’ title IV allowances, with the surplus being the difference between the total S02 allowances allocated to sources in the State under the 1990 amendments to the CAA and the State’s EGU S02 CAIR budget. Given the restraints on States’ ability to adopt and EPA’s ability to approve SIP revisions that may alter federal statutory provisions such as those found in title IV of the 1990 amendments to the CAA, there are questions about the consistency of this element of the CAIR proposal with the CAA. For one, the CAA provides that an ‘allowance’ is an ‘authorization ... to emit, during ... a ... calendar year, one ton of sulfur dioxide.’06 EPA is without authority to change that ratio. Second, States can not adopt measures that interfere with the operation of the interstate title IV SO2 allowance trading program.7 EPA can not through the SIP process force a State to act in a manner otherwise prohibited by law.

Because of these legal issues raised by EPA's proposal, coupled with Oglethorpe Power's belief that a viable and legally sound interstate emission trading program is a critically important element of any CAIR program, EPA should consider an alternative SO2 trading system for CAIR and propose such an alternative system for public comment in a supplemental CAIR proposal. Any challenge to the trading part of the CAIR program could create uncertainty about whether and how trading would occur under CAIR and, if successful, could undermine the basis for EPA's 'highly cost-effective' significant-contribution determination for SO2 controls, since under CAIR EPA premised that determination on the availability of unrestricted interstate trading.

An alternative system could require not a 2-for-1 or 3-for-1 surrender of title IV allowances (or any other title IV surrender ratio that is different from that Stated in CAA § 402(3» but instead would involve allocation of new, non title IV SO2 allowances for CAIR beginning in Phase I. Such an alternative program should allow for the use of banked title IV allowances (i.e., allowances of vintage years before the first year of CAIR Phase I) at the statutory l-for-l ratio, to avoid the problem of inconsistent control programs for SO2 and to preserve the integrity of cap and trade programs. Use of those allowances in that way would be voluntary with each affected source, would not involve a mandatory allowance surrender requirement and could not be deemed inconsistent with title IV. The ability to use, in an alternative trading program, banked pre CAIR-vintage title IV allowances for CAIR compliance on a l-for-l basis addresses any concern about incentives that otherwise might exist for EGUs to use banked title IV allowances before 2010 to increase their SO2 emissions. If the utility of such allowances were not preserved through the use of the 1-to-l ratio, EPA would be sending the wrong message to industry and the public at large - do not count on the continued value of emission allowances in future cap-and-trade programs, since the Agency is willing to change the 'rules of the game' in progress.

Response:
The existing CAA grants the authority to EPA to address nonattainment and specifically instructs EPA to help States develop SIPs to address the transport of pollutants across State boundaries. EPA has determined that the best way to do this is through an optional cap and trade program that States can adopt. The programs largely builds off the successful Acid Rain Program (title IV of the CAA), and incorporates the use of title IV SO2 allowances in the CAIR program. This creates continuity between the two programs, maintains the existing title IV requirements, and preserves the existing SO2 market for allowances for those States who do not fall within the geographic scope of CAIR. Utilities have made investments in SO2 allowances and pollution control technologies based on the framework of title IV. EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution. Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading

program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

In addition, EPA has developed CAIR to provide some flexibility to States regarding allowance allocations. The recommended approach for allocating NOx allowances includes a set-aside starting at 5% of total NOx allowances for new units. States have some flexibility as to how to allocate NOx allowances, and are able to allocate more allowances (greater than 5%) to new units if deemed appropriate by the State. (See final rule preamble for further discussion). EPA has the authority through the Clean Air Act to require additional emission reductions to help States achieve attainment, and the Agency's federal authority is such that it can require directly (or through the States) the retirement of additional title IV allowances to meet air quality goals.

Comment:
Maryland believes that the SNPR should allow a State to set higher ratios in the model cap-and-trade program that EPA will propose in the SNPR. With the currently proposed ratios, EPA states that '[V]intage year allowances 2009 and earlier are projected to be used starting in 2010 at an average rate of 1.3 million per year.' (69 FR 4632) At that rate it will take until 2020 to fully deplete the 1:1 SO2 allowance bank. This 'glide path' is too long and flat for the health of Maryland's residents, and higher ratios will result in a shorter and steeper glide path. Maryland must retain the right to consider all avenues to deplete the SO2 allowance bank sooner, including higher ratios.

Maryland questions EPA's proposed Phase 2 ratio change from 3:1 to 2.86:1. From the outset in proposing the original Interstate Air Quality Rule, EPA's rationale for the ratios has been to fold CAIR into the pre-existing title IV Acid Rain Program, and the regulatory ratios (2:1 and 3:1) reflected the 50% reductions in SO2 emissions in Phase 1 and the 65% reductions in Phase 2 (within the 29-state CAIR region) from the nationwide Acid Rain Program cap of 8.95 million tons in 2010. If these ratios are no longer sacrosanct as we were led to believe, Maryland would like EPA to consider increasing the ratios and/or implementing flow control. Decreasing the ratio, as EPA proposes, only lengthens the glide path

Response:
EPA originally proposed (January, 2004) that the Phase II CAIR cap achieve a 65% reduction from the final phase of the Acid Rain Program (title IV of the CAA), which occurs in 2010. The reductions at this level were found to be highly cost-effective (see CAIR NPR Preamble, Section VI, and Final CAIR Preamble, Section IV). At a 65% reduction in the 2010 Acid Rain Program allocation (cap), the appropriate ratio for use in CAIR is 2.86-to-one for Phase II of the program. The use of the 2.86 ratio is not a change to CAIR, but instead represents a clarification to the ratios that EPA had published in the January 2004 CAIR NPR. EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective.

Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution. Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Allowing the use of banked title IV allowances for use in CAIR at a one-to-one ratio actually creates an incentive for early reductions (pre-2010), and helps facilitate a smoother transition to the new CAIR requirements. Early reductions facilitate earlier attainment, and a large amount of reductions (both pre and post-2010) occur directly downwind of Maryland. However, a trade-off exists when those allowances are used at a later date. EPA analysis shows that facilities will reduce emissions immediately and gradually, starting as soon as CAIR is adopted by the States. The nature of cap and trade is to provide economic incentives for facilities to reduce emissions to improve air quality, and the treatment of banked allowances in CAIR will help make sure that those reductions occur earlier than they would have without a cap and trade program like CAIR. At the end of 2004, the title IV SO2 bank was roughly 7 million allowances. The rate of the draw-down of the bank will depend on the number of title IV allowances that are banked before 2010. Each banked allowance represents one ton of early reductions.

Generally speaking, unrestricted banking has several advantages: it can encourage earlier or greater reductions than are required from sources, stimulate the market and encourage efficiency, and provide flexibility in achieving emissions reduction goals. EPA maintains that the benefits of utilizing flow control procedures are questionable. EPA has analyzed the use of the flow control procedures in a paper released in March 2004, "Progressive Flow Control in the OTC NOx Budget Program: Issues to Consider at the Close of the 1999 to 2002 Period". The lessons learned from this analysis were as follows:
1) Flow control can create market pricing complexity and uncertainty. The need for implementation of flow control for a particular control period is not known more than a few months in advance, and the value of banked allowances varies from year to year, depending on whether flow control has been triggered for the particular year. Therefore, when deciding how much to control, a source has some increased uncertainty about the value of any excess allowances it generates.
2) Flow control can have a bigger impact on small entities than on large entities. Large firms with multiple allowance accounts can shift banked allowances among those accounts to minimize the number of banked allowances surrendered at a discounted rate.
3) Flow control does not directly affect short-term emissions, so it may not serve the environmental goals for which it was created.

Incorporating these lessons learned, EPA is finalizing the CAIR NOx and SO2 cap-and-trade programs with no flow control mechanism. Allowing unrestricted banking and the use of banked allowances is consistent with the existing Acid Rain SO2 cap-and-trade program. See final rule preamble for further discussion (Section VIII).

Comment:
Uniform SO2 Retirement Ratios: NUSCo supports EPA's proposal to make the Acid Rain SO2 allowance retirement ratios uniform for all States, rather than allow the States to set them. As with the NOx allowance distribution, variations in the SO2 allowance retirement ratios could place particular companies or generating stations at an economic disadvantage.

Response:
EPA agrees with the commenter, and the Final CAIR will apply uniform retirement ratios for all States.

Comment:
EPA solicits comment on requiring affected EGUs to retire vintage 2015 and beyond title IV allowances at a rate of 2.86-to-1 rather than 3-to-1. This alternative effectively eliminates the difference between the proposed cap levels and the resulting reductions. The EPA solicits comment on the use of this retirement ratio and specifically on whether the use of a fractional retirement ratio (2.86-to-1 instead of 3-to-1) raises practical implementation concerns for States or affected EGUs or whether a fractional retirement ratio is preferable to the two step process described below. Alternatively, EPA proposes requiring the retirement of 2015 and beyond vintage allowances at a 3-to-1 ratio, and permitting States to convert these additional reductions into allowances in their rules. That is, the States would retain special 'CAIR SO2 allowances' equivalent to the difference between the 3-to-1 retirement ratio and the effective 2015 cap. Thus, an amount of allowances (assuming allowances would be retired at a 3-to-1 ratio) equivalent to three times the number that represents the margin of difference in the retirement ratio for 2015 would then be made available to States. Under this approach, these reserved allowances would be distributed to the States based on the same methodology used to distribute title IV allowances, and States would have flexibility to further distribute them however they deem appropriate. The States might choose, for example, to distribute them to EGUs using the same methodology that had been used for distributing the original title IV allowances, or use them as a set aside for new sources or for sources that did not receive title IV allowances originally, or they might distribute them as incentives for achieving other policy goals each State may have.

Midwest Generation supports the 3-to-1 ratio for vintage 2015 and beyond allowance retirement. The States should then be given the option of distribution of the difference in the 2.86-to-1 and 3-to-1 allowance retirement ratio for a new source set aside and distribution back to the sources if not utilized under the new source set aside.

Response:
Allowing the use of banked title IV allowances for use in CAIR at a one-to-one ratio actually creates an incentive for early reductions (pre-2010), and helps facilitate a smoother transition to

the new CAIR requirements. Early reductions facilitate earlier attainment. However, a trade-off exists when those allowances are used at a later date. EPA analysis shows that facilities will reduce emissions immediately and gradually, starting as soon as CAIR is adopted by the States. The nature of cap and trade is to provide economic incentives for facilities to reduce emissions to improve air quality, and the treatment of banked allowances in CAIR will help make sure that those reductions occur earlier than they would have without a cap and trade program like CAIR. The rate of the draw-down of the bank will depend on the number of title IV allowances that are banked before 2010. Each banked allowance represents one ton of early reductions.

Generally speaking, unrestricted banking has several advantages: it can encourage earlier or greater reductions than are required from sources, stimulate the market and encourage efficiency, and provide flexibility in achieving emissions reduction goals.

EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
SO2 Allocation Issues (generally pages 32686 to 32688): The EPA has requested comment on whether the CAIR Phase II SO2 allowance retirement ratio should be 3 to 1 or 2.86 to 1. Associated supports a retirement ratio of 2.86 to 1. The EPA should establish the retirement ratio based only on what is needed to meet its regional objectives (2.86 to 1). States can then make independent decisions on how the remaining allowances should be allocated.

Response:
EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
Achieving the Required Reductions using the SO2 allowances allocated under the Acid Rain program as currency in the CAIR program as currently proposed inhibits the ability of the EPA to enforce the proposed cap on SO2 emissions within the CAIR area. The Supplemental Proposal suggests that SO2 allowances be retired at a ratio of 1:1 for pre-2010 vintage allowances, even after the CAIR compliance dates (2010 and 2015). Currently there are more than 8.6 million banked pre -2010 vintage allowances. Use of these banked allowances, in addition to the ones issued after the implementation of CAIR (but retired at ratios of more than 1:1) would allow more than three times the 2010 cap (12.5 vs. 3.8 million tons) or four times the 2015 cap (11.45 vs. 2.7 million tons) to be emitted within the CAIR area. Even if only 10% of the banked allowances were used in any year between 2010 and 2015, permitted emissions would exceed the proposed cap by more than 20%. Similarly, if only 10% of the banked emissions were used in any year after 2015, permitted emissions would exceed the proposed cap by more than 30%. Clearly the proposed program cannot achieve the required reductions if SO2 allowances banked under the Acid Rain program can be used as currency in the new program.

Response:
Allowing the use of banked title IV allowances for use in CAIR at a one-to-one ratio actually creates an incentive for early reductions (pre-2010), and helps facilitate a smoother transition to the new CAIR requirements. Early reductions facilitate earlier attainment. However, a trade-off exists when those allowances are used at a later date. EPA analysis shows that facilities will reduce emissions immediately and gradually, starting as soon as CAIR is adopted by the States, and will not use the entire bank in any given year. The power sector faces enormous technical constraints which limit how much SO2 can be emitted in one year. The economic and engineering limitations lead the industry to reduce emissions over time, as seen in historical emissions of the existing title SO2 trading program. There is incentive for companies to carefully time emissions and potential reductions to comply in the cheapest way possible, which is one of the reasons why EPA supports cap and trade. The nature of cap and trade is to provide economic incentives for facilities to reduce emissions to improve air quality, and the treatment of banked allowances in CAIR will help make sure that those reductions occur earlier than they would have without a cap and trade program like CAIR. The rate of the draw-down of the bank will depend on the number of title IV allowances that are banked before 2010. Each banked allowance represents one ton of early reductions, and there is no evidence or data to suggest that all, or even most, of the banked allowances would be used in any given year. Generally speaking, unrestricted banking has several

advantages: it can encourage earlier or greater reductions than are required from sources, stimulate the market and encourage efficiency, and provide flexibility in achieving emissions reduction goals.

EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:
EPA needs to allocate SO2 and NOx Allowances for Retired Units under a Retired Unit Exemption Provision - The proposed IAQR is silent on the issue of SO2 and NOx allowance allocations for retired units. While this issue is likely to be addressed in the supplemental notice of proposed rulemaking (SNPR) action to be issued by EPA at a later date, we wish to make early comment on the importance of this issue to utilities who are in the process of repowering and modernizing their electricity generation portfolios. The IAQR rule must provide the correct economic signal to EGUs by providing utilities with incentives to retire old EGUs and replace them with new clean units.

Accordingly, we recommend that EPA allow retired units to continue to hold allowances previously allocated and to allocate allowances to retired units in future-year allocation schemes. EPA could include in the IAQR a retired unit exemption provision similar to that being proposed by EPA in the Utility Mercury Rule under Section 60.4105 of the SNPR. In the case of the IAQR, the provision would allow EGUs to retain or receive SO2 and NOX allowance allocations for retired units. There is precedent for such a provision in the title IV Acid Rain Program that allows retired units to retain their SO2 allowance allocations in perpetuity.

Response:
For SO2, CAIR builds upon the existing Acid Rain Program (title IV). In essence, CAIR requires that sources submit title IV allowances at a ratio greater than one to one in order to achieve the necessary emission reductions. CAIR does not redistribute or in any way alter the existing title IV SO2 allocations (past, present, or future). Sources will keep the allowances they have obtained, either by purchase or through allocation, for use in CAIR. EPA felt that it was appropriate to

maintain the existing market for title IV allowances, and the approach taken in CAIR recognizes that sources have made significant investments in allowances and pollution controls for title IV. EPA has developed CAIR to provide some flexibility to States regarding allowance allocations for NOx. The recommended approach for allocating NOx allowances includes a set-aside starting at 5% of total NOx allowances for new units. States have some flexibility as to how to allocate NOx allowances, and are able to allocate more allowances (greater than 5%) to new units if deemed appropriate by the State. (See final rule preamble for further discussion). EPA has the authority through the Clean Air Act to require additional emission reductions to help States achieve attainment, and the Agency's federal authority is such that it can require directly (or through the States) the retirement of additional title IV allowances to meet air quality goals.

Comment:
G. Under a title IV SO2 allocation system for CAIR, a Phase II 3 to 1 retirement ratio should be employed to allow allocations to new units.

First, we reiterate our earlier comments that urge EPA to scrap the title IV SO2 allocation system beginning in CAIR Phase I, while retaining the 1 for 1 exchange of 2009 vintage title IV allowances for 1 ton of CAIR emissions. EPA requests comment on whether, under a title IV system, the Phase II retirement ratio should be 3 to 1 or 2.86 to 1, at 32686 col. 3. At '2.86,' the 65 percent required reductions under Phase II would be met, and at '3,' allowance accounting would be easier and, more importantly, States would have leeway to allocate the excess SO2 allowances-in effect the additional reductions above 65 percent-to further State policies. We support retirement the 3 to 1 ratio, and we urge EPA to strongly recommend to States the extra allowances be given to new EGU units that receive no allowance allocations under title IV.

Response:
EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

Comment:

C) Retirement Ratio

All States should use the same retirement ratios for allowances under the CAIR to provide a level playing field for all participants in the Cap-and Trade program.

Response:
EPA agrees with the commenter, and CAIR stipulates that all States must use the same retirement ratios.

Comment:
EPA should closely integrate CAIR with the title IV Acid Rain trading program to ensure that excess title IV allowances are not used to circumvent the emission reduction targets and timelines established by the CAIR. Such integration must include the retirement of surplus title IV allowances at a ratio that eliminates the difference between CAIR cap levels and emission levels that might otherwise be allowed under title IV through the use of surplus allocations.

Response:
EPA has designed CAIR to work closely with the existing title IV SO2 trading program. Excess allowances beyond the CAIR cap targets are required to be retired for purposes of CAIR at an appropriate ratio to achieve the emission reductions, allowing for banking.

Comment:
EPA is proposing to require all States to implement the proposed SO2 emission caps by requiring title IV SO2 allowances to be surrendered at a 2:1 ratio beginning in 2010 and a 3:1 ratio beginning in 2015. The 3:1 surrender requirement actually generates more SO2 reductions than are needed to meet the 2015 cap according to EPAs own analysis, and has determined that a surrender ratio of 2.86:1 would be sufficient to meet the CAIR 2015 cap. Therefore, EPA is soliciting comment on whether the surrender ratio should remain at the 3:1 ratio, with States using reserves as set-asides for existing sources that do not have title IV allowances or new sources, or if the surrender ratio should be set at a fractional 2.86:1 ratio.

Several commenters, including the Utility Air Regulatory Group (UARG) have raised concerns and questions regarding EPAs authority to require the surrender of title IV allowances at a rate that differs from the 1 allowance per ton of SO2 emitted set by Congress in the 1990 Clean Air Act Amendments and have suggested EPA use an alternative program separate from the current title IV program. Regardless of whether the additional SO2 reductions should be achieved by way of a separate program independent of title IV or structured within the framework of the existing program, we believe that it is incumbent upon the Agency to assure that whatever mechanism is chosen maintain and preserve the integrity and functionality of the SO2 trading program. The existing title IV program has worked well, achieving significant SO2 emission reductions while providing sources a flexible, cost effective means to comply with required reductions. It is imperative that the approach used under CAIR preserve a robust and viable trading program for complying with the emission reduction requirements of the rule that continues to provide flexible and cost-effective methods and does not impose additional administrative, monitoring and

reporting burdens. To the extent EPA retains its proposed approach requiring the additional surrender of title IV allowances to meet the CAIR SO2 caps, we do not believe EPA or any State should require the surrender of title IV allowances beyond what will be necessary to meet the CAIR caps. Requiring the surrender of more title IV allowances than needed to meet the caps, which would result in a pool of surplus allowances that the States could presumably set aside for new sources or existing sources that do not have title IV allowances, would result in a redistribution of current title IV allowances. We do not believe EPA or the States have the authority to redistribute title IV allowances. Accordingly, EPA should not require a greater than 2.86:1 surrender ratio under this approach.

Response:
EPA is finalizing CAIR using the originally proposed percent reduction for SO2 emissions, which equates to the use of a 2.86-to-1 ratio for title IV allowances in Phase II (for vintage year 2015 and after allowances). EPA has found that the use of this percentage reduction, and thus equivalent ratio, is highly cost effective. Several commenters suggested that EPA use a 2.86-to-1 ratio to achieve the CAIR emission reductions, others urged EPA to retain the 3-to-1 ratio and redistribute allowances, and some wanted EPA to use the 3-to-1 ratio without any redistribution.

Since the 3-to-1 ratio requires greater emission reductions than EPA has found to be highly cost-effective, EPA does not believe that it is appropriate to require States to use that ratio. As explained in the Final CAIR preamble, EPA believes that the only way to ensure that all of the emission reductions are achieved in a trading program that uses trading ratios is to use the same ratio for all sources. Therefore, EPA is requiring all States that choose to participate in the trading program to use a 2.86-to-1 retirement ratio for use in CAIR. See final rule preamble for further discussion on the legal basis and rationale for incorporating the existing title IV program for SO2 (Sec. IX-B).

XIII.E. Approaches for allocating SO_2 allowances to EGUs

Comment:
We object to EPA's determination not to allow the use of output-based methodologies for allocation of allowances. Use of output as a basis for allocation rewards and incentives the use of low- or non-polluting clean energy technologies. Indeed, we believe that output-based methodologies should be used for distribution of allowances between States and should be an available option for allocating allowances among sources within a State. Accordingly, we join in the comments of other parties that States should be permitted to use output-based methodologies for allocation of SO_2 allowances, and that States should not be required to use the title IV allocations in order to participate in the trading program.

Response:
Since the setting of State SO_2 budgets and unit allowance allocations are both tied to title IV allocations, a general response to these comments is found in the preamble (Section V) and in the Response to Comment Section X.A.

EPA is giving States the flexibility to decide how to allocate SO_2 allowances to sources and can choose an approach if they believe that is most appropriate given State policy. See Section VIII of the preamble and Section XIII.F of this Response to comment document regarding SO_2 allowances.

Comment:
We recommend that both NOx and SO2 allowances be given to the States to be allocated at the States' discretion, including the discretion to allocate some of their allowances for energy efficiency purposes.

Response:
Since both the setting of State SO_2 budgets and unit allowance allocations are both tied to title IV allocations, a general response to these comments is found in the preamble (Section V) and in the Response to Comment Section X.A.

EPA is offering States flexibility regarding allocation of SO_2 allowances to sources, including the discretion to allocate allowances for energy efficiency.

XIII.F. Approaches for allocating NOx allowances to EGUs

Comment:
Cinergy strongly opposes EPA's proposal to allow States to allocate NOx allowances based on electricity output and, in particular, opposes allocations to non-emitting units. To the extent EPA or the States adopt output-based allocation methodologies for the purpose of maximizing efficient generation, neither the CAA nor, in all likelihood, its State analogues provide the legal authority for regulating in favor of efficient generation. Even if such legal authority existed, output-based allocations are not likely to obtain that result because EGUs already have significant incentive to maximize efficient generation. Accordingly, non-emitting sources do not come within the ambit of EPAs regulatory authority under CAA § 110 for purposes of addressing downwind nonattainment. Moreover, EPAs modeling for the NOx Sip call demonstrates that output-based allocations will result in an effective emissions rate for many affected units that is well below the emissions rate that corresponds to the CAIR caps, and possibly to levels that are not technically achievable. Finally, Cinergy opposes output-based methodologies in general because the impose overly burdensome monitoring, recordkeeping and reporting requirements. Cinergy urges EPA to require States to implement input-based allocation methodologies that account for differences in fuel type. Allocations that distribute allowances based on heat input alone improperly disadvantage coal-fired EGUs by ratcheting down the standard for them and imposing greater control costs on them while providing a windfall to other affected sources. The estimated shift of allowances away from coal-fired generation amounts to a substantial penalty to coal-fired generation and an equally substantial subsidy to other affected sources. Cinergy urges EPA to rectify the inequity by requiring States to incorporate baseline adjustment factors that account for fuel type in their NOx allocation methodologies.

Response:
In its example allocations approach provided in today's model rule, EPA sets initial allocations to existing units using fuel type adjustment factors multiplied by heat input, as recommended by the commenter. (See Section VIII).

However, given that allowance allocations are not expected to change the achievement of the environmental goals of the CAIR program, that different States may have different policy objectives, and that the SIP call demonstrated that giving States the flexibility has not harmed that program, EPA feels that States should have this flexibility. EPA notes that a number of States have successfully implemented output-based allowance system for the NOx SIP call (overcoming the requirements obstacles noted by the commenter). While recognizing that there are a number of implementation hurdles to such an approach, EPA would not object if a State were to choose to allocate allowances to non-emitting generation and resolved the implementation issues.

EPA has set forth its requirements for the States in the Model Rule, which must be followed. For instance, EPA requires that States such as providing allowances at least three years in advance, which EPA believes is important for the successful implementation of the trading program.

Comment:

EPA's preference for a fuel-neutral allocation of NOx allowances for new units and existing post January 1, 1998 units in the proposed model rule represents a strong bias against new coal plants and provides inappropriate incentives for new natural gas plants. FMEA supports EPA's methodology for developing annual State NOx budgets using a State's average heat input for Acid Rain Program units from 1999-2002 and including non-Acid Rain Program units. EPA has developed a model rule that does not bind the States, which are free to allocate NOx allowances as they choose. However, the model rule not only indicates EPA's policy preferences, but offers a model that many States will adopt, if for no other reason than States have a limited number of people and resources available for the time consuming task of developing their own allocation rules. The example allocation methodology provided as proposed regulatory language constitutes a regulatory bias in the model rule in favor of natural gas combined-cycle and IGCC coal units and against pulverized coal units. This is contrary to Stated national energy and economic policy. FMEA supports EPA's proposed input-based allocation of allowances to existing units found in the model rule. Here EPA recognizes that heat input data does not reflect the inherently higher emissions from coal-fired units and suggests incorporation of an adjustment factor of 1.0 for coal, 0.4 for natural gas and 0.6 for oil. FMEA opposes EPA's proposed model rule allocation methodology for new units and defining post-January 1, 1998 as new units. EPA proposes a fuel neutral, output-based allocation of allowances based upon a 'converted' annual heat input approach that uses an unrealistic single heat rate of 8000 Btus per kilowatt hour (KWh). This provides a significant bonus to gas units, disadvantaging pulverized coal units and greatly disadvantaging circulating fluidized boilers (CFBs). Today's gas-fired combined-cycle units have a heat rate of about 7000 Btus per KWh, IGCCs are about 8500-8800 Btus per KWh, pulverized coal plants about 9600-9800 Btus per KWh and CFBs about 10,000 Btus per KWh. (Note future pulverized coal plants are expected to achieve improved heat rates).Clearly, EPA's proposed model rule approach will favor one fuel (natural gas) over another (coal) and will favor some technologies (IGCC) at the expense of others (CFBs and other pulverized coal plants). Narrowing technological options by favoring IGCCs is inappropriate. IGCC technology is unproven and highly expensive. EPA's NOx allocation methodology 1) does not take into account the different emission characteristics of coal and natural gas and the fact that it is far more expensive to remove NOx from coal than natural gas, and 2) by using a single output based multiplier, fails to recognize the inherent efficiency differences of various generating technologies. This makes sense only if the desired regulatory bias for national policy goals is towards fuel switching to natural gas and narrowing coal technology choices.Given the national energy policy goals of energy security and fuel diversity, the most appropriate policy is one that seeks emission reductions commensurate with fuel differences and the efficiency performance of differing technologies. FMEA recommends that EPA amend the proposed 'converted' heat input calculation to allow heat rates that reflect different fuel types and generating technologies. These should reflect the optimum efficiency for each. For example the converted heat input formula could use 6500 Btus per KWh for gas-fired combined cycle units, 8000 Btus per KWh for IGCC units, 9000 Btus per KWh for conventional coal units and 9500 Btus per KWh for CFB units.

Response:

Following the general suggestions by the commenter, EPA is now putting forth two different heat rates conversions for new unit (based on fuel) for the modified output example approach. See

discussion in Chapter VIII of the preamble and the responses to related comments in this section XIII.F of the Response to Comment document.

Comment:
Emission reduction requirements for different sources should be commensurate with that fuel type's ability to reduce emissions. EPA's preferred output-based, fuel neutral allocation of NOx allowances and a single proposed heat rate (8000 Btus/KWh) will penalize pulverized coal units compared with new natural gas combined-cycle units by 15 to 20 percent. This constitutes an incentive for fuel switching and for constructing new natural gas plants instead of new, clean coal units. A policy that promotes fuel switching to natural gas will undermine sound energy, economic and environmental policy and will raise electric utility demand for natural gas, further driving up natural gas prices and electric rates.

Response:
Following the general suggestions by the commenter, EPA is now putting forth two different heat rates conversions for new unit (based on fuel) for the modified output example approach. See discussion in Chapter VIII of the preamble and the responses to related comments in this section XIII.F of the Response to Comment document.

Since existing units would be allocated on the basis of their historic heat input - it is not clear how modified output conversion factors would encourage fuel switching.

Comment:
The modified output basis for calculating allowances for new units will inappropriately and adversely affect new coal units. New units undergoing permitting and/or under construction will not have the ability to establish a baseline heat input until going into commercial operation. EPA has proposed allocating allowances for such units by calculating the heat input for such units by multiplying the unit's output by a heat rate conversion factor of 8000 Btu/kWh. EPA suggests that the 8000 Btu/kWh rate represents a midpoint between expected heat rates for new gas-fired combined cycle plants, new pulverized coal plants, and new integrated gasification combined cycle ('IGCC') coal plants. EPA's stated purpose for such this approach is to encourage new, clean generation and to provide incentives for efficient generation. Although MidAmerican agrees with an approach that encourages clean efficient generation, we do not believe that this rule, or environmental rules in general, should be used as a proxy for determining the nations energy policy. Consistent with EPA's recognition of fuel distinction in the proposed allowance determination methodology for existing units, MidAmerican believes EPA should use selected conversion rates for new units that encourage the efficient use of each fuel respectively. The use of 8000 Btu/kWh rate will inappropriately penalize all new coal units. MidAmerican recommends establishing conversion rates that provide incentives for the efficient use of coal, gas and oil, respectively. For example, a coal conversion factor should provide an incentive for the efficient use of coal. While EPA's methodology suggests a midpoint between expected heat rates for new gas-fired combined cycle plants, new pulverized coal plants, and new IGCC plants, State regulatory approval of the construction of IGCC units is questionable due to recent regulatory commissions' determinations that the IGCC technology has not been demonstrated as reliable and

cost effective for large units. Additionally, the range of heat rates for IGCC units can be anywhere from 8400 Btu/kWh to 9500 Btu/kWh. Given the current State of IGCC technology and the range of heat rates, EPA should only utilize a heat rate that incents proven technology such as construction of a supercritical pulverized coal boiler that can be supported by Public Utility Commissions. MidAmerican recommends a conversion factor of 8900 Btu/kWh for coal fueled units that will provide the ability to build supercritical and other units that encourage the efficient use of coal. Similarly, a conversion factor should be established for natural gas that encourages the efficient use of natural gas. However, the rule should not allow the allocation of allowances to non-fossil fired generation, nor should it establish a single conversion factor that encourages the further utilization of natural gas for the production of electricity.

Response:
Following the general suggestions by the commenter, EPA is now putting forth two different heat rates conversions for new unit (based on fuel) for the modified output example approach. See discussion in Chapter VIII of the preamble and the responses to related comments in this section XIII.F of the Response to Comment document.

While the example allocation does not provide for allocation to non-fossil generation, as discussed above, EPA leaves it up to the States to decide on an appropriate allocation approach.

Comment:
Given that there is no statutory NOx allowance program in the Clean Air Act, it is appropriate for EPA to allow the States the flexibility of how best to allocate NOx allowances as was done under the NOx Sip call. However, EPA should strongly encourage States to allocate NOx emission allowances to only fossil fuel fired generating sources, i.e. those generators that actually emit NOx. Those are the sources that will bear the brunt of the costs of complying with the new regulation. Allocating allowances to nuclear and hydro generators would constitute an unfair subsidy to those forms of generation. Allocating allowances to generators of renewable energy would amount to increasing the subsidy to types of generation that are already, or soon to be subsidized. Additionally a subsidy already exists for these sources with the Production Tax Credit.

Response:

While the example allocation does not provide for allocation to non-fossil generation, as discussed above, EPA leaves it up to the States to decide on an appropriate allocation approach.

See discussion in Chapter VIII of the preamble and the responses to related comments in this section XIII.F of the Response to Comment document.

Comment:
EPA's output-based allocation of NOx allowances using an average heat rate will penalize pulverized coal units compared with new natural gas combined cycle units by 15-20 percent. AMP Ohio supports the CAIR's proposed 'modified heat-input' approach to the allocation of baseline NOx allowances. Using average heat input for sources between 1999 and 2002 should provide an

accurate and relatively current picture on which to base allocation determinations. However, as recognized in the CAIR proposal, this approach requires modification to account for the innately different emissions rates and control costs associated with coal, oil and natural gas. The proposed allocation ratios of 1.0 for coal, 0.4 for gas and 0.6 for oil will help to ensure that the market retains the diverse fuel mix necessary for a consistent and secure supply while limiting the impact of price spikes from one particular fuel.AMP-Ohio objects to the CAIR proposal to adopt a 'modified output approach' that would govern the allocation of allowances to new units joining the CAIR program after the baseline 'modified heat-input' allocation described above is complete. This approach would allocate allowances to new units by multiplying their 'gross output by a heat conversion factor of 8,000 btu/kWh.' 69 Fed. Reg. At 32712. This sole conversion factor is designed to represent a 'mid-point between expected heat-rates for new gas-fired combined cycle plants, new pulverized coal plants, and new IGCC coal plants&.' Id. The CAIR proposal suggests that this approach is needed to 'encourage new clean generation.' Id. However, it serves to encourage new natural gas fired units at the expense of new clean coal generation. It is inappropriate to select one single 'mid point' as the key for allocating allowances to the variety of new EGUs that will come into existence. As this mid-point is an average for several different types of plants, it will necessarily over-allocate allowances to certain types of plants (e.g., natural gas units) while under-allocating allowances to others (e.g., clean coal plants). Instead, the CAIR model proposal should continue the modified heat input approach used for existing sources with benchmark factors to reflect the efficient operation of each type of EGU. The establishment of distinct benchmarks is necessary to maintain a healthy mix of generation capacity. If the CAIR proposal's 'mid-point' approach is adopted, it creates an incentive for a disproportionate number of gas-powered EGUs to be built to take advantage of the generous initial credit streams offered. This skewing of the production market is problematic. For example, in a market with too many natural gas production facilities, an interruption in the supply of natural gas would create insurmountable supply problems that could not be fully or promptly addressed through increased production at other plants because the capacity to burn coal has been artificially suppressed. Similarly, a skewed production market would be increasingly vulnerable to price spikes associated with the increasing cost of natural gas. In contrast, a balanced generation market can compensate for these and other challenges by reallocating production among its diverse members equipped with varied fuel options.

Response:
In its example allocations approach provided in today's model rule, EPA sets initial allocations to existing units using fuel type adjustment factors multiplied by heat input, as recommended by the commenter. (See Section VIII of the preamble).

In the final version of this "modified output" approach, EPA is moving away from a single heat conversion factor for new units to two conversion factors for new units: one for new oil and gas units and one for coal units, which is more in line with a number of commenter's suggestions. EPA notes that such an approach would provide new coal units with more allowances per each mwh that they generate than it would for new gas units for each mwh that they generate. However, this would serve to balance the fact that new coal units would be expected to have higher NOx emissions than new gas units.

EPA also notes, that such an approach remains, in essence, an output approach and preserves the efficiency incentives for new units within each fuel type. In other words, all coal units are treated equally - those with higher heat inputs are not rewarded with additional allowances, but get the same number allowances per mwh as other new coal units. Likewise, new gas and oil units are also all treated equally, and allocated allowances on the basis of their output.

Commenter: Large Public Power Council (LPPC), OAR-2003-0053-1756

Comment:
EPA's 'example' allocation methodology inappropriately favors new combined-cycle gas units and penalizes new coal-fired units: In the SNPR, EPA has developed an example allocation methodology for consideration by States. We expect that this methodology, if adopted in the final model trading program, will be highly influential, particularly for those States that lack the resources to develop an allocation methodology tailored to their particular circumstances. For this reason, it is vitally important that EPA present an example methodology that reflects an equitable and efficient model. Unfortunately, the example provided does not meet this criterion. Rather, EPA has developed an approach that penalizes new coal-fired EGUs and unreasonably subsidizes combined-cycle gas units. Under EPA's example allocation methodology, the formula for allocating allowances to units that were constructed after January 1, 1998 uses a single default heat rate 8,000 Btu/kWh. Use of this heat rate has the effect of providing an unwarranted windfall (of greater than 15 percent) to new combined-cycle gas units. This windfall comes at the expense of new coal-fired units. The relative shortfall for coal-fired units would force these new well-controlled sources to purchase more allowances on the open market than they would need to with a more equitable allocation methodology. LPPC urges EPA to correct this inequity. The CAIR emissions cap already will place substantial pressure on the ability of the Nation's electricity system to deliver reliable and reasonably-priced electricity. EPA should rely on the cap to effectively and efficiently establish incentives for certain types of fuels and technologies. It is inappropriate for EPA to further lean on the lever of the allocation methodology to inefficiently 'pick winners' among new generating units.

LPPC recommends that EPA revise the 'converted heat input' formulas to allow heat input rates specific to each fuel type, i.e., one rate for coal and one rate for natural gas (or other non-coal fuel).

LPPC urges EPA, in establishing rules and guidance for States on allocation, to direct States to take into account joint ownership arrangements for units and sources. CAA §408(i) elaborates an approach that States should be required to adopt. Specifically, the model rules should clarify that the allocation of NOx allowances should mirror the current approach for allocating SO2 allowances to jointly owned utility units under the acid rain program. As noted above, the statute directs that the SO2 allowances should be distributed to each joint owner of an affected unit based of their legal, equitable, or leasehold interest in that affected unit. For similar reasons, EPA should maintain this approach if a new emissions trading/allocation program is established for the SO2 control program. [[p. 4]]

Response:

EPA is adopting the approach suggested by commenter regarding fuel specific heat input rates - please see response to Squire, Sanders, & Dempsey L.L.P. for American Municipal Power-Ohio, Inc. (AMP-Ohio), OAR-2003-0053-1775 immediately preceding this comment. See also discussion in Chapter VIII of the preamble and the responses to related comments in this section XIII.F of the Response to Comment document.

Regarding the commenter's concerns about rules and guidance on allocations, the model trading rules already include provisions analogous to section 408(i) of the Clean Air Act. See, e.g., sections 96.113(a)(iv), 96.213(a0(iv), and 96.313(a)(iv).

Comment:
New sources, including advanced clean coal technologies, such as Integrated Gasification Combined Cycle (IGCC) and, for NOx, combined cycle gas-fired turbines would be disadvantaged if the rules fail to provide these sources with allowances. Instead, new sources would have to purchase allowances from existing sources. As a result, the final rule would create an economic barrier to the construction of relatively clean and efficient new sources of generation needed to accommodate growth in demand and to bring about the modernization of the generation base.

Response:
EPA is offering States flexibility regarding allocation of NOx allowances to sources. In its example allocation approach, as described in Section VIII of the preamble, EPA provides new units with allowances, initially for a new source set aside, and with enough operating data, through updating the full pool of allocation with new units allocations (on a modified output basis)

Comment:
If new units are required to participate in the CAIR cap-and-trade program, a set-aside of allowances for new units should be established.

The GCLC continues to recommend that new units be excluded from the CAIR cap-and-trade program. Including new units would discourage the development of new power plants given that it would require new sources to procure allowances. To avoid this result, new power plants should be exempted from the requirement to obtain allowances. However, if new units are included in the CAIR program and are required to obtain allowances, EPA should structure the program such that a set-aside of allowances exists for new units. Although such a set-aside would not be as beneficial as exempting new units from CAIR, a set aside that ensures allowances are available for new units would help facilitate the development of new units.

States' initial issuance of CAIR allowances should be at no cost and permanent: The CAIR cap-and-trade program should be structured such that the States' initial issuance of CAIR allowances is at no cost and only to entities that are subject to/participating in the CAIR cap-and-trade program.

Additionally, CAIR-related allowance allocations should be permanent allocations that are not adjusted periodically. The issuance of permanent allowances would provide needed certainty for entities participating in the program. Setting up a program that adjusts allowance allocations periodically would inject an unnecessary and continuing level of complexity into the program that would be detrimental to the vitality of the cap-and-trade program and the ability of program participants to make long-term plans with regard to emission reduction projects.

Response:
EPA is including EGUs greater than 25MW (old and new) in the CAIR program. Please see discussion in Section VIII of the preamble about CAIR applicability.

EPA is offering States flexibility regarding allocation of NOx allowances to sources. This includes the flexibility to create new source set-asides and/or to issue allowances on a permanent basis. As discussed in the preamble Section VIII, EPA does not believe these flexibilities impact the total cost or environmental benefits of the overall rule.

The commenter is also inconsistent in supporting a new source set-aside while condemning programs that adjust allowance allocations periodically. A new source set-aside (where unused allowances are returned to existing sources) effectively adjusts allocations periodically.

In its example allocation approach, as described in Section VIII of the preamble, EPA provides new units with allowances, initially for a new source set aside, and with enough operating data, through updating the full pool of allocation with new units allocations (on a modified output basis). It does so with significant lead time, allowing for longer term compliance planning.

Comment:
Other initial concepts described in the proposal that pose significant problems are: Allowances can be given to sources other than coal-fired EGUs thus further depleting the supply of allowances. We recommend the program to be amended in the following manner: In order to maintain a sufficient supply, states should be required to allocate allowances only to coal-fired EGUs.

Response:
EPA is offering States flexibility regarding allocation of NOx allowances to sources. This includes the flexibility to create new source set-asides and/or to issue allowances on a permanent basis. As discussed in the preamble Section VIII, EPA does not believe these flexibilities impact the total cost or environmental benefits of the overall rule. Additionally, given the fact that oil and gas units also emit NOx, limiting allowances only to coal units might seem inequitable.

Comment:
We object to EPA's determination not to allow the use of output-based methodologies for allocation of allowances. Use of output as a basis for allocation rewards and incentives the use of low- or non-polluting clean energy technologies. Indeed, we believe that output-based methodologies should be used for distribution of allowances between States and should be an available option for allocating allowances among sources within a State. Accordingly, we join in

the comments of other parties that States should be permitted to use output-based methodologies for allocation of SO2 allowances, and that States should not be required to use the title IV allocations in order to participate in the trading program.

Response:
EPA is giving States the flexibility to decide how to allocate NOx allowances to sources and can choose an approach if they believe that is most appropriate given State policy. See Section VIII of the preamble and Section XIII.F of this Response to comment document regarding NOx allowances.

Additionally, EPA reiterates that use of output based allocation methodologies, if not updated, do not provide incentives for behavior or for new generation. They only provide a one-time transfer amongst existing sources.

Comment:
The Ohio Utilities are strongly opposed to any allocation proposal that is based on 'output.' A minority of power industry stakeholders support a CAIR rule that allocates NOx allowances based on electricity output. To the extent spokespersons and cornmentors for this position have represented that these views have widespread support among power producers, the Ohio Utilities emphatically disagree. Many industry stakeholders, including the Ohio Utilities, support heat input-based allocations as the most appropriate means of regulation under the Clean Air Act.Although some power generators ostensibly support output-based allocations because they claim the proposal will 'level the playing field' or 'encourage efficient generation,' their preference for output-based allocations actually has little to do with environmental benefits and everything to do with economic self interest. It is no coincidence that many industry stakeholders supporting out-put based methodologies generally have substantial nuclear assets and, therefore, stand to receive a significant windfall from such an approach. If NOx allowances are allocated based on electricity output, companies with significant non-fossil assets will receive a windfall of NOx allowances which can be used to cover NOx emissions from coal fired units within their systems. Output-based allocations will enable these sources to simultaneously avoid the cost of controlling fossil-fuel emissions and impose additional costs of control on their competitors. The CAIR rule requires controls on emissions from combustion sources. Allocations for these combustion sources must be based on heat input.

Response:
EPA's NOx budgets are based on heat input, with fuel adjustment factors.

The example "modified output" allocation method in EPA's model rule in fact uses heat input as the basis for existing units, thus not rewarding companies for existing nuclear or other low-emitting assets. The use of updating and modified output based allocations for new units would, in fact, encourage efficient generation. States, however, can select the allocation approach they feel is most appropriate.

Comment:

Finally, this program provides an opportunity to reward efficiency in allocation methodology. By providing an output-based methodology, there is an incentive for energy efficiency and fuel the incorporation of renewables into the fuel generation mix will. We recommend that EPA incorporate output based standards into allocation methodology.

Response:
As discussed in responses to related comments in this section XIII.F of the Response to Comment Document and in Section VIII of the preamble, EPA is keeping elements of an output based approach for new units in its example allocation approach for NOx allocations. As noted, States are given flexibility in their choice of NOx allocations approach.

See other responses to related comments in his section XIII.F of the Response to Comment Document and in Section VIII of the preamble regarding the inclusion of renewables into the allocation program.

Comment -
If EPA decides to proceed with a transport rule that only covers EGUs, EPA should consider how it will address questions of equity if and when new sources are added to the IAQR. For example, would new covered sources be given the same opportunity to obtain allowances and similar allocation of allowances as EGUs?

Response:
As discussed in responses to related comments in this section XIII.F of the Response to Comment Document and in Section VIII of the preamble, EPA is keeping elements of an output based approach for new units in its example allocation approach for NOx.

Since both the setting of State SO2 budgets and unit allowance allocations are both tied to title IV allocations, a general response to these comments is found in the preamble (Section V) and in the Response to Comment Section X.A.

Comment:
We are extremely concerned that the proposed rule will skew pollution control investments in favor of 'end-of-the-pipe controls' and against pollution prevention. For decades, regulations and policies issued under the Clean Air Act have failed to place renewable energy and energy efficiency on a level playing field with these conventional pollution control approaches. This market bias will be further exacerbated by the proposed IAQR if adjustments are not made in the proposed rule and the planned supplemental model rule (SNPR) on nitrogen oxide (NOx) trading programs. We believe that adjustments are required in the proposed and supplemental rules to effectively and efficiently achieve improved air quality. We are concerned that fundamental gaps in EPA's current air quality strategies and the proposed rule place renewable energy and energy efficiency at a disadvantage in the marketplace and may actually result in increased compliance costs for regulated industry in many circumstances. We urge EPA to include language in its final IAQR and supplemental rule to provide model rules and guidance to States that highlight options available to them to further renewable energy: -by assigning allowances to fossil-fuel and

renewable generating units on an output basis (megawatt-hours of energy produced) rather than on the current input-based system (million Btus of fuel input) that places renewable energy and high efficiency combustion at a comparative disadvantage; and -by highlighting options available to further energy efficiency.

Although increased wind energy development (particularly in the East and Midwest) can play a major role in reducing NOx emissions and resultant regional ozone transport, a utility or other developer that invests in a new wind energy facility typically would not receive any NOx allowances due to such investments. By investing in add-on controls for its fossil fuel unit, the utility would gain substantial financial benefits by freeing up (and reducing their need to purchase) NOx allowances to allow them to emit NOx at other fossil fuel facilities. This regulatory framework skews the utility's investment decisions because it does not qualify for allowances worth millions of dollars if the utility invests in pollution-free wind power facilities instead of on-site controls.

The development of emission- free renewable energy facilities reduces the control costs imposed on fossil-fuel generating units to meet emission caps for NOx, and we believe that allowance allocation methods should be designed to monetize these benefits in order to provide appropriate economic signals to generators of clean energy for their contribution to the achievement of emission reductions. Unfortunately, under the current and proposed NOx cap-and-trade programs, the emission reduction benefits provided by wind power and other renewable energy generators can provide a windfall to existing fossil-fuel plants. The Agency will miss an important window of opportunity if it does not move swiftly to provide new and enhanced guidance on the integration of renewable energy and energy efficiency into the SIP process. Air quality officials have advised us that the lack of such guidance has been a major impediment to the development of a vibrant market among State and local governments to pursue pollution prevention strategies as control measures in their regional air quality plans.

Response:
EPA would note that the very nature of a cap and trade program, by placing a cost on every ton of NOx and SO2 emitted, provides in and of itself provides additional incentives for energy efficiency, by making it more costly to burn fuel. It consequently also makes generation from emitting sources more expensive relative to non-emitting generation, assisting renewable development. At the same time, cap and trade programs would also increase the wholesale price of electricity (in the case of CAIR this increase is small), raising the revenue of renewable projects. This is manner in which market based programs work.

EPA, in the model rule discussion in Section VIII of the preamble, noted that states had flexibility on the use of and size of allowance set-asides, particularly mentioning renewable and energy efficiency set-asides.

Also in Section VIII of the preamble, EPA offered an example modified-output allocation approach, mentioning that states could choose to include renewables in the updates of new

generation, and thus giving them access to the general pool of allowances, depending on their generation.

Comment:
Mackinaw Power, LLC supports market-based approaches to promote renewable energy and energy efficiency. The EPA has authority under the Clean Air Act to place renewable energy and energy efficiency on a level playing field with conventional pollution control approaches. We urge EPA to include language in its final IAQR and supplemental rule to provide model rules and guidance to States that highlight options available to them to further renewable energy: 1. By assigning allowances to fossil-fuel and renewable generating Units on an output basis (megawatt-hours of energy produced) rather than on the current input-based system (million Btus of fuel input) that places renewable energy and high efficiency combustion at a comparative disadvantage; and 2. By highlighting options available to further energy efficiency.

The development of emission-free renewable energy facilities reduces the control costs imposed on fossil-fuel generating units to meet emission caps for NOx. We believe that allowance allocation methods should be designed to monetize these benefits in order to provide appropriate economic signals to generators of clean energy for their contribution to the achievement of emission reductions. The Agency will miss an important window of opportunity if it does not move swiftly to provide new and enhanced guidance on the integration of renewable energy and energy efficiency into the SIP process. Air quality officials have advised us that the lack of such guidance has been a major impediment to the development of a vibrant market among State and local governments to pursue pollution prevention strategies as control measures in their regional air quality plans.

Response:
See response to Green Power Programs, et.al, OAR-2003-0053-1248 immediately preceding this comment.

Comment:
At the same time, we believe that it is essential for EPA to take the following additional actions to provide a level playing field for renewable energy and to strengthen air quality benefits:First, EPA should provide alternative model rules for State consideration. Although the supplemental rule purports to provide great flexibility to the States, the agency's model rule is likely to skew the outcome of State rulemaking efforts. The agency has provided the States with a detailed text of nearly 50 pages concerning only one NOx allowance approach. This heat input-based approach would encourage continued use of older fossil-fired units and would undercut the potential of the Clean Air Act to promote air quality improvement through renewable energy development.It is true that this model rule and the allocation example provided in the preamble are not binding. However, the agency's approach is detrimental because the model rule is likely to serve as the foundation for the State rulemaking process. Given the complexity of emissions trading rules and staffing limitations at the State level, many States may decide to adopt the EPA model rule rather than undertaking a difficult regulatory process. As such, we believe that the EPA model approach is fundamentally flawed. States need readily available tools (e.g., alternative model rules) to help

them meet their air quality and energy goals.The most serious problem with the model rule is that it allocates the initial NOx allowances to electric generating units that started operation prior to January 1, 1998, and it relies on this baseline to allocate allowances for the period 2010 to 2014. Moreover, under the model rule, the initial allocation is made solely on the basis of heat input in the three highest years from 1998 to 2002.As a result, only fossil-fuel electric generators receive NOx allowances until at least 2015. Thus, if States follow this 'model' approach, they would be expected to restrict the availability of allowances to support renewable energy until a point well beyond the deadlines for State and local compliance with the new air quality standards for ozone and particulate matter. As a result, we would lose an important 'window of opportunity' to drive substantial new market demand for renewable energy and encourage least-cost solutions for achieving NOx reductions.We also urge the agency to address some of the key implementation issues relevant to output-based allocation systems. We do not believe that the 25 Megawatt limit should be applicable to renewable energy generators. A one Megawatt capacity threshold should be adopted, and the regulation should allow the aggregation of units under common control or contractual agreement to meet this limit.Second, EPA should set forth a clear policy governing the integration of NOx allowance allocation systems and the criteria for EPA crediting renewable energy control measures under State Implementation Plans (SIPS). As EPA stated in 2002, '[m]any areas of the country are finding it increasingly difficult to find ways to achieve additional emission reductions needed to attain and maintain the National Ambient Air Quality Standards. EPA has emphasized that new policies are necessary to encourage innovative ways of reducing air emissions, including renewable energy.Therefore, EPA should not only issue new SIP guidance that facilitates pollution prevention control measures; the agency also needs to address the integration of the NOx allowance allocation and SIP approval processes. Otherwise, renewable energy control measures will continue to face serious regulatory barriers and fail to deliver large potential air quality benefits.Under the NOx allowance allocation regulations currently in effect in most States, it appears that renewable energy development often will fail to deliver major NOx emission reduction benefits until many years down the road. This result is likely to occur because most current State regulations allocate NOx allowances on the basis of heat input and only update such allocations every three to five years. Moreover, in reality, the updating process has a lag time that often approaches a decade, The end result is that the incumbent fossil-fuel generators are likely to use existing NOx allowances freed up by new renewable plants to their benefit for a substantial period. They could increase emissions from other fossil fuel units or sell their allowances to other polluters. Thus, the current regulatory structure distorts market signals and greatly diminishes air quality benefits.An example from the Michigan NOx allocation regulations serves to highlight this serious problem. Assume a developer brings a new wind plant on line in 2005, and the 'must-run' wind plant backs down NOx emissions from a coal-fired unit. As a result, the owner decides to shut down the coal-fired unit. Under current State regulations, the owner of the coal-fired unit will continue to receive NOx allowances and have the right to sell such allowances to other polluters until 2013 even though the coal-fired unit was retired in 2005.A major way to rectify this problem is to provide NOx allowances to support renewable energy and to integrate the allowance allocation and SIP processes. Under the Clean Air Act, the SIP process serves as the only available mechanism to provide a full accounting of air emissions. Yet, if States do not provide any allocation of NOx allowances to support renewable energy (as is currently the case in most States), then there is no ready mechanism to account for emission reductions resulting

from new renewable generation. One possible way for States to reconcile this 'Catch-22' under an emissions trading scheme is: (1) to allocate NOx allowances to support renewable energy; and (2) to require the retirement of allowances from future use as a precondition of SIP credit.Another alternative approach that might address this problem is a 'transaction-based' or 'power plant dispatch approach.' Under such an approach, State regulations would require existing generators to cede allowances commensurate with the amount of emissions reduction resulting from renewable energy or energy efficiency.In summary, we urge you to modify the supplemental CAIR rule to address the problems stated in our letter. If these problems are not corrected, we will lose an important market driver for pollution prevention.

Response:
EPA notes that there are numerous ways for States to allocated allowances, and provided a rather comprehensive overview of State's potential choices. It would be impossible for EPA to provide extensive discussion (and regulatory text) for a number of different approaches. In fact, for the NOx Sip call different States have adopted rather different approaches, indicating that States have the ability (and desire) to formulate their own allocation approach.

Contrary to commenter's assertions, EPA's example approach is a hybrid approach, not a pure heat input approach (new units would updated on an output basis.) Since existing units would not update their heat input data, this approach was specifically designed so as not to encourage continued use of older fossil-fired units, contrary to commenters assertion. While allocations for the initial time period 2010-2015 are initially allocated mostly on a heat input basis, States are welcome to use set-asides (size determined by the State) for new units any special policy objectives - such as promoting energy efficiency or renewables. The States, rather than this regulation can decide the best way to incorporate renewable incentives.

EPA believes that a cap and trade approach is a highly cost effective way to address the problem of interstate transport of PM2.5 and ozone, and it is this problem that the CAIR rule attempts to address. EPA does recognize that under a binding cap, unless renewables retire allowances they receive, there would be no overall emissions benefits from additional renewable development. However, if renewable do retire the allowances, they forego the ability to sell and realize the value of these allowances. EPA recognizes the challenges of seamlessly integrating different programs under the SIP process, and encourages States to consider such issues in their SIP design.

Comment:
FPL Group supports an output based allocation method for allowances: FPL Group agrees that EPA's CAIR proposal will achieve significant reductions of SO2 and NOx emissions. However, FPL Group believes that EPA's supplemental rule proposal has a serious shortcoming in that it continues to promote a heat input-based method of allocating emissions allowances to State budgets. Our experience under the Clean Air Act amendments of 1990 indicates that the heat input-based allocation method provides a disproportionate allocation of allowances to inefficient generating units, resulting in fewer allowances in the budgets of States that have cleaner, more efficient generating units. FPL Group believes that an output-based emissions allowance allocation system would achieve a more balanced and equitable distribution of allowances

throughout the electric generating sector. An output-based allowance allocation system: - levels the playing field for all electric generation and is fuel neutral;- recognizes and encourages efficient electric generating units;- provides the opportunity to develop a more robust market-based trading program; and- allows the allocation of allowances to non emitting generating such as nuclear, hydro and renewable energy sources.These non-emitting energy sources are part of the solution to reducing pollutant emissions and should be rewarded for their contribution to clean energy and thus should be included in the allowance allocations.Clearly EPA has previously recognized the value of utilizing an output-based allowance trading system. On January 18,2000 the Federal Register Publication (65 Fed Reg. 2674, 2702-2703) of the Final Rule on Section 126 petitions for purposes of reducing Interstate Ozone Transport included the statement that: '...the Agency has committed to adopting an output-based allocation system for the updated allocations in the Section 126 Control remedy.Subsequently, in May 2000 EPA published a guidance document for States participating in the NOx Budget Trading Process to assist them in developing output-based NOx allowance allocations.FPL Group asks that EPA publish an additional supplemental notice proposal that includes the discussion of the output-based allocation method and solicits further public review and comment of this option.

Response:
The response to this comment with regard to state budgets is in Section X of the Response to Comment document.

As discussed in responses to related comments in this section XIII.F of the Response to Comment Document and in Section VIII of the preamble, EPA is keeping a modified output based approach for new units in its example allocation approach for NOx.

Comment:
FPL Group supports an output based allocation method for allowances: FPL Group agrees that EPA's CAIR proposal will achieve significant reductions of SO2 and NOx emissions. However, FPL Group believes that EPA's supplemental rule proposal has a serious shortcoming in that it continues to promote a heat input-based method of allocating emissions allowances to State budgets. Our experience under the Clean Air Act amendments of 1990 indicates that the heat input-based allocation method provides a disproportionate allocation of allowances to inefficient generating units, resulting in fewer allowances in the budgets of States that have cleaner, more efficient generating units. FPL Group continues to believe that an output based emissions allowance allocation system represent a more efficient and accurate method than input based allocation. In contrast to the input based method, the output based methodology:- uses readily available and accurate output criteria that does not represent Confidential Business Information-levels the playing field for all electric generation and is fuel neutral;- provides the opportunity to develop a more robust market-based trading program; and- allows the allocation of allowances to non emitting generating such as nuclear, hydro and renewal energy sources.These non-emitting energy sources are part of the solution to reducing pollutant emissions and should be rewarded for their contribution to clean energy and thus should be included in the allowance allocations. FPL encourages EPA to review more current data on the installed renewable capacity to ensure that all installed and operating sources are accounted for.

Responses:
See discussion in Chapter VIII of the preamble and the responses to related comments in this section XIII.F of the Response to Comment document.

Also EPA notes, that there numerous potential approaches in setting NOx budgets but that with a permanent setting of budgets, neither input, nor output based allocations would provide additional incentives for energy efficiency. All sources have incentives to reduce emissions (improving efficiency is a way of doing this) as a result of the cap and trade program, not because the choice of permanent allocation.

In the Section VIII preamble, EPA notes that while there are implementational difficulties with including non-emitting sources in its example allocation approach, States interested in such an approach are encouraged to work them out. EPA acknowledges the work that has been done in regarding output allocations, and is providing a link to the relevant documents and guidebook that have been put together in the Model Rule Section VIII of the preamble.

EPA also repeats that States have the flexibility to decide how to allocate NOx allowances to sources and can choose a pure output (including non-emitters) approach if they believe that is most appropriate given State policy.

Comment:
On July 14, 2004, NARUC adopted the Resolution Supporting Emissions Allocations for New Clean Energy Sources (Emissions Allocations Resolution). NARUC's Emissions Allocations Resolution urges that: (1) federal and State environmental authorities, in designing and implementing emissions cap-and-trade programs, allocate emissions allowances in a manner that rewards efficient performance in new power generating facilities as EPA's CAIR rule proposes; and (2) federal and State environmental authorities allocate emissions allowances equally to all new fossil and non-fossil generators, including renewables, according to their output. This Resolution extends NARUC s National Electricity Policy, which supports addressing all air emissions from all electric power generation in ways that (1) minimize adverse environmental impacts; (2) are comprehensive and synchronized to reduce regulatory costs; (3) rely, to the extent possible, on market-based trading mechanisms; and (4) identify, to the extent possible, the net impact of resource decisions, including external factors, on public health, the environment and the economy. [[(p.3)]] As discussed below in more detail, NARUC s comments make the following observations and recommendations:
" In the context of the CAIR SNPR, NARUC supports expanding the allocation of emissions allowances in the proposed NOx cap-and trade to new clean energy sources, including renewable generation and cogeneration.
" An efficient emissions trading market requires that all resources be permitted to participate on an equal basis.
" Existing set-aside programs to provide emissions allowances for renewable generation have been largely ineffective.
" An updating allocation of emissions allowances by output provides a powerful efficiency incentive as new generators are constructed.

" The allocation of emissions allowances to non fossil generators, such as renewable generation as new generators are built, can be pursued without placing a substantial burden on existing fossil-fired generators that need allowances for compliance.
" Renewable energy sources and efficient cogeneration facilities should receive recognition for their role in reducing air emissions from power generation.
" NARUC generally supports the CAIR SNPR s allocation of emissions allowances in the proposed NOx cap-and-trade program to new units on an updating basis according to each facility output.
" NARUC urges EPA to modify its CAIR NOx proposal by explicitly including nonfossil generation, including renewable generation, in the allocation of emission allowances to new generation.

Response:
EPA appreciates commenter's general support of EPA's example allocation approach.

In the Section VIII preamble, EPA notes that while there are implementational difficulties with including non-emitting sources in its example allocation approach, States interested in such an approach are encouraged to work them out. EPA acknowledges the work that has been done in regarding output allocations, and is providing a link to the relevant documents and guidebook that have been put together in the Model Rule Section VIII of the preamble.

EPA also repeats that States have the flexibility to decide how to allocate NOx allowances to sources and can choose a pure output (including non-emitters) approach if they believe that is most appropriate given State policy.

Comment:
Comments address the allocation of NOx allowances for cogeneration and non-fossil generators such as renewables. The CAIR proposal takes an important step forward by providing an incentive for efficiency in new generators. CAIR could be further improved by explicitly supporting the inclusion of non-fossil generators in the allocation of allowances to new generators. Rather than provide detailed comments of my own, I refer you to comments filed this day by the National Association of Regulatory Utility Commissioners (NARUC), which I helped to prepare.

Response:
See response to National Association of Regulatory Utility Commissioners (NARUC), OAR-2003-0053-1774, immediately preceding this comment.

Comment:
In the supplemental notice discussion (preamble), EPA makes it clear that the states will have flexibility to allocate their EGU NOx budget to individual units however they choose. Elements of the allocation process listed for which states will have flexibility include (1) the cost of allowance distributions (free direct distribution or auction), (2) frequency of allocations (permanent or reallocation), (3) allocation methodology (input vs. output), and (4) use of set-asides (for new sources, efficiency, etc.). The only specific provision EPA proposes to require is that the states

determine allocations for affected sources 3 years in advance of the year during which the allocation is valid. We agree that the states should have discretion as to how allowances are allocated.

To the extent that EPA or any state includes set asides for renewable sources, such set-asides should be made available to all non-emitting generation including incremental hydro and nuclear uprates. Also, to the extent EPA or any state was to establish an output-based allocation methodology that included renewable sources, all generation should be included, including nuclear and hydro.

We believe it is important and necessary that states provide affected sources sufficient lead-time as to what their future allocations will be for compliance planning purposes. We would encourage the states to allow at least the 3-year advanced notice EPA has proposed, and would encourage greater lead times should a state choose to reallocate allowances more frequently than the 5-year period EPA proposes for initial allocations.

Regarding the 'sample' allocation methodology EPA has provided in the supplemental notice, while EPA makes it very clear in the preamble that this is offered as an 'example allocation system', there is no indication of such in the draft regulatory text. We urge EPA to include a statement in the regulatory text that clarifies that this approach is offered simply as an example and is in no way binding on states that choose to participate in the NOx cap-and-trade system.

Response:
EPA repeats that States have the flexibility to decide how to allocate NOx allowances to sources, including decisions about providing allocations to non-emitting generation (renewable, nuclear, and hydro) and on allowance allocation timing (as long as it is at least three years in advance)

Regarding the "sample" allocation methodology, the regulatory text explains that a state that adopts different allowance allocations procedures can participate in the EPA trading programs if certain conditions are met (e.g., on the timing for submitting allocations to EPA) - in 51.123 and 51.124. Similarly, a state has the option of not adopting any opt-in provisions and still participating in the EPA trading programs, as explained in 51.123 and 51.124.

Comment:
A consistent suggestion for improved performance standards at both a system and unit level is the adoption of limits based on unit output, rather than unit input energy. These standards can be set at comparable levels and input standards can be applied where output standards are not appropriate. Output standards highlight the appropriate economic impact on society because they define emissions based on the unit of electrical energy produced and consumed by society as a whole. Such standards provide much more direct incentive to unit efficiency improvement leading to lower residual emissions.

Tools that can provide an enhanced efficiency incentive include allocation and performance standard objectives based on output energy rather than input energy. Other means include

allocations sensitive to facility age and efficiency such that newer, more efficient units retain a higher relative allocation over time compared to older, less-efficient units that have fully recovered investment costs. [[(0961, p.7)]] Under this regulatory proposal, EPA could address the issue by steadily lowering the baseline allocation of emissions credits based on age of the facility and a linkage to original investment return. A trigger year, either based on a unit being previously subject to NSPS, or beyond a certain age, starts a schedule of proportionately reduced allocations down to a minimum level. At the end of the schedule, there becomes essentially a double incentive to provide the necessary power through lower emissions options that produce a unit power well below the likely default old facility performance standard.

Response:
EPA notes first that it is not proposing to set limits (or standards) for individual units, but rather setting up a model cap and trade program where units can decide for themselves the most appropriate compliance strategy. Commenter's discussion of unit standards are not consistent with a cap and trade approach.

Regarding allocations, EPA is giving States flexibility in their allocations of NOx allowances. A State (rather than EPA) could choose to adopt the appoach suggested by the commenter (or variations thereof).

To note, EPA's example allocation approach would have existing unit allocations be slowly lowered over time as new units enter into service and receive allowances.

Comment:
We are not requesting a change in the total number of allowances proposed for either SO2 or NOx, however we recommend that the EPA take this opportunity to shift from basing the allocation of those allowances from heat input to generation output. Both types of data are readily available from the Department of Energy. Each affected unit should be allocated a percentage of the total allowances equal to the percentage of total generation produced by the unit during the baseline period (1999-2002). Using generation data would reward efficiency and be more consistent with calls by the Administration to increase efficiency than using heat input data.

Further we recommend that the allocation of allowances be updated annually to keep pace with the changing distribution of generators. Using a rolling four year average will minimize any disruption associated with the reallocation of the allowances, and could be used to gradually reduce the number of allowances each year instead of the step-wise reduction that is currently proposed.

Response:
See discussion in Chapter VIII of the preamble and the responses to related comments in this section XIII.F of the Response to Comment document.

Comment:
EPA's proposed example allocation system seems to create an environment where an existing source's allocation would fluctuate each year based on the amount of allowances redirected to new

sources. This fluctuation could cause significant problems for existing sources to effectively plan their reduction strategies. It should also be noted that EPA's proposed example allocation system may prove to be resource intensive for States. The rules should allow for the permanent sale of whole allocations (e.g., change of ownership, sale of site).

Response:
EPA agrees that its proposed example allocation system would lead to existing source allocations slowly lowering as new emitting sources are updated to the general pool. However, the example allocation approach also proposes that these allowances would always be allocated for the year six years in advance, meaning that sources would have allowance certainty for at least a five year time horizon in advance. Furthermore, given the number and generation of existing units, the updating of new units is only expected to have small impacts in any given year on the allocations of existing units

Comment:
Finally, this program provides an opportunity to reward efficiency in allocation methodology. By providing an output-based methodology, there is an incentive for energy efficiency and fuel the incorporation of renewables into the fuel generation mix will. We recommend that EPA incorporate output based standards into allocation methodology.

Response:
EPA is giving States flexibility with regards to the allocations of the its NOx budgets to sources.

EPA notes that its example "modified output" allocations approach incorporates key aspects of an output based updating system and provides incentives for efficient new units. In the Section VIII preamble, EPA notes that while there are implementational difficulties with including non-emitting sources in its example allocation approach, States interested in such an approach are encouraged to work them out.

Comment:
CEG strongly recommends that EPA promote the concept of output-based allowance allocations to affected sources in its Model Trading Rule. CEG is a strong advocate for output-based allocations that reward and provide incentives for electric generation efficiency.

Response:
See discussion in Chapter VIII of the preamble and the responses to related comments in this section XIII.F of the Response to Comment document.

Comment:
PSEG strongly recommends that EPA promote the concept of output-based allowance allocations to affected sources in its Model Trading Rule. PSEG strongly believes in output-based allocations that reward and provide incentives for electric generation efficiency.

Response:

EPA is giving States flexibility with regards to the allocations of the its NOx budgets to sources. EPA notes that its example "modified output" allocations approach incorporates key aspects of an output based updating system and provides incentives for efficient new units.

Comment:
First, the EPA should recommend an updating, output-based allocation process for the IAQR. Although the States can choose their own allocation approach, EPA's recommendation in the model rule will be very influential in the States' decision. An updating allocation is vital to bring new, more efficient generators into the allocation program. Without it, new plants will be at a competitive disadvantage and their construction and operation will be impeded. In addition, such an approach will encourage improving efficiency at existing plants.Within an updating allocation program, the allocation must be done on an output basis. An output-based allocation encourages efficiency while an input-based allocation would encourage inefficiency. The output-based approach is clearly preferable and consistent with reducing this country's carbon intensity from the power sector.

Response:
EPA is giving States flexibility with regards to the allocations of the its NOx budgets to sources.

EPA notes that its example "modified output" allocations approach incorporates key aspects of an output based updating system and provides incentives for efficient new units.

Comment:
Increased efficiency is one of the most cost-effective ways to meet the CAIR goals while reducing emissions of all pollutants. There are several ways that the CAIR trading program can encourage increased energy efficiency, leading to lower compliance cost and also reduce emissions of non-capped pollutants. We support the example allocation system included in section IV. 'Model Cap-and Trade Rule' on page 32711 of the June 10, 2004 Federal register notice. Although the States can choose their own allocation approach, EPA's recommendation in the model rule serves as a good guide for States to encourage and promote energy efficiency. The inclusion of an updating allocation is vital to bring new, more efficient, generators into the allocation program. Without it, new plants will be at a competitive disadvantage and their construction and operation will be impeded. In addition, such an approach will encourage improving efficiency at existing plants. We believe EPA is correct in including an updating allocation program with the allocation done on an output basis. An output-based allocation encourages efficiency while an input-based allocation would encourage inefficiency. The output-based approach is clearly preferable and consistent with reducing this country's carbon intensity from the power sector. We believe the 'modified output' concept EPA includes is appropriate because it encourages new, clean generation and would not reward inefficient or higher emitting units.

However, in its current form, we believe this approach contains a potential problem. For example, any operational limitation during this first five-year period will permanently limit allocations because, while the allocations are done on an annual basis, heat input will be calculated only one time (based on their performance during their first five years of operation) for each unit.

The EPA has released guidance on including thermal output in allowance allocation programs and included thermal output from CHP facilities in the Mercury trading program SNPR. Credit should be allocated for thermal output of all CHP facilities.

Response:
EPA appreciates commenter's general support of EPA's example allocation approach.

Regarding commenter's concerns, EPA is aware that there may be operational limitations during the first five year period of a unit's operation. However, by picking the output (converted to input) of the highest three years in the initial five year span, the methodology tries to lessen the potential long-term impact of atypical operations.

EPA's example allocations approach also takes into account the heat output of facilities of CHP facilities, as discussed in Section VIII of the preamble.

States are given the flexibility to allocate NOx allowances within their NOx budget, and could certainly allocate more allowances to CHP facilities if they so choose.

Comment:
Output-based allocations -ACEEE recommends that allocations made under the proposed rule be based on the output of affected EGUs, not on their historical heat input. Output-based allocations encourage energy and economic efficiency, and can help develop more-efficient, lower emission technologies such as combined heat and power (CHP)

We recommend that EPA allow and encourage States to directly allocate emission allowances for energy efficiency programs and policies, or to create set-asides if they so choose. We recommend direct allocations over set-asides, as they can cause needless administrative complexity, incorrect economic signals, and too much uncertainty. As we have described above, this will increase flexibility, create a more diverse portfolio of emission reduction options, and increase the net economic benefits of the rule.

Response:
EPA is giving States flexibility with regards to the allocations of the its NOx budgets to sources. This includes discretion as to the use of use of direct allocations or set-asides for particular State policies. EPA's example "modified output" allocations approach attempts to take into account the heat output of CHP facilities, as discussed in Section VIII of the preamble.

EPA would not necessarily agree that particular choices of allocation, would increase the net economic benefits of the rule and the commenter has not provide supporting evidence for this assertion.

See discussion in Chapter VIII of the preamble and the responses to related comments in this section XIII.F of the Response to Comment document.

Comment:
In section 96.142 (see 69 FR 32750), EPA provides an example input-based allocation methodology for States to allocate NOx allowances to sources, but it has not provided any output-based methodology. This omission runs counter to EPA's position as a proponent of energy efficiency, having spearheaded efforts to develop and offer output- based allocation methodologies for States to use for the NOx Sip call program. In the final Transport Rule, EPA should add regulatory language for an example output-based allocation methodologies to provide assistance to and incentives for States to promote more efficient generation.

We also question why EPA has not proposed to develop States' NOx budgets using output-based methodologies. Doing so is a logical extension of EPA's energy efficiency efforts to date. We urge EPA to adopt an output-based allocation for States NOx budgets in the final Transport Rule.

Response:
See discussion in Chapter VIII of the preamble and the responses to related comments in this section XIII.F of the Response to Comment document.

Contrary to commenter's assertions, EPA's example approach is a hybrid approach, not a pure heat input approach (new units would updated on an output basis.). EPA acknowledges the work that has been done in regarding output allocations, and is providing a link to the relevant documents and guidebook that have been put together in the Model Rule Section VIII of the preamble.

Comment:
We object to EPA's determination not to allow the use of output-based methodologies for allocation of allowances. Use of output as a basis for allocation rewards and incentives the use of low- or non-polluting clean energy technologies. Indeed, we believe that output-based methodologies should be used for distribution of allowances between States and should be an available option for allocating allowances among sources within a State. Accordingly, we join in the comments of other parties that States should be permitted to use output-based methodologies for allocation of SO2 allowances, and that States should not be required to use the title IV allocations in order to participate in the trading program.

Response:
EPA is giving States flexibility with regards to the allocations of the its NOx budgets to sources.

Comment:
ARIPPA generally opposes the use of an output-based allocation scheme. First, the heating value of waste coal is lower and more difficult to extract than the heating value of standard coal. Although waste coal plants operate as efficiently as practicable, they cannot extract the same percentage of fuel-bound heat value as extracted by conventional coal-fired units. Further, on a relative basis, the heating value of the waste coal is less efficiently converted to electric output than conventional coal. Therefore, ARIPPA facilities would be disadvantaged in any output -based allocation by the very nature of waste coal as a fuel source.Second, many sources that would be

regulated under the CAIR are cogeneration facilities that would not qualify for the proposed cogeneration exemption under the CAIR. These facilities may be disadvantaged in an output-based allocation process, if their steam output is not adequately or accurately considered in the determination of energy output, or is not afforded equivalent weight in the allocation process. In any event, accurate evaluation of energy output, including all form of useful energy, would add an unnecessary complication to the allocation process.The Agency notes in its preamble to the supplemental proposal that commenters have suggested adjusting existing units' heat input data to reflect fuel type, for purposes of determining NOx budget allocations. Although the proposal is not specific, commenters suggest that distinguishing facilities based on fuel type would reflect the higher emission rate of coal-fired plants and consequently the greater burden imposed on those plants to control emissions. ARIPPA opposes the use of fuel type adjustment factors in this context. Specifically, ARIPPA is concerned that waste coal facilities would be penalized, despite the inherently low NOx emissions achieved by CFB units, due to the inherent variability of waste coal as a fuel source. Further, the Agency did distinguish among coal types in developing the proposed mercury rulemaking package. ARIPPA believes that the Agency did not adequately identify its rationale for each of the adjustment factors, and that certain of the proposed factors would unfairly disadvantage certain types of units. In addition, basing allocations on coal type may create unintended consequences for the coal industry and/or inappropriately benefit certain coal-producing regions of the country, if affected EGUs could receive greater allocations simply by switching coal type. In short, ARIPPA believes that the use of fuel type adjustment factors creates uncertainty and the likelihood for inequitable treatment of certain sources in the NOx allocation process, as well as potential adverse effects on certain segments of the coal industry.

Response:
See discussion in Section VIII of the preamble.

EPA incorporates existing units heat input in its example allocation method, adjusting these by fuel-type. EPA is not including different adjustment factors based on different coal-type in its example.

Thus, for its example allocation approach, existing cogeneration facilities that are included in CAIR would be allocated on the basis of heat input. As discussed in Section VIII, new cogeneration facilities would initially be given allowances to meet their emissions from a set aside, and eventually be updated on an output basis, taking their heat output into account.

Given that adjustment factors for coal are higher than those for natural gas or oil, it is hard to see how existing waste coal facilities would be disadvantaged by using the factors, relative to not using them.

For future generation, however, EPA also believes that providing certain types of coal units (waste coal units) with more allowances just because they are less efficient does not seem equitable and may provide incentives for inefficiency. Given that electricity is the commodity that is being produced (not heat input), having elements of an output based system for new generation is preferred.

Comment:
EPA's Model Rule for NOx Allowance Would Improperly Treat Certain Units As New Units: In the SNPR, EPA outlines a model rule that States may use for distributing NOx allowances. While the model does not have to be adopted by the States, the Group believes that the model would become a de facto requirement. Many States will adopt the model rule because they do not have the necessary resources available for the time-consuming task of developing their own allocation rules. For new units, the example allocation methodology designates any units that commenced operation after January 1, 1998, as new units that are subject to a separate allowance allocation formula using an assumed heat rate. EPA has provided no rationale for defining post-January 1 , 1998 units as new units since many of these units wail have five years of operating data by the date of adoption of this rule. The correct approach would be to use actual heat input data where three or more years of operating data exist that are representative of normal source operations. In cases where three years of operating data do not exist or the unit started operations within three years of rule adoption, EPA could use a unit's design heat rate or the optimum heat rate for that type of unit and fuel and a default capacity factor typical for the type of new unit.

Response:
Firstly, EPA does not believe that the example allocation approach offered in the model rule is a "de facto requirement". In the NOx Sip call, a number of State exercises the flexibility in allocations and tailored an approach they found most suitable.

As discussed in Section VIII of the preamble, January 1, 1998 cut-off EPA is still concerned with ensuring that particular units are not disadvantaged in their allocations by having insufficient operating data on which to base the allocations. EPA believes that a five year window, starting from commencement of operation, gives units adequate time to collect sufficient data to provide a fair assessment of their operations. Annual operating data is now available for 2003. Recognizing commenters concerns, EPA is finalizing January 1, 2001 as the cut-off on-line date for considering units as existing units since units meeting the cut-off date will have at least five years of operating data (i.e., data for 2001 through 2005).

State Flexibility on Allocations, set-asides

Comment:
The cap and trade program proposed by the rule does not ensure that allowances will be allocated to utilities. A state could choose to sell their allowances on the open market rather than apportioning those allowances among emitting facilities. The facilities would then have to find an alternate way to meet established caps, which could result in substantial costs to other states.

State driven SIP allocation will not provide planning certainty as it did in acid rain legislation. States will have the authority to allocate or not allocate allowances as they see fit. As a result, there will be a potential hodgepodge of allocation schemes or seasonal approaches. In addition,

states may choose not to participate in a trading program. Given this uncertainty, no consistent, fluid market is likely to develop. [[(p.9)]]

Response:
EPA believes that the choice of allowance allocation, while having distributional impacts, is not expected to impact the total cost or environmental benefits of the rule. It is unclear why the commenter asserts a states choosing to sell of some of their allowances on the open market would result in substantial costs to other states. According to economic principles, the market price of allowances would not significantly depend on the allocation of allowances (which is a wealth issue), but rather on the cost of meeting the cap.

In the NOx SIP call, EPA gave affected states the flexibility in participating in the trading program and in allocating NOx allowances, and this has not hampered the development of a fluid market for NOx allowances.

Comment:
CPS favors allocations or a set-aside of allowances for new units that are currently being permitted or constructed.

CPS requests that EPA consider a 'set aside' of allowances for new units that are not taken from existing unit allowances. This concept was addressed in the Clean Air Act Amendments of 1990 in Section 405, Table B in which CPS' Spruce unit was allocated a set-aside of 7647 tons since the unit was under construction at the time of the Act. CPS plans to continue building new units to maintain energy reliability and replace older, less efficient units that are being retired.

CPS requests that EPA set aside 1752 tons of NOx annually and 2102 tons of sulfur dioxide annually for its new coal unit that is currently being permitted and expected to begin construction next year. Furthermore, a nation-wide set-aside of 43,800 tons per year of NOx and SO2 each would allow for the construction of 20,000 megawatts of additional coal-fired units at a rate of 0.5 lb/MWH.

Response:
EPA notes that if the additional set-asides are to be taken from beneath the overall cap, the allowances must come from existing unit allowances. Set-aside created with new allowances would effectively raise the emissions cap and not providing certainty regarding the environmental impacts of the rule.

As discussed in Section X.A of the Response to Comment document, new units, while not receiving SO2 allowances, would continue to have access to the annual allowance auction.

EPA is giving States flexibility with regards to the allocations of the its NOx budgets to sources, meaning that States can choose to provide allowances to new sources. In the example allocation approach discussed in section VIII of the preamble, new sources would receive NOx allocations

based on their emissions from a new source set-aside , until they had adequate operating data to be updated into the general pool of allowances.

Comment:
Regarding NOx allowance allocation periods and lead times, EPA wisely proposes to allow States substantial flexibility in deciding how to allocate CAIR NOx allowances to affected utilities. Not only is this necessary in light of the division of responsibilities among EPA and the States established by the Clean Air Act, but adheres to the NOx Sip call model, which, as we mentioned above, largely survived litigation intact. We support EPA's proposed three-year lead time on proposing initial allocations. EPA bases this on its determination that at least three years is needed to enable adequate planning by affected utilities. The planning, design, financing, and installation of major controls systems like SCRs can easily take more than three years in TVA's experience. Planning certainty also supports allocating allowances for longer periods of time, if not permanently as Congress decided to do for the SO2 allowance program in title IV. Accordingly, we do not agree with EPA's negative comments about permanent allocations.

Response:
EPA is giving States flexibility with regards to the allocations of the its NOx budgets to sources. Experience with title IV, where allowances were allocated well in advance, has shown that the large majority of trades are of current vintage or near future allowances. Providing sources with the ability to bank allowances into the future provides additional compliance flexibility.

Comment:
Distribution Methodology for NOx Allowances: EPA has proposed that the States determine their own distribution methodology for nitrogen oxides (NOx) allowances, be it free allocation, auction, or a hybrid of both. NUSCo is concerned about the implications of this proposal to the electric utility industry. While we recognize that the States would like flexibility in addressing local air quality issues, this is not conducive to a robust trading system. In the competitive environment brought about by the restructuring of the electric utility industry, the allowance distribution methodology chosen by individual States may put the utility companies operating in particular States or regions at competitive disadvantage. NUSCo prefers uniform methodologies, similar to the Acid Rain program. Recognizing the regulatory nature of the CAIR, NUSCo recommends that EPA prepare clear guidance for the State Sip calls, including limits on NOx allowance allocation systems. While public comment on guidance is not required, NUSCo requests that EPA allow industry the opportunity to comment on any such guidance.

Response:
See discussion in Chapter VIII of the preamble and the responses to related comments in this section XIII.F of the Response to Comment document and particularly response to NRG below.

Comment:
Allocation Process: In regard to NOx, EPA proposes that individual States manage their NOx Budgets as they do now. This is not acceptable. While individual States can mange the compliance

portion of the program, the EPA must determine the allocation methodology. NRG is concerned with having the potential for 29 versions of allocation methodologies, various State initiatives to restrict allowances from EGUs, and programs that can disadvantage our generation sources. The allowance process should be uniform, open across all 29 States, and the allowance market kept at full potential, e.g., there should be no restrictions on interstate trading and only EGUs within the IAQR should be allowed to purchase or hold such allowances. Further, all applicable States should be required to use the model rule.

Response:
Given that allowance allocations are not expected to change the achievement of the environmental goals of the CAIR program, that different States may have different policy objectives, and that the SIP call demonstrated that giving States the flexibility has not harmed that program, EPA feels that States should have this flexibility.

However, EPA has set forth its requirements for the States in the Model Rule. These must be followed because EPA believes they are important to the successful implementation of the trading program. EPA's requirement that that States provide allowances at least three years in advance is an example.

Comment:
We urge EPA to include language in its final IAQR and supplemental rule reaffirm the authority of the States to determine the choice of allocation approaches under any proposed Federal NOx cap-and-trade program. We do not believe that EPA has legal authority to support the language in the proposed rule requiring that 'States that choose to allow their EGUs [electrical generating units] to participate in EPA-administered interstate...NOx emissions trading program must adhere to EPA's [planned] model trading rules.' 69 Fed. Reg. 4626 (emphasis added). Leading court decisions have held that section 110 of the Clean Air Act leaves to the States 'the power to determine which sources would be burdened by regulation and to what extent.' Union Electric v. EPA, 427 U.S. 246, 269 (1976) (emphasis added); See also, Train v. NRDC, 421 U.S. 60 (1975); Michigan v. EPA, 213 F. 3d 663, 686-87 (D.C. Cir. 2000).

Response:
EPA is giving States flexibility with regards to the allocations of NOx allowances to sources.

Comment:
We urge EPA to include language in its final IAQR and supplemental rule to reaffirm the authority of the States to determine the choice of allocation approaches under any proposed Federal NOx cap-and-trade program.

Response:
EPA is giving States flexibility with regards to the allocations of the its NOx budgets to sources.

Comment:

EPA is seeking comment on all aspects of its example allocation proposal. (69 FR 32713) DEP strongly supports State flexibility in choice of NOx allocation methods, including cost of the allowance distribution, frequency of allocations, basis for distribution (input/output based), and use of set-asides.

Response:
EPA is giving States flexibility with regards to the allocations of the its NOx budgets to sources.

Comment:
Indiana has included progressive incentives for energy efficiency and alternative energy projects in its NOx rule. As we read the proposed rule, States would still be able to set aside allowances for this purpose and we strongly support that.

Response:
EPA is giving States flexibility with regards to the allocations of the its NOx budgets to sources.

Comment:
Include in the model cap-and-trade rule provision for allowance set-asides for purposes of clean and renewable energy and energy efficiency programs, and for provision of some allowance auctions.

EPA encouraged States in the NOx SIP Call to adopt innovative incentive programs for energy efficiency and renewable energy (EERE) projects in their NOx trading programs. At least six States have adopted EERE allowance set-aside programs in their regulations implementing the NOx SIP Call: Indiana, Maryland, Massachusetts, New Jersey, New York and Ohio. These are important, innovative market-driven incentive programs that will produce significant environmental benefits. Also, EPA encouraged, and many States provided, allowance set-asides for new, much cleaner sources such as combined-cycle gas turbine plants. We urge the US EPA to include a provision in its model cap and trade rule that would create an allowance set-aside for these purposes.

Response:
EPA noted in the preamble Section VIII that it is giving States flexibility with regards to the allocations of the its NOx budgets to sources. EPA specifically notes the flexibility States are given regarding size and use of set-asides, and specifically mentions the possibility of using these for energy efficiency and renewables. A new unit set-aside is already part of the example allocation approach, and others could be appended if State's choose to do so.

Comment:
IDEM agrees with the proposed NOx trading program that provides States with the flexibility to include set-asides in individual trading programs. This flexibility is important to States that included various set-asides in the NOx Sip call trading program. There is some concern that the proposal that separates the programs into a nonEGU seasonal and EGU annual programs could

impact the set-asides. However, IDEM does not have enough information to determine the specific potential impact on the set-asides, especially the energy efficiency and renewable energy set-aside that IDEM included in Indiana's NOx Budget Trading Program. Here again, it seems any impacts would be mitigated if EPA would build on the Sip call and implement annual and seasonal programs.IDEM also agrees that States should be allowed flexibility in determining the allocation methodology that would be implemented and best suits an individual State's needs. EPA's proposal to mandate the allocation timing does not affect the flexibility and IDEM understands the variability that has occurred under the NOx Sip call and the need for consistency. As to the examples that EPA provided, IDEM does not have strong objections to the methodologies proposed in light of the fact that these are examples only and are not required to be adopted by individual States. IDEM would like to comment on the example methodology for allocating allowances to new units. EPA's example of using more accurate data from the first year of operation, rather than maximum design information, provides better certainty in allocating necessary allowances, but it is not clear that units that would commence operation during the year are adequately addressed.

Response:
EPA is giving States flexibility with regards to the allocations of the its NOx budgets to sources.

Comment:
EPA recognizes the value of State NOx allowance allocation decisions to achieve important policy goals. In the CAR Proposal, EPA makes clear that States will retain discretion to establish NOx allowance allocation schemes, and the Agency specifically identifies the option for States to create 'set-asides' of NOx allowances to support new units or energy efficiency activities. See CAIR Proposal at 32710.Again, MMEA urges EPA to specifically recognize the option for States to create NOx allowance set-asides to address the disproportionate negative impacts of these rules on small electric units. See MMEA March 30 comments on Transport Rule. These small EGUs suffer from diseconomies of scale, smaller rate bases, more limited access to capital, a limited ability to average emissions, and other factors that limit cost effective compliance options under interstate cap-and-trade programs like the proposed CAIR rule. Although EPA has Stated that 'the Agency intends for the [Supplemental Notice of Proposed Rulemaking] to conduct a general analysis of the potential impact on small entities of possible implementation strategies,' Transport Rule at 69 Fed. Reg. 4648, small public power systems have yet to see any indication that EPA has taken these small entity concerns into account.EPA has long recognized the disproportionate impacts faced by small entities faced with stringent Clean Air Act rules. See, e.g., 'Guidance on Mitigation of Impact to Small Business While Implementing Air Quality Standards and Regulations,' EPA Policy Guidance at www.epa.gov/ttn/oar/oarpg (April 18, 1998). Moreover, the Agency has an obligation to consider these impacts under the Small Business Regulatory Enforcement Fairness Act, 5 U.S.C. 0 601 et seq. (1996). Michigan municipal generators ask for EPA to provide such consideration in the CAIR Rule.

Response:

EPA is giving States flexibility with regards to the allocations of the its NOx budgets to sources. States can certainly provide allowances for special policy needs, such concerns about smaller EGUs, if they so chose.

Comment:
2. The Agency must include specific prohibitions in the State's use of allowance set asides. As noted in the June 10, 2004 notice, the allowance set asides are part of the allowance pool for use by existing sources but are most importantly to be used to mitigate potential barriers for new units to enter the market. If the new source set asides are not used by new sources, these allowances should be distributed back to existing affected sources to use for compliance. New source set asides should not be considered as a potential revenue steam for a State's general fund at the expense of the affected sources.

Response:
In its example allocations approach in the model trading rule, allowances not distributed from the new source set-aside are distributed back to existing sources. However, EPA is giving States flexibility with regards to the allocations of the NOx budgets to sources**.**

Comment:
The CAIR's model NOx trading rules tentatively establish a new source set-aside equal to 2% of a State's emissions budget. This 2% would be allocated among new sources on a pro-rata basis (when demand exceeds available credits) or to new sources with the remainder reallocated among existing units (if the allocation budget exceeded new source demands). However, the CAIR proposal correctly concedes that 'it is difficult to know beforehand what should be the appropriate size of the set-aside pool.' Id. At 32712.Given the importance of facilitating growth in the power sector and the projected levels of future electricity demand, this 2% set-aside is too small. Instead, AMP-Ohio suggests the establishment of a 5% set-aside. This larger set-aside will allow for the full and fair allocation of allowances to multiple new projects to encourage the development of newer and cleaner generating capacity.

Instead of simply reallocating unused set-aside credits to existing sources, AMP-Ohio proposes that any 'left over' allowances be made available to Small Generators with a demonstrated need. This would enable the State to alleviate some of the pressure on small public power facilities to shut down. This will also protect Small Generators from potential anti-competitive market behavior by large utilities hoarding allowances to the detriment of vulnerable small competitors. The ability to obtain allowances on the open market at a reasonable price is crucial to Small Generators like AMP-Ohio and a set aside pool will serve as protection against unreasonable price structures.

Response:
EPA is giving States flexibility with regards to the allocations of the its NOx budgets to sources.

Regarding the size of the set aside, the Model Trading Rule (Section VIII of the preamble) discusses the size new source set-aside within the example allocations approach. EPA has increased the set aside in the example allocation approach to 5% in the period 2010-2014 and 3% for the period afterwards. EPA encourages States to choose an appropriate size set-aside given expected new generation in the State. EPA also notes that, since unused allocations from the set-aside would be redistributed to sources, that there is less concern if the set-aside is set a little higher than necessary.

Comment:
Provide a model rule for the trading program that supports allocation of allowances to all generators on an output basis with periodic updates. Support this approach by using the same basis for allocation of allowances to the States. This means including all affected units, new and old on the same basis, with periodic reallocation of the allowances based on output of the units (lb/MWhr). The thermal output of CHP facilities should also be included in the allocation calculation. Allowances should be allocated on the same basis to all units, independent of fuel. An example rule with these features has been implemented successfully in the State of Massachusetts under the NOx SIP call.

Response:
See discussion in Chapter VIII of the preamble and the responses to related comments in this section XIII.F of the Response to Comment document. For issues on State budgets please see preamble Section V and the Response to Comment Section X regarding State budgets.

Comment:
Provide a model rule for the trading program that supports allocation of allowances to all generators on an output basis with periodic updates. Support this approach by using the same basis for allocation of allowances to the States. This means including all affected units, new and old on the same basis, with periodic reallocation of the allowances based on output of the units (1bMWhr). The thermal output of CHP facilities should also be included in the allocation calculation. Allowances should be allocated on the same basis to all units, independent of fuel. An example rule with these features has been implemented successfully in the State of Massachusetts under the 22 State NO, Sip call.SO2 Allowance Retirement Ratios and Treatment of New Sources: Another issue is the selection and implementation of alternatives for managing SO2 allowance retirement ratios and entrance of sources without title IV allowances into the CAR trading program.

Response:
See discussion in Chapter VIII of the preamble and the responses to related comments in this section XIII.F of the Response to Comment document. For issues on State budgets please see preamble Section V and the Response to Comment Section X regarding State budgets.

Comment:

Proposed Model Rule -Output Based Allocation and New Source Set Aside: The first and most important issue is the structure of the proposed model rule for allocation of NOx allowances by States to the individual sources. Calpine recognizes EPA's inclusion of several key principles in the model rule, most especially a modified output based approach for the allocation of allowances to certain sources, the inclusion of time, Calpine believes that the program could bring greater air quality benefits and achieve increased efficiency within the power sector by implementing the following improvements:- Allocate to all sources on an output basis with an updating baseline;- Establish a shorter waiting period for new sources to enter the program as existing sources; and- Create a larger new source set aside. Calpine is particularly concerned about the selection of two percent as the proposed size of the new source set aside. Based on the length of time in which many sources will be 'new', especially during the initial control period, and given the growth of generation in the decade covered, Calpine believes that a larger new source set aside is critical.

Response:
EPA in its example allocation approach only updates the data for each unit once (for existing units, based on historic heat input, for new units, on the basis of output (modified to input) once they have adequate baseline data. EPA believes that this provides the proper efficiency incentives for new generation, and does not continuously encourage generation by providing allowances for output.

EPA believes that units need five years of operating data to establish an adequate baseline for allocations purposes. EPA also believes that allowances need to be allocated several years in advance in order for them to be used most effectively as a compliance tool. EPA recognized that this leads to a waiting period for new units to enter the program as existing sources. During that time, however, units would generally be receiving allowances from the set-aside to cover their emissions (see discussion in Section VIII of the preamble)

In response to commenter's concerns, EPA has adjusted the size of the set-aside in its example allocation approach. See discussion in Chapter VIII of the preamble and the responses to related comments in this section XIII.F of the Response to Comment document regarding the set-asides.

Comment:
EPA must provide allocations, which align with the long-term nature of the emission control system investments. The strategic and financial planning process involved with the industry installing billions of dollars of new pollution control equipment is very complex. Forecasting the value of emission credits (sale or purchase) is difficult. If there is no certainty in the number of credits provided in later years, the economic analysis for such projects becomes speculative. DPL strongly encourages that EPA allocate SO2 and NOx emission credits for a time period that aligns with the economic considerations of the air pollution control equipment required for this air quality improvement. A 30-year allocation consistent with the current Clean Air Act SO2 allocation is appropriate and is necessary for utilities to determine the proper investment strategy.

Response:

See subsequent response to same commenter on same issue.

Comment:
EPA discusses how 'Permanent systems allocate all of the allowances at the beginning of the program. They provide long planning horizons for affected sources that receive an allocation.' DPL is a strong advocate of permanent systems. Our experience is that the planning, construction, and financing of expensive new air pollution control systems is greatly facilitated when it is associated with the certainty of a permanent allocation system. [[(p.3)]] EPA should not create a new set-aside program. Such a program has not been necessary under the current Acid Rain Program. EPA should instead develop an auction program, similar to the program currently implemented for sulfur dioxide. The current auction program compensates existing EGUs for the allowances withheld and sold at auction.

Response:
Firstly, EPA is giving States the flexibility in allocating their NOx allowances, and they can certainly choose to do so on a permanent basis. States may also choose to create set-asides to further particular policy objectives.

As discussed in the preamble Section VIII, EPA does not believe these flexibilities impact the total cost or environmental benefits of the overall rule. EPA does not believe that allowances need to be allocated for a length of time corresponding with the life of pollution control assets. Experience with title IV, where allowances were allocated well in advance, has shown that the large majority of trades are of current vintage or near future allowances. Providing sources with the ability to bank allowances into the future provides additional compliance flexibility.

Comment:
The NOx allocation mechanism is based on heat input and the highest one-year time period from 1999 to 2002, inclusive. NRG supports the use of heat input in determining allocations, however, we believe an expansion of the time period is needed lo account for unusual weather in the east, significant market and economic effects, and long-term outage impacts. For example in the Mid-Atlantic Region, locations served by NRG's generating stations experienced unusually mild winters in 2000 and 2001 as well as cooler summer weather in 2002.

Response:
For the example allocation method in the model rule EPA wanted to use the latest data that was fully checked and available. EPA also believes using the prior four years would serve to adequately offset any single anomalous year for a particular unit. Picking and extending time periods to accommodate anomalies in certain unit or groups of units could very well bring in anomalies in the operations of other units.

Comment:
In the methodology to be used for determining shares of the allowance pool, it would be more equitable if the rule specifies (1) EGU units producing only electrical output will use the measured

or potential output parameter to establish their share and (2) EGU units producing thermal energy for commerce and electric power may use historical or current measured heat input values. This would 'level the playing field' for those units that coproduce thermal energy and electric power that can not be as efficient as if they were only producing electric power. By allowing an electric power only production unit to use the heat input method would grant a disproportionate share of the allowance pool to those types of units.

Response:
EPA in its example allocation approach, described in the Section VIII preamble, takes into account the thermal output of cogeneration units in calculating the "modified output" of new units in the allocation process.. This was done so as to not disadvantage CHP facilities.

Comment:
A market-based regulatory program such as the emission trading programs proposed by the EPA for the IAQR can provide support for efficient, clean technologies such as CHP if it is properly designed. The USCHPA urges the EPA to structure the forthcoming emission trading rules for the IAQR so as to maximize their support for efficient technologies and CHP in particular. Although the states have the flexibility to structure their own allowance allocation rules, EPA's model rule will be a strong message to the states as to the best approach to take. Increased efficiency is widely acknowledged to be a key tool in addressing U.S. energy supply and environmental concerns. CHP is the most readily available and widely applicable source of increased efficiency for electric and power generation. The EPA should structure the IAQR model trading rule and other such rules to recognize and encourage the application of CHP.

Response:
EPA in its example allocation approach, described in the Section VIII preamble, takes into account the thermal output of cogeneration units in calculating the "modified output" of new units in the allocation process.. This was specifically done so as to not disadvantage CHP facilities. A cap and trade program, in and of itself, which places a value on every ton of emissions, also provides incentives for efficiency.

Comment:
The most common types of CHP systems being built today are combustion turbine-based systems that recover otherwise wasted heat from the turbine exhaust to generate useful thermal energy for process or space heating applications. They reduce emissions and energy consumption by avoiding the need for the separate thermal generator (boiler). However, neither an input nor an electric-only output-based allocation algorithm will account for this increased output/efficiency since the improvement is based on recovery of energy that would otherwise be wasted. Only an output-based allocation that includes credit for the thermal output properly recognizes the increased efficiency of this valuable technology. The EPA has already developed the methodology for implementing output-based allocation with credit for thermal output and prepared guidance to the States on its application. Credit for CHP was also included in the recent mercury SNPR (though with the inclusion of an extraneous conversion factor). There is no methodological impediment to

crediting the thermal output of CHP and it should be included in the model rule. Updating reallocation is needed to provide the full allowance credit to new CHP facilities. Although CHP improves the efficiency of the facility, it generally experiences higher capital cost than less efficient technologies. If regulations do not recognize and credit the environmental benefits of the technology, facility owners are less likely to make the incremental investment. Updating, output-based allocation creates a continuing incentive for facility owners to invest in more efficient equipment. Recognition of the thermal output of CHP facilities specifically encourages the additional application of efficient, clean CHP.

The experience over the past decade of including energy efficiency as an air quality compliance mechanism suggests that energy efficiency requires explicit treatment in cap-and-trade systems if its emission reduction value is to be fully realized.

Response:
EPA in its example allocation approach, described in the Section VIII preamble, takes into account the thermal output of cogeneration units in calculating the "modified output" of new units in the allocation process.. This was specifically done so as to not disadvantage CHP facilities. A cap and trade program, in and of itself, which places a value on every ton of emissions, also provides incentives for efficiency.

Comment:
Accordingly, API does not believe that EPA should create additional barriers to CHP in this rule. CHP units should not have to purchase emission allowances from older coal plants. Rather than encouraging their use, this policy will increase the barriers for CHP units by requiring these newer, cleaner plants to subsidize the emission controls at older, less efficient electrical generating units.

Response:
EPA is giving States flexibility with regards to the allocations of the its NOx budgets to sources, including allocating allowances to CHPs. EPA's example "modified output" allocations approach attempts to take into account the heat output of CHP facilities, as discussed in Section VIII of the preamble.

Comment:
In the event that EPA decides to narrow the cogeneration exemption, these adverse impacts further illustrate the need for a model trading rule to address the allowance allocation issue. One appropriate way to achieve this end may be by EPA setting allowance ratios higher than those required under the IAQR and using the extra allowances generated for allocating allowances to units such as these. To the extent that the model trading rule is unable to address this concern, States should have the opportunity to provide extra allowances using the same approach.

Response:
EPA is giving States flexibility with regards to the allocations of the its NOx budgets to sources, including allocating allowances to CHPs. State do not have this flexibility for SO2.

Comment:
The allocation system should also provide for inclusion of smaller CHP generation systems and credit for the thermal output of CHP facilities. CHP is the most widely applicable and readily available form of increased efficiency for power and thermal generation. However, it requires increased investment that is not recognized under an input-based or power-only output-based allocation approach. The EPA has released guidance on including thermal output in allowance allocation programs and included thermal output from CHP facilities in the Mercury trading program SNPR. Credit should be allocated for thermal output of all CHP facilities.

Response:
EPA is giving States flexibility with regards to the allocations of the its NOx budgets to sources, including allocating allowances to CHPs.

EPA in its example allocation approach, described in the Section VIII preamble, takes into account the thermal output of cogeneration units in calculating the "modified output" of new units in the allocation process.. This was specifically done so as to not disadvantage CHP facilities. A cap and trade program, in and of itself, which places a value on every ton of emissions, also provides incentives for efficiency.

XIII.G. Requirement to simultaneously participate in NOx and SO2 trading programs

Comment:
States should be allowed to participate in the EPA-administered trading programs for one or both pollutants. The requirement to participate for both pollutants is a further limitation on States since they cannot choose to participate in one trading program and not the other. Also, a State should not be excluded from both trading programs if it decides to achieve some reductions of one pollutant from other than EGUs (i.e., if some NOx reductions are from non-EGUS, let the EGUs trade SO_2). Shutting people out of trading limits the overall effectiveness of the CAIR.
One commenter stated "... many facilities that have invested in pollutant specific reductions based on State or local needs, and a joint applicability would result in double jeopardy for these facilities. NRG requests that EPA maintain independent applicability."

Response:
EPA has reconsidered the issue of requiring States to adopt both trading programs and has decided to allow States to adopt either program and participate in regional trading for that particular pollutant. See discussion above regarding non-EGU reductions and limitations on trading.

Comment:
EPA proposed, in the SNPR for the cap and trade program, to require that jurisdictions that elect to participate in the EPA-managed cap and trade programs be required to participate in both pollutants. The OTC comments continued that they would limit this requirement to those States that are CAIR affected, but allow States outside of the CAIR region that voluntarily participate in the CAIR to choose to join for a single pollutant.

Response:
EPA received several comments in response to the SNPR request for comment on the proposed provision that would require those States that elect to participate in the EPA-managed cap-and-trade program to participate for both NOx and SO2, and not one or the other. Many commenters did not support the proposed requirement stating that it seemed "arbitrary" and lacked policy or legal justification. EPA recognizes that allowing States to participate in the EPA-managed cap-and-trade program for one or both of the two pollutants is more consistent with EPA's intent to provide as much flexibility to the States as is practicable. Consequently, EPA is finalizing in today's rule provisions that would allow States, whether they are CAIR affected or voluntarily join the CAIR region, to participate in the EPA-managed cap-and-trade for either $_{NOx\ or\ SO2}$ or both.

Comment:
Empire agrees with EPA's desire to propose required participation in both cap and trade programs as compared to selective participation in one program. The flexibility of the cap and trade program and the number of States that participate in both will determine the extent of the program's cost effectiveness and the end cost to the consumer. Limited participation by the States will result in deceased effectiveness due to limited supply and limited demand.

Response:
EPA received several comments in response to the SNPR request for comment on the proposed provision that would require those States that elect to participate in the EPA-managed cap-and-trade program to participate for both NOx and SO2, and not one or the other. Many commenters did not support the proposed requirement stating that it seemed "arbitrary" and lacked policy or legal justification. EPA recognizes that allowing States to participate in the EPA-managed cap-and-trade program for one or both of the two pollutants is more consistent with EPA's intent to provide as much flexibility to the States as is practicable. Consequently, EPA is finalizing in today's rule provisions that would allow States, whether they are CAIR affected or voluntarily join the CAIR region, to participate in the EPA-managed cap-and-trade for either $_{NOx\ or\ SO2}$ or both.

XIII.H. Banking and trading restrictions

Comment:
Commenters support EPA's proposal to not include a flow control provision and allow unrestricted banking of allowances under CAIR.

Response:
EPA acknowledges the support and is finalizing CAIR with no banking restrictions such as flow control.

Comment:
A flow control mechanism to restrict the use of banked allowances (as used in the NOx SIP Call) should be included in the CAIR trading programs.

Response:
See preamble Section VIII.E.

Comment:
The use of pre-2010 banked allowances from title IV will delay attainment of the PM standard and the goals of the CAIR program.

Response:
See preamble Section VIII.F.

Comment:
Commenters oppose EPA's proposal to maintain separate banks for NOx SIP Call EGU and non-EGU banks moving forward into CAIR.

Response:
In the final CAIR, States in the NOx SIP Call may choose to bring both NOx SIP Call trading EGUs and non-EGUs into the CAIR SO_2 ozone season cap and trade program, along with their banked allowances.

XIII.I. Should NOx and SO2 allowances be interchangeable?

Comment:
At this time, we believe that inter-trading of pollutants needs additional study. This issue needs to be explored is more detail to assess the proper trading ratios so that equivalency can be determined.

Response:
EPA agrees that interpollutant trading mechanisms deserve thorough study and are scientifically difficult to design because of the complexities of environmental chemistry. For this reason, EPA did not propose a specific interpollutant trading mechanism in the January 30, 2004, CAIR NPR but rather took comment on interpollutant trading in general as well as the following specific issues:

(1) What would be the exchange rate (i.e., the transfer ratio) for the two pollutants;
(2) How can the transfer ratio best achieve the goals of $PM_{2.5}$ and ozone reductions in downwind States; and,
(3) How would the interpollutant trading accommodate the different geographic regions of the $PM_{2.5}$ and ozone programs?

EPA did not receive response to the request for analysis of what the appropriate transfer ratio(s) should be nor did EPA receive any information that could be used to develop transfer ratios. (EPA did receive one comment that recommended the use a trading ratio of 2 NOx allowances for 1 SO2 allowance. No supporting analysis was presented.) In the absence of a thorough exploration of interpollutant trading, in the context of the CAIR regionwide SO2 and NOx trading programs, EPA determined that CAIR should not include interpollutant trading mechanisms.

Comment:
Until the potential impacts on attainment of such [interpollutant] trades can be quantified and reliably modeled, 'appropriate' exchange rates are impossible to determine and inter-pollutant trades should not be allowed.

Response:
See above EPA response to the comment from North Dakota Department of Health, Environmental Health Section, Division of Air Quality (OAR-2003-0053-0945).

Comment:
Provisions for precursor trading should be included to maximize early reductions and their associated benefits.

Precursor trading is not a novel concept, and is broadly recognized as a valuable compliance tool in connection with ozone attainment planning and demonstrations. See, e.g., CAA Sections 182(f) and 185B, 42 U.S.C. §§ 7511a and 7511f. EPA has been directed to study interpollutant trading in

a number of different contexts, including as part of the Acid Rain Program. CAA Section 403(c), 42 U.S.C. § 7651b(c). In the context of its consideration and approval of State New Source Review program provisions in nonattainment areas, EPA has approved individual State programs that allow inter-precursor trading in ozone non- attainment areas. See, e.g., 66 Fed. Reg. 9278 (Feb. 7, 2001) (New Hampshire). Moreover, EPA has already determined that it has the necessary statutory authority to approve SIPs that include inter-precursor trading as part of a market-based emission reduction program. Environmental Protection Agency, Improving Air Quality with Economic Incentive Programs, EPA-452/R-01-001 (January 2001).While NOx and SO2 will contribute varying amounts to ambient PM2.5 across different sections of the proposed IAQR region, consideration should be given to including interpollutant trading provisions that allow NOx reduction credits to be traded for SO2 allowances on a 2:1 basis. [[(0703, p.15)]]

Response:
EPA acknowledges that it has the authority to create interpollutant trading programs and has done so, in other regulatory contexts, in the past. However, for several reasons, EPA determined that direct interpollutant trading is not appropriate in the CAIR.

EPA believes it is not appropriate for the CAIR to allow interpollutant reductions nor allow annual SO2 and annual NOx allowances to be used for compliance with annual NOx and SO2 allowance holding requirements of the model rules, respectively. This is due to these precursors having non-linear interactions in the formation of PM2.5, making the determination of appropriate transfer ratios complex. Any uniform transfer ratio would have to be an average across the CAIR region, introducing significant uncertainty. No commenters responded to the EPA's request in the January 30, 2004, SNPR for information upon which to base a credible ratio. While this commenter recommended the use a trading ratio of 2 NOx allowances for 1 SO2 allowance, no supporting analysis was presented.

Because EPA has established ozone-season and annual emission caps to address separate environmental concerns – that is ozone and PM2.5, respectively – it would not be appropriate to allow annual (NOx or SO2) and ozone-season allowances to be interchangeable. If this were permitted, there would be no certainty that either environmental goal would be achieved – having a negative environmental outcome and introducing considerable uncertainty in SIP planning process for attaining the NAAQS. Furthermore, allowing annual SO2 allowances to be used for compliance with ozone-season compliance requirements is inappropriate because there is no evidence that SO2 emission reductions will reduce ozone formation.

This commenter did not describe how an interpollutant trading mechanism would "maximize early reductions and their associated benefits." Incentives for early emission reductions are considered under a separate part of the preamble and response to comments document.

Additional discussion of this issue may be found in the CAIR NFR preamble.

Comment:
EPA has asked for comment on inter-pollutant trading (page 4635). We oppose interpollutant trading, since many parts of Indiana are affected by both transported ozone and fine particulates and precursors. Given the inter-relationship of NOx and SO2 and to have confidence in our attainment demonstration SIP, we need to have the certainty of adequate reductions of both pollutants, both within Indiana and from upwind States. To compensate for the lack of certainty, it seems that we would be forced to over-control local sources in order to demonstrate attainment. Additionally, inter-pollutant trading adds significant complexity for emissions allocations and compliance determinations.

Response:
EPA agrees that interpollutant trading mechanisms and, in particular, the trading ratios, must be based upon sound science in order to have confidence that the environmental goals or the program are still being met. These conversion factors are scientifically difficult to design. For this reason, EPA did not propose a specific interpollutant trading mechanism in the January 30, 2004, CAIR NPR but rather took comment on interpollutant trading. No analysis supporting the development of an interpollutant trading mechanism or the appropriate trading ratios was presented by commenters. As a result, EPA is finalizing the CAIR model trading rules without a mechanism for interpollutant trading.

Comment:
We offer one or two thoughts on this subject, raised in Part VIII.E of the preamble. It seems to us that the question is not whether there can be such trading - presumably anybody will be able to buy as many of either category of allowance as they want to. The question is whether one kind of allowance can be used to satisfy a requirement for the other. Without evidence that SO2 relates to ozone, one supposes that the only ready possibility would be for the use of NOx allowances to satisfy SO2 obligations. Evidently SO_2 allowances alone would be required to the extent of a source's title IV obligations. With that exception, we see no reason that such use, at an appropriate ratio, would not work. We agree that it would improve the economic efficiency of the system. One of the effects of such a choice would presumably be a persistent price ratio (in a general sense, at least) between the two sorts of allowances.

Response:
EPA believes it is not appropriate for the CAIR model rules to allow annual SO_2 and annual SO_2 allowances to be used for compliance with annual NOx and SO2 allowance holding requirements, respectively. This is due to these precursors having non-linear interactions in the formation of $PM_{2.5}$, making the determination of appropriate transfer ratios complex. Any uniform transfer ratio would have to be an average across the CAIR region, introducing significant uncertainty. No commenters responded to the EPA's request in the January 30, 2004, SNPR for information upon which to base a credible ratio.

Furthermore, because EPA has established ozone-season and annual emission caps to address separate environmental concerns – that is ozone and $PM_{2.5}$, respectively – it would not be

appropriate to allow annual and ozone-season allowances to be interchangeable. If this were permitted, there would be no certainty that either environmental goal would be achieved – having a negative environmental outcome and introducing considerable uncertainty in SIP planning process for attaining the NAAQS.

While this commenter States that the use of an interpollutant trading mechanism would "improve the economic efficiency of the system," EPA contends that use of trading markets is sufficiently flexible and efficient. Sources may develop integrated, multi-pollutant control strategies and use the separate allowance markets to mitigate differences in control costs (within the boundaries of emissions caps). In other words, a source can choose the level to which they can cost-effectively control one pollutant and, if necessary, buy or sell emission allowances of the other pollutant to compensate for any expensive or inexpensive control cost. When markets are used to provide for trading of multiple pollutants, sources benefit from the additional compliance flexibility while the caps assure the achievement of the overarching environmental goals.

Comment:
EPA is soliciting comment on whether NOx and SO2 allowances should be interchangeable, and, if so, at what transfer ratio (p. 4635). EPA's primary rationale is that such interchangeability provides regulated entities with more flexibility in compliance, thus reducing the cost of compliance. However, there are many issues that would need to be explored, including what transfer ratio, if any, would best accomplish the goals of achieving $PM_{2.5}$ and ozone attainment in downwind States.For areas with more severe ozone problems than PM2.5 problems, should sources that are only putting on SO2 controls be able to exchange those for NOx allowances? EPA needs to explore the issues involved with such interchangeability more fully, including a rigorous analysis of whether such inter-pollutant trading would impede areas' ability to attain the NAAQS.

Response:
EPA agrees with the commenter that it is essential to establish credible transfer ratios for any interpollutant trading mechanism to be effective at maintaining the integrity of the markets and the emission caps. The non-linear interactions of the precursors in the formation of $PM_{2.5}$ makes the determination of appropriate transfer ratios complex and it would need to be based on thorough analysis. No commenters responded to the EPA's request in the January 30, 2004, SNPR for information upon which to base a credible ratio. As a result, the final CAIR model rules do not include an interpollutant trading mechanism.

Comment:
A restricted interpollutant trading mechanism that permits ozone and non-ozone NOx allowances to be used for SO_2 emissions will maximize compliance flexibility without sacrificing environmental objectives.

Response:

See above EPA response to the comment from Alcoa Corporate Center (OAR-2003-0053-0729). In addition, EPA contends that any interpollutant trading mechanism that does not develop the trading ratios using thorough scientific study, can not ensure that it is not "sacrificing environmental objectives." EPA did not receive comments presenting analysis or information that could be used to support the development of appropriate trading ratios.

Comment:
In the proposal, EPA raises questions about the potential of trading NOx and SO2 allowances interchangeably - and what might be an appropriate exchange ratio. It is not appropriate to trade allowances of NOx and SO2 interchangeably (FR Vol. 69 No. 20 pg. 4635). There is no precedent for the interchangeability of allowances for pollutants that have such distinct atmospheric interactions and individual environmental impacts. The only precedent for interchangeability of two pollutants is that of NOx for VOC reductions in SIP accounting.

This policy is based on the science: the interaction of NOx and VOC as precursors in ozone formation. The efficacy of reducing NOx or VOC varies depending on the preponderance of NOx or VOC emitting sources in a region - whether a region is NOx or VOC 'limited.' Depending on which pollutant is the limiting factor, reductions of one pollutant over another are preferable for reducing ozone levels.

Finally, the application of this exchange of SIP credits is limited in scope and application. NOx and SO2 behave too differently in the atmosphere, deposition and water bodies, and the control of the pollutants are too disparate, to warrant the complication of trying to trade them interchangeably. Even if one could defend a proposed ratio or 'exchange rate' between the two, which is scientifically questionable, the complex accounting would be a nightmare. We strongly encourage EPA to not pursue that path.

Response:
See above EPA response to the comment from North Dakota Department of Health, Environmental Health Section, Division of Air Quality (OAR-2003-0053-0945).

Comment:
Cinergy supports a provision for interpollutant trading that permits the use of ozone season and non-ozone season NOx allowances to pay for SO2 emissions. A reduction in NOx during the non ozone season will help to reduce PM2.5, just as SO2 reductions would. A reduction in NOx emissions during the ozone season will render an added benefit over SO2 reductions. NOx reductions will ameliorate problems with ozone and fine particulate. In contrast, SO2 reductions would only address problems with fine particulate.

Response:
EPA believes it is not appropriate for the CAIR model rules to allow annual NOx allowances to be used for compliance with annual SO_2 allowance holding requirements. This is due to these precursors having non-linear interactions in the formation of $PM_{2.5}$, making the determination of

appropriate transfer ratios complex. Any uniform transfer ratio would have to be an average across the CAIR region, introducing significant uncertainty. No commenters responded to the EPA's request in the January 30, 2004, SNPR for information upon which to base a credible ratio. Furthermore, because EPA has established ozone-season and annual emission caps to address separate environmental concerns – that is ozone and $PM_{2.5}$, respectively – it would not be appropriate to allow ozone-season NOx allowances to be used for compliance with the annual SO_2 requirements. If this were permitted, it would introduce considerable uncertainty as to whether the $PM_{2.5}$ program goals would be achieved. In addition, the commenter does not offer any supporting analysis as to how a credible transfer ratio could be established

Comment:
We believe it is inappropriate to allow the free interchange of NOx and SO2 allowances within the trading system. At a minimum, such a system would create confusion and greater uncertainty in the allowance market place and negatively affect control decisions, and more so, can undermine the underlying science that supports policy and regulation, and the ability to achieve the pollution control goals that States and local governments rely upon. As EPA moves to finalize the IAQR, we encourage adherence to budget and trade principles that have survived and worked effectively in the acid rain provisions of the Clean Air Act, the $_{OTC\ NOx}$ Budget Program, and the NOx SIP Call. In each case, the primary regulatory mechanism was to establish a timely and effective emissions budget, and secondarily, establishing predictable and measured flexibility for affected sources to reach that budget by using cost-effective strategies and controls. The proposed IAQR appears to promote that flexibility above the goal of the budget in both timing and level of reductions.

Response:
EPA agrees that finalizing the model rules without an interpollutant trading mechanism facilitates greater clarity in the allowance markets. In addition, EPA believes that the use of the cap-and-trade approach provides sufficient flexibility for sources to comply with the CAIR's stringent emission reductions. By maintaining separate markets for NOx and SO2 emission allowances, EPA ensures that the CAIR will meet it's environmental goals.

Comment:
Inter-pollutant trading of SO_2 for NOx should be considered to ease the burden of complying with Phase I, providing EPA can devise a scientifically valid basis for this approach.

Response:
EPA agrees that it is essential any interpollutant trading mechanism must be based upon scientifically valid trading ratios, which have not been currently developed. (See the response for the comment from Indiana Department of Environmental Management [OAR-2003-0053-0709].)

By establishing separate NOx and SO2 emissions caps, EPA ensures that the desired emission reductions will occur, and occur at individual levels that EPA analysis has shown will accomplish the program's environmental goals. EPA analysis has also shown that these levels of emission reductions can be achieved at highly cost effective levels. The model cap-and-trade rules provide

additional, source-level flexibility in that they can use trading markets as part of their strategy to balance reductions of the two pollutants. More specifically, sources may develop integrated, multi-pollutant control strategies and use the separate allowance markets to mitigate differences in control costs (within the boundaries of emissions caps).

Comment:
In the IAQR Preamble, EPA asks whether SO2 allowances and NOx allowances should be interchangeable, and if so, at what ratio the two pollutants should be interchangeable. NCDAQ believes that inter-pollutant trading is not appropriate given the different importance that SO2 and NOx emissions have in the different regions of the country. For example, SO2 is very important to fine particle formation in the Southeast, and NOx has a lesser role. However, in the Midwest, NOx plays a greater role in fine particle formation, especially in the winter. Due to the complex chemistry, it would be difficult to develop a ratio over the region covered by the IAQR to ensure that all significant contribution is addressed while allowing inter-pollutant trading.

Response:
EPA agrees that designing effective interpollutant trading mechanisms is scientifically difficult because of the complexities of environmental chemistry. For this reason, EPA did not propose a specific interpollutant trading mechanism in the January 30, 2004, CAIR NPR but rather took comment on interpollutant trading. EPA did not receive response to the request for analysis of what the appropriate transfer ratio(s) should be nor did EPA receive any information that could be used to develop transfer ratios. (EPA did receive one comment that recommended the use a trading ratio of 2 NOx allowances for 1 SO2 allowance. No supporting analysis was presented.) In the absence of a thorough exploration of interpollutant trading, in the context of the CAIR regionwide SO2 and NOx trading programs, EPA determined that CAIR should not include interpollutant trading mechanisms.

Comment:
CE strongly encourages EPA to employ emissions trading as an integral part of the IAQR, and suggests that interpollutant (SO2:NOX) trading be incorporated to provide greater flexibility in achieving emission reductions.

Responses:
See response to comments from Alcoa Corporate Center (OAR-2003-0053-0729).

Comment:
EPA is currently addressing how best to achieve fine particle ($PM_{2.5}$) reductions across the country. Inter-pollutant trading between NOx and SO2 has been suggested as one mechanism for achieving needed reductions and long-term protection of human health and welfare. Cap and trade programs have many proven advantages. In fact, single pollutant trading is being applied successfully to address acid deposition associated with SO_2 and ozone caused by NOx. However, inter-pollutant trading for NOx and SO2 emissions is not a sound $PM_{2.5}$ reduction strategy.

The concept of trading among two or more pollutants can be an appropriate mechanism for addressing an environmental concern if the following two criteria are met:

- Reduction of one pollutant instead of another produces equal or greater health and environmental benefits than would have resulted if trading had not been allowed.

- Reduction of one pollutant instead of another does not lead to significant disbenefits for other important human and environmental health outcomes, which are considered to be different from the particular issue being addressed by the proposed trading.

The cap and trade program under the Kyoto Protocol for reducing global warming pollutants provides an example where inter-pollutant trading can be a relatively sound approach. [[(See section 5.2, p.42, of Docket Number 0786 for a discussion of the cap and trade program under the Kyoto Protocol)]]

Inter–pollutant trades must be preceded by the development of health risk and air quality effects protocols that define how a reduction in one pollutant provides equal or greater benefits than reductions in another pollutant, taking into account impacts on different affected populations. Even more complex - but still absolutely essential - would be the establishment of a precise risk-equivalence protocol before any program could allow trading between pollutants whose health and/or environmental effects were fundamentally different. This task would need to take special care to consider cases in which different pollutants affect different population segments (children, elderly, asthmatics, etc.) in differing ways. [[(pp.42&43)]]

NOx and SO2 trading poses a problem because the two chemicals lead to different end points of concern, the health and environmental impacts associated with the two different endpoints are different, and the chemical processes determining the paths to the endpoints are complex, non-linear and highly interconnected. [[(p.43)]] [[(See section 5.3, pp.43-45, of Docket Number 0786 for a discussion of the problems associated with NOx and SO2 trading)]]

Although interpollutant trading may hold promise for some situations, EPA should not allow for this policy tool to be used for NOx and SO2. An interpollutant trading program for these pollutants would be untenable due to (1) the variations in the secondary pollutants formed and their diverse environmental and public health impacts and (2) the complex interrelationship among NOx and SO2 and other continents of the atmosphere.

Response:
See above EPA response to the comment from North Dakota Department of Health, Environmental Health Section, Division of Air Quality (OAR-2003-0053-0945).

Comment:
This commenter opposed any effort to allow inter-pollutant allowance trading. The effects of NOx and SO2 emissions have significant differences, and developing a system to trade allowances of

one pollutant for the other would be unworkable. In addition, the rule should set up programs that strive to achieve the caps for both pollutants.

Response:
This comment is generally supportive of the approach taken in the final CAIR's (i.e., interpollutant trading is not allowed). EPA agrees that it is important to maintain separate NOx and SO2 emissions caps to ensure that the desired emission reductions will occur and program will, ultimately, accomplish its environmental goals.

Comment:
DES finds that EPA's proposed inter-pollutant trading proposal needs to be more thoroughly researched and leaves many unanswered questions. The two pollutants have very different effects in the environment. What supporting evidence does EPA have to support inter-pollutant trading? Are both health impacts and environmental impacts considered in the trading concept? How will inter-pollutant trading affect pollutant allowance banking? How will the cost differential between market prices of NOx and SO2 allowances be addressed? What trading ratio between pollutants does EPA propose? It is difficult to provide meaningful comment on inter-pollutant trading without having access to detailed analyses conducted in support of this concept.

Response:
See above EPA response to the comment from North Dakota Department of Health, Environmental Health Section, Division of Air Quality (OAR-2003-0053-0945).

Comment:
Inter-pollutant trading of SO_2 for NOx should be considered to ease the burden of complying with Phase I, providing EPA can devise a scientifically-valid basis for this approach.

Response:
See above response to comment from Edison Electric Institute (OAR-2003-0053-0774).

Comment:
There is no need to trade between NOx and SO2 credits. If a facility can efficiently scrub SO2, but not NOx, then it should overcontrol SO2, sell the credits, and use the windfall to buy NOx credits. SO2 reductions will have benefits for PM, visibility, and acid precipitation. NOx reductions will have benefits for wintertime PM, wintertime haze, acid precipitation, excess nutrient loading in estuaries like the Chesapeake Bay, and summertime ozone. Trading between the two pollutants is not needed, and probably should not be allowed since their impacts do not overlap. In particular, the benefits of SO2 reductions will largely be confined to PM, while the benefits of NOx reductions will be most prevalent in addressing summertime ozone.

Response:
This comment is generally supportive of the approach taken in the final CAIR. EPA agrees that the model cap-and-trade rules provide sufficient source-level flexibility where sources can use

trading markets as part of their strategy to balance reductions of the two pollutants. More specifically, sources may develop integrated, multi-pollutant control strategies and use the separate allowance markets to mitigate differences in control costs (within the boundaries of emissions caps).

EPA further agrees that it is important to maintain separate NOx and SO2 emissions caps to ensures that the desired environmental outcomes are achieved.

Comment:
Inter-pollutant trading would undermine efforts to make the NOx reductions necessary to attain the ozone standard. Without sufficient understanding of the relative air quality impacts of the two pollutants, EPA should not propose to allow NOx and SO2 allowances to be interchangeable.

Response:
See above EPA response to the comment from North Dakota Department of Health, Environmental Health Section, Division of Air Quality (OAR-2003-0053-0945).

Comment:
Page 4635, Column 3, Line 16 - 'While the proposed cap and trade programs would control SO2 to address PM2.5 and NOx for both PM2.5 and ozone, EPA solicits comment on whether SO2 allowances and NOx allowances should be interchangeable, and if so, at what ratio should the allowance be interchangeable.'

This concept does not follow logically. If an area has a downwind ozone problem, why would that area need upwind SO2 reductions in place of NOx reductions? In addition, the setting of a ratio would be different for every downwind area and upwind source. Missouri does not support the interchange of these two pollutants for this purpose at this time.

Response:
See above EPA response to the comment from North Dakota Department of Health, Environmental Health Section, Division of Air Quality (OAR-2003-0053-0945).

Comment:
In response to your request for comment [on interpollutant trading], we believe that interpollutant trading of NOx and SO2 allowances is a bad idea. The determination of an appropriate ratio of NOx and SO2 allowances, and whether allowances allocated to one type of source can be traded to another is an empty fiscal calculation, where considerations of cost and convenience dominate. The savings in time and money can be estimated, while the cost to public health and the environment cannot be properly anticipated.

Response:
EPA agrees that the CAIR model rules should not include a mechanism that explicitly provides for interpollutant trading.

Comment:
EPA solicits comments on whether NOx and SO2 allowances should be interchangeable(sec 69 FR 4635). The NESCAUM States vehemently oppose inter-pollutant trading. We do not believe, based on our understanding of the chemistry of NOx and SO2 in producing ozone and fine particles, and on the environmental impacts of the two pollutants (estuary nitrification, regional haze, ozone, PM-fine, acid deposition), that inter-pollutant trading should be allowed. We also believe inter-sector trading may introduce inappropriate market signals into the cap-and-trade program and result in programmatic complications. The situation is further complicated by the unusually large surplus of banked SO_2 allowances, the significant cost differential between the market prices of NOx and SO2 allowances, the difficulty in attempting to quantify appropriate inter-pollutant use ratios, and our concerns about the program's ability to achieve significant ozone season NOx reductions. We believe that inter-pollutant trading is inappropriate and should not be considered for this program.

Response:
EPA agrees that the CAIR model rules should not include a mechanism that explicitly provides for interpollutant trading.

Comment:
EPA has requested comment on whether NOx and SO2 allowances should be interchangeable, and if so, at what ratio should the allowances be interchangeable. We agree with EPA's general assertion that inter-pollutant trading would provide regulated entities more flexibility in meeting emission reduction requirements and reduce compliance costs. EPA also raises several issues that would need to be addressed in considering cross-pollutant trading, issues we believe are very complex and cannot be adequately addressed in the context of a 45-day comment period. Nevertheless, we believe this concept should be pursued and suggest that EPA establish a stakeholder process to further evaluate how an inter-pollutant trading system could be incorporated into this rulemaking.

Response:
EPA agrees that inclusion of interpollutant trading in a cap-and-trade program must be based upon thorough consideration of the scientific, regulatory, and economic factors. To that end, EPA solicited comment on interpollutant trading in general as well as on some specific issues. No analysis was provided to support the development of an interpollutant trading mechanism. In the absence of data to develop the trading ratios necessary to implement an interpollutant trading provision, EPA is finalizing the CAIR model cap-and-trade rules without such a mechanism.

Comment:
We do not support interpollutant trade under any circumstances.

Response:

EPA agrees that the CAIR model rules should not include a mechanism that explicitly provides for interpollutant trading.

Comment:
Empire supports the concept of the interchangeability of NOx and SO2 allowances. As previously stated, the flexibility of the cap and trade program and the number of participating States are key factors in the cap and trade program's success. Until dynamic market conditions exist it may be impossible to establish a set ratio. Also once a ratio is set, the ratio accuracy will vary based on the market. Empire suggests that the dynamic market will be an accurate reflection of real-time difficulty experienced by sources in compliance with either the Ozone or $PM_{2.5}$ standards. Pre-setting of a ratio may be unnecessary. Empire supports the incorporation of the Mercury MACT in the IAQ Rule. Such incorporation creates a cap and trade program for NOx, S02, and Hg. In order to avoid confusion and the need to adjust ratios, Empire would recommend that the allowances be interchangeable through monetary methods. This would enhance the flexibility of the cap and trade program through a stronger tie to market conditions.

Response:
EPA agrees that the model cap-and-trade rules provide sufficient source-level flexibility where, under the environmental certainty of separate NOx and SO2 emissions caps, sources may "interchange" reductions "through monetary methods." This concept of "exchanging" one type of allowance for another through the trading markets, is different than the concept of interpollutant trading as allowing one type of emission allowance to be used for compliance with the allowance holding requirements of another cap and trade program. Interpollutant trading of this type does not seek to equate the compliance costs, but rather attempts to relate the relative contribution of each precursor to the formation of the pollutant. In this type of interpollutant trading, it is essential to develop scientifically credible transfer ratios. Even though the EPA solicited input on potentially appropriate transfer ratios, no information was provided by any commenters. In the absence of any data to develop transfer ratios, the EPA has not included an interpollutant trading mechanism in the final CAIR.

Comment:
We do not favor EPA allowing inter-pollutant trading through this rulemaking. We believe inter-pollutant trading of NOx and SO2 could potentially lead to hot spots in which one pollutant is over-controlled at a facility in favor of another to the degree that it creates public health and/or environmental problems with respect to the uncontrolled pollutant.

Response:
EPA agrees that interpollutant trading mechanisms deserve thorough study and are scientifically difficult to design because of the complexities of environmental chemistry. For this reason, EPA did not propose a specific interpollutant trading mechanism in the January 30, 2004, CAIR NPR but rather took comment on interpollutant trading in general. No analysis was presented by comments to support the use of an interpollutant trading mechanism or the development of

appropriate trading ratios. In the absence of analysis to demonstrate that the CAIR's environmental goals would be achieved if interpollutant trading provisions were included in the model cap-and-trade rules, EPA is finalizing the model rules without such provisions.

Comment:
With regard to interpollutant trading, Maine is adamantly opposed to any proposal that allows interchangeability between NOx and SO2 allowances. We are deeply concerned that such a proposal would result in greater reductions of SO2 and lesser reductions of NOx because of the relative costs of control between these two pollutants. It is very likely that we would see greater SO2 reductions, but only at the cost of increased (or foregone reductions) NOx emissions. Although these concerns might be partially mitigated by establishing a trading ratio based on the cost of allowances (e.g., 7.2 SO2 allowances per NOx allowance, based on respective costs of $276 and $2000 dollars per allowance) doing so would still ignore the very different health and environmental impacts of these pollutants. Establishing appropriate trading ratios between these pollutants would require perfect information vis `a vis the wading markets and a much better understanding of the relative health and environmental impacts of each pollutant than currently exists.

While market forces may be used to establish a trading ratio between NOx and SO2 allowances based on price alone, the relative health and environmental risks cannot be as easily quantified. Interpollutant trading would also imperil State's ability to meet and maintain air quality standards, since there would no assurances that emissions of either pollutant would actually be capped. Air quality planning efforts would be unable to address this variable and account for its impacts from either in-state or out-of-state sources.

Response:
This comment is generally supportive of the approach taken in the final CAIR model rules, which do not include a mechanism that explicitly provides for interpollutant trading.

Comment:
EPA has requested comment on the appropriateness of inter-pollutant trading in the context of this regional emissions control program that addresses attainment and maintenance of the ambient air standards. While we support and encourage the development of multi-pollutant based unit or facility performance standards, that can be sensitive to both the planned/installed technology and specified fuel type, our inability to technically justify SO2 reductions as a surrogate for NOx reductions in the context of ozone control plans leads us to discourage EPA from complicating the State emission (allocation) budgets and pollutant-specific reduction targets through any formalized NOx/SOx trading.

Response:
This comment is generally supportive of the approach taken in the final CAIR model rules, which do not include a mechanism that explicitly provides for interpollutant trading.

Comment:
Inter-pollutant Trading: EPA is soliciting comment on whether SO2 and NOx allowances should be interchangeable, and if so, at what ratio. We see a few problems with making them interchangeable. First, because NOx emissions dominate the PM2.5 problem in the winter and SO2 emissions dominate in the summer in our non-attainment area, replacing SO2 reductions with NOx reductions would be detrimental in the summer, and replacing NOx reductions with SO2 reductions would be detrimental during the winter. Second, because SO2 has no impact on ozone formation, swapping NOx with SO2 reductions would hinder ozone attainment. Third, allowing interchangeability would create uncertainty in achieving the Phase I and Phase II emission reduction targets. Because the jurisdictions will be incorporating these targets into their SIP modeling, any uncertainty in the ability to achieve these targets will create uncertainty in the attainment demonstrations. Fourth, it is impossible to design an optimal trading ratio. For PM2.5, if only the molecular weights of (NH4) 2SO4 and NH4NO3 are considered, the ratio would be 132/80, which equals 1.6 tons of SO2 for every 1 ton of NOx. But this is an unacceptable simplification, and will not work because it ignores complicated factors such as reaction rates and seasonal dominance. Fifth, EPA should also consider that any exchange ratio would necessitate allowing fractions of tons to be traded, which would make accounting more difficult. Sixth, and most importantly, there is no exchange ratio of NOx to SO2 that would be defensible for ozone attainment. For all of these reasons, Delaware cannot support the interchangeability of NOx and SO2.

Response:
This comment is generally supportive of the approach taken in the final CAIR model rules, which do not include a mechanism that explicitly provides for interpollutant trading.

Comment:
Michigan strongly disagrees with the prospect of allowing trading of a SO_2 allowance for a NOx allowance. Such interchange could increase the possibility of a 'hot spot' for one of the pollutants and could adversely affect local attainment demonstrations for $PM_{2.5}$ nonattainment areas. It also diminishes the opportunity for the reduction in ozone.

Response:
This comment is generally supportive of the approach taken in the final CAIR model rules, which do not include a mechanism that explicitly provides for interpollutant trading.

XIII.J. Individual Unit Opt-ins

Comment:
If non-EGUs are allowed to opt-in to the program, would they need to secure NOx and SO2 allowances or just NOx?

Response:
Opt-in sources may opt-in to the CAIR for NOx and/or SO2 See preamble discussion of opt-ins.

Comment:
What about the sources that currently report their non-EGUs units to the acid rain program and have scrubber controls for SO_2 - how does this affect their eligibility as EGUs or opt-in units?

Response:
Units that opted-in to the Acid Rain Program may not opt-in to the CAIR for SO_2 because such units would receive double SO_2 allocations, one allocation from the Acid Rain Program and one allocation from the CAIR. Units that opted-in to the Acid Rain Program may opt-in to the CAIR after withdrawing from the Acid Rain Program.

Comment:
To the extent States choose to regulate non-EGU's in their State rules implementing the IAQR, EPA must allow the States to include the emissions from non-EGU's in the State budget baseline and the State emission caps must be adjusted accordingly to compensate for these additional sources. This can be accomplished by establishing opt-in provisions similar to what was done under the NOx SIP Call.

Response:
EPA is allowing non-EGUs to opt-in to the CAIR. See opt-in section of the preamble for further discussion.

Comment:
The commenter does not support the provisions that require sources to opt into both the NOx and SO2 programs. EPA has proposed that the NOx and SO2 trading programs will be implemented under separate rules and the controls for the pollutants are entirely different. If a source or unit can achieve cost-effective controls for one pollutant, but not the other, it is counterproductive to not allow some participation. At least there would be a reduction in emissions that would contribute to $PM_{2.5}$ and/or ozone attainment. Separating the opt-in provisions into a NOx annual opt-in program and SO_2 opt-in program would also mesh with the current ozone season opt-in under the NOx SIP Call, if EPA would reconsider implementing both seasonal and annual trading programs.

Response:
In the final CAIR, EPA is not requiring units to opt-in for both NOx and SO2. See preamble for further discussion.

Comment:
Some commenters requested that EPA clarify that for sources that opt-in to the CAIR, the budget would be increased, and not effectively reduce allowances available to EGUs.

Response:
The budget will be increased to cover any opt-in units and will not effectively reduce the allowances available to EGUs.

Comment:
We are subject to the NOx Budget Trading Program, as owner both of an EGU and of other affected units, and deal in NOx allowances. We believe that the pattern of the proposed regulations, imposing new requirements only on EGUs, is a good one. However, we also believe that there should be no difficulty in allowing non-EGU sources now subject to NOx SIP Call requirements to participate voluntarily in the new general NOx emissions trading program. The only change in the existing requirements that would be needed would be for the source to agree to be subject to its existing obligations on a year-round rather than summertime-only basis. It could use allowances from the system to meet its existing requirements and could sell any excess allowances for use throughout the system. Denying such an opportunity would appear to limit all such sources to a significantly smaller NOx allowance market. It is true that any sources not making that choice would be limited to a still smaller allowance market. On the other hand, such an effect would operate as an incentive for such sources to undertake year-round control.

Response:
Non-EGUs covered by the NOx SIP Call are allowed to participate in the CAIR ozone season $_{NOx}$ trading program. See preamble for further discussion. Non-EGUs in general may participate in the CAIR trading programs through the individual unit opt-in provision. See preamble for further discussion.

Comment:
We are developing a long-term plan for replacement of older boilers and because major capital projects are difficult and slow for us to achieve, we are very supportive of having a workable opt-in process included in the CAIR rule. We believe the objectives of the rule (to give long-term emission targets coordinating a number on separate air pollution control programs) are at least as important to Public Universities as they are to EGUs. Suggested CAIR Opt-In Process:
Overall, we envision that opting in to CAIR would be a voluntary action where the facility would commit to meet the stringent emission levels for 2015 and in 2010 would extend current NOx controls to a year around vs. the current NOx SIP seasonal basis. In exchange for this voluntary commitment, the facility would avoid the risk of new add on control requirements prior to 2015 that would be inconsistent with the 2015 plan and would result in wasting scarce public education funds. Opting in should satisfy BART requirements, NOx SIP Call requirements, and would provide additional NOx and SO2 reductions that the State could include in any required SIP for

regional haze, and the new ozone and PM ambient standards. Obviously, as with EGUs, EPA should provide in the CAIR rule that these timetables will be considered acceptable under the implementation requirements for States for the new ambient standards.

In this regard, we suggest a simple concept for opt-ins:

- Facilities opting into the CAIR rule would be required to meet NOx and SO2 emission levels in 2015 that are equivalent to those required of EGUs for 2015.

Emissions from 2010 to 2015 would be capped based on current requirements and emission levels and tracked via Part 75 CEMS. By 2010, NOx controls, would be required to be year around instead of seasonal as they are under the NOx SIP.

- Further reductions in 2010 (beyond the transient from summer only NOx control to year-round control) would not be required for sources voluntarily opting into the CAIR rule since 2010 reductions would tend to force installation of add on controls to units scheduled for replacement prior to 2015, thus removing the greatest incentive for sources to voluntarily opt-in. 4.1

Opt-In Should be a Simple Process with Access to Trading: We also believe that the opt in process should be a relatively simple one and should provide for opt ins to be approved as soon as possible after promulgation of the final CAIR rule. Since our objective is long term certainty that allows us to move confidently forward with facility planning, funding acquisition, and project construction, we would want to opt in sooner rather than later. Waiting until 2010 or later would not provide the certainty we need to move ahead with our modernization and control plans. We also believe that opting in should provide access to the CAR rule trading program. While certainty not credit trading, is our primary opt in objective; the additional flexibility that the trading program provides for equipment installation timing is an additional incentive to opt in.

Suggested Control Levels for Opt-Ins: Our specific recommendation for 2015 emission levels for opt in facilities such as ours (non-EGU, Co-Generation, not-for-profit) are SOx limits requiring either 90 percent removal or 0.6 lb/MMBtu, and NOx limits of 0.15#/MMBtu. These limits are what we believe is reasonably feasible for fluidized bed boilers based on our current experience and expectations for the future. As you are aware, non-EGU facilities have unique characteristics that often make controls more difficult and expensive on a per ton removed basis than the characteristics of EGUs. Attachment C [[see docket number 1794, p. 10 for Attachment C]] gives some examples of cost per ton of pollutant removed at our facility; the background cost data is available in our files.

Summary: States, EPA, Sources all Benefit from Opt-In: We believe an opt in program such as we have suggested above offers substantial benefits to EPA and the States, as well as to facilities such as ours. It encourages voluntary further reductions in NOx and SO2 emissions that will substantially benefit the environment and that can be taken credit for in various SIPs. It also encourages the replacement of older boilers with new ones that are cleaner and more efficient. It

encourages the use of cogeneration with its inherently higher energy efficiency resulting in lower emissions per unit heat input. Finally, having sources voluntarily opting into the CAIR program demonstrates the benefits of integrating the various clean air programs, providing long term certainty, and a multi-state emission trading program for flexibility. Obviously our interest as a regulated source in an opt in program is also due to the benefits we see for ourselves. Most critical is the ability to develop and implement a long term plan that assures we have modern, well controlled facilities meeting or exceeding environmental requirements while also making the best use of scarce public education funding. Such planning assures we get the funding that is needed and also assures we avoid wasting scarce funds on add on controls just before we replace an outdated unit.

Response:
In response to this comment and similar comments, EPA has adopted, in addition to the primary opt-in approach described in the SNPR, an alternative opt-in approach for coal-fired units that are to be repowered in the future. The commenters indicated that they intend to repower their existing, older coal-fired non-EGUs, i.e., to replace these older units with new units that will use advanced, clean coal technology not currently in widespread commercial use (in this case, circulating fluidized bed combustion). According to the commenters, the ability to opt in these existing units without making any immediate emission reduction will facilitate and expedite such repowering. Under the primary opt-in approach, an opt-in unit is allocated, starting when it opts in, allowances reflecting a 30 percent reduction in emissions from the unit's historical baseline. EPA concludes that the benefits of encouraging greater commercialization of advanced, clean coal technologies not currently in widespread commercial use support adoption of an alternative opt-in method that does not require immediate emission reductions and is geared specifically to units that will be repowered. EPA notes that the Acid Rain Program included provisions that set forth a definition of "repowering" and that offered additional SO_2 allowances for repowered units. See 42 U.S.C. 7651a(12) and 7651h. For these reason, today's final rule includes an alternative opt-in approach, under which an existing unit may opt in before 2015, receive allowance allocations through 2014 reflecting its baseline emissions and assuming no immediate emission reduction, and then, starting in 2015, receive an allowance allocation reflecting an emission reduction likely to be achievable by the unit when it is repowered. The final rule adopts a definition of "repowering" based on the "repowering" definition in the Acid Rain Program, but updated so that the term is limited to technologies that are not in widespread commercial use as of January 1, 2005. See preamble for further discussion.

Under the alternative approach, required SO_2 levels are lesser of 90 percent removal from a baseline (which is consistent with this commenter's suggestion) or the most stringent emissions rate applicable to the unit. For NOx, the required rate is the lesser of 0.15 lb/mmbtu or the most stringent emissions rate applicable to the unit. The 0.15 lb/mmbtu rate was chosen because it was the commenter's suggested rate which is based on the commenter's current experience and expectations for the future. EPA included the "or the most stringent emissions rate applicable" language to recognize State or federal limits required by other programs. Regarding the commenter's suggestion that opt-in sources should be approved as soon as possible after

promulgation of the final CAIR, EPA will work with opt-in sources to accomplish this. See preamble for further discussion.

Comment:
EPA's proposal indicates that its detailed trading proposal will allow sources that are not covered by the mandatory cap and trade program to voluntarily opt in to its coverage. The points that follow represent our preliminary views on how that opt-in program should be structured.

EPA's opt-in program will need to specify the 'baseline' emissions level from which reductions that generate emissions credits will be measured. EPA has two choices here. Both alternatives would do what direct regulation cannot, namely allow selected units from a large and varied universe of non-EGUs that it does not make sense to regulate directly to opt in to the program and achieve substantial emission reductions cost-effectively.
EPA could adopt the approach employed in the acid rain program and the NOx SIP Call, under which reductions from past historical and allowable emissions levels qualify for credits.

EPA could require opt-in sources to achieve an additional emissions reduction before credits are generated. These 'baseline' emissions reduction levels for any given industrial unit, sector, or other appropriate subset should be determined by applying the same subset of 'highly cost-effective' reductions that applies to EGUs. Any other approach would be both unfair and economically inefficient.

Because industrial sources are more expensive to control than EGUs, applying a 'highly cost-effective' test to industrial sources will not yield the same level of emissions reductions that the identical test applied to EGUs will generate. Preliminary work performed for AF&PA indicates that the cost-effective percentage reduction in emissions for forest products facilities would be significantly less than the EGU level. If EPA requires opt-in sources to achieve additional emission reductions, these levels should be specified in a manner consistent with these facts. We would be pleased to work with the Agency in devising the methodology and specifications for determining these levels.

Opt-in sources should become part of the same cap and trade 'pool' as sources in the mandatory IAQR program. The allowances they were allocated should be added to the previous allowance total and should be as freely transferable and as valid for compliance purposes as any other allowances. Only this approach makes environmental and economic sense.

EPA should not set any minimum size limit for opt-in sources, since that would limit the potential benefits of the program.

In determining baseline emission levels, sources should be allowed to select any consecutive twenty-four month period out of the past ten years. EPA has recently concluded in its New Source Review Reform Rule that such an accounting standard is needed to reflect the variability of

industrial activities over the business cycle. Such a standard is appropriate here for the same reasons.

The Trade Associations support in principle EPA's use of an 'input based' approach to allocating control obligations. However, an output based approach might be more appropriate for industrial furnaces and other non-EGU sources that have historically measured emissions on an output basis. For example, this has always been the case for Portland cement plants. Such plants, when they opt in, should be evaluated on an output based basis. This is the traditional method by which sources in that industry measure their emissions, and it would be very difficult if not impracticable for them to change. Broadening the program to those sources that could take advantage of an output-based basis would expand the universe of potential opt-in participants to the benefit of the program and the other participants.

Sources should be allowed to opt in to the IAQR on a unit by unit basis even if all the units at a facility do not participate. That is the approach calculated to maximize participation. It is also the approach adopted by the acid rain program, see CAA §410, and the current drafts of the Clear Skies legislation. Any combustion source that produces NOx or SO2 should be allowed to opt in. That right should not be limited to boilers and turbines.

Units should be allowed to opt in for one pollutant only. Since each opt-in will lead to air quality benefits, there is no reason to discourage participation by unduly restrictive rules.

New sources should be allowed to opt in to the IAQR subject to appropriate baseline and other requirements. Although in general opt-in sources should not be allowed to generate allowances by reduced utilization or shutting down, such sources should be allowed to generate such credits for use by replacement units. The current acid rain program contains a similar provision, CAA §410(1).

Response:
See preamble. Regarding the commenter's suggestion for determining baseline emission levels, EPA believes its proposed baseline calculation for heat input and emissions rate provides a baseline that more closely estimates utilization and emission rates for the period prior to the unit opting in. EPA is finalizing a baseline heat input and emission rate based on using up to the most recent 3 years of part 75 monitored data. Opt-in units with add-on NOx controls will have their baseline NOx emission rate based on periods when the unit has add-on NOx controls. This requirement is necessary to prevent the incentive for deactivating add-on NOx controls in order to establish a higher baseline NOx emission rate and thus obtain more allowances. EPA is concerned that using any two consecutive years of the last ten years would lead to an inflated baseline. Regarding the commenter's suggestion to allocate to certain opt-in sources using an output basis, EPA is finalizing an opt-in provision that allocates using input basis in order to be consistent across unit types. States do have the flexibility to create their own opt-in provision (and thus could use an output basis) if they choose not to participate in EPA's model trading rule. EPA has expanded applicability of the opt-in provision to include more sources beyond boilers and turbines.

See preamble. New sources may opt-in to the CAIR provided they meet the requirements of the opt-in provision including completing the required monitoring for purposes of establishing a baseline. Regarding credits for replacement units, EPA has concern over allowing credits to be transferred to such units. Through its experience in the Acid Rain Program, EPA has realized that the potential exists for replacement units to receive credits from units that would have shutdown for reasons other than the replacement of the unit that received allocations originally. EPA has not included this flexibility in the CAIR to avoid this potential undesired outcome.

Comment:
There are a large number of smaller CHP facilities and there is a large potential for growth in the smaller size range. The trading rule should allow a simplified and attractive path for opt-in by small generators. Bringing more small generators into the program improves the environmental benefits by broadening the scope of the cap and reducing leakage. If the program has the attributes suggested above, favorable opt-in provisions will also encourage the use of efficient CHP. Key opt-in provisions would include:

-Opt-in at current emission rates (no automatic discount)

-Simplified monitoring for small sources

-Ability to aggregate very small sources

Response:
EPA has included an individual unit opt-in provision in the final CAIR that small CHP facilities can utilize. See preamble. EPA included an alternative opt-in method that allows the opt-in source to opt-in at current emission rates (as this commenter suggests) in return for deeper reductions in 2015. See preamble. The opt-in provision also allows for alternative monitoring methods consistent with the monitoring requirements of part 75. Regarding the ability to aggregate very small sources, the opt-in provision EPA is finalizing is designed for individual units. Regarding the ability to aggregate very small sources, if the commenter means that multiple units should be combined into one unit for purposes of opting in, EPA has not proposed nor developed procedures for combining multiple units into one unit for purposes of opting in to the CAIR. Furthermore, the commenter has not explained why aggregating very small sources would be a good idea. As stated previously, small sources can opt-in to the CAIR and may qualify for alternative monitoring methods allowed under part 75 which would lessen the burden on small sources.

Comment:
Alcoa has participated in the SO_2 emissions trading program as the owner both of a named source under title IV and as the owner of generating units that have opted in to the program and accordingly participates in transactions in SO_2 allowances. [[(p.1)]]

Under the proposed SO_2 solution to the adaptation problem, as discussed in part VIII.B.2.f. of the preamble, treatment of units that have previously opted in requires some attention. We believe that it is reasonably clear that they should essentially be left as they are, with their existing allowance allocations and requirements, the latter continuing indefinitely on a one-to- one basis. Since opt-in sources are not subject to the program they are opting to take part in, any emission reduction they achieve would achieve a ton-for-ton reduction in overall SO_2 emissions to the atmosphere. The rationale for the proposal that users of allowances later be subject to a two-for-one and then a three-for-one requirement does not have any application to opt-in sources. We presume that the EPA will find it necessary that, for purposes of meeting the new requirements, allowances from opt-in sources could be used only when the opt-in source is itself located within the region.

At the same time, we believe that in the adapting of the existing programs into the new, the benefit to the program from sources that have already opted in under the existing program should be retained, and that the investment that many such sources have made in expectation of participating in the markets as opt-in sources should be duly respected.

We believe that it would hurt the transparency of the allowance market system to allow State-by-State variations in what categories of sources are required to be covered. We urge that the opt- in system be the only source of non-EGU allowances.

Response:
The value of allowances that opt-in units received under the Acid Rain Program would not change as a result of the CAIR, and such units would continue to receive the same amount of allowances under the Acid Rain Program after the CAIR is implemented. If such a unit sold its allowances to a unit affected by the CAIR, the unit purchasing the allowances would be subject to the retirement ratios when using the purchased allowances. Therefore, units that opted in to previous EPA programs such as the Acid Rain Program will be left as they are, with their existing allowance allocations and requirements. Regarding State-by-state variations, EPA is requiring States to obtain reductions only from EGUs in order to use the EPA administered model trading rule thus State-by-State variations on what sources reductions come from should not occur. However, States do have the flexibility to choose whether or not to have an opt-in provision. Notwithstanding non-EGUs in the NOx SIP Call, the opt-in provision is the only source of non-EGU allowances in the CAIR.

Comment:
EPA should clarify that States will have discretion on whether or not to allow units to opt-in. EPA indicates in the preamble that non- EGU boilers and turbines under the NOx SIP Call may choose to opt-in, but does not address if opt-in units must be EGUs if not subject to the NOx SIP Call program. EPA should consider a deadline for units to opt-in.

Response:
Opt-in units must not be EGUs if not subject to the NOx SIP Call. See preamble for further discussion. Commenter has not provided a reason for requiring a deadline for units to opt-in.

EPA is not requiring a deadline for units to opt-in, i.e., units can opt-in at any time provided they meet the requirements of the opt-in provision. States do have discretion on whether to allow opt-ins. See preamble.

Comment:
EPA notes in the Supplemental Proposal that 'if a State chooses to achieve emissions reductions from non-EGUs, then the State's EGUs may not participate in the EPA administered cap-and-trade program.' (Pages 32688 and 32692-93). This statement is made in the context of a State substituting some portion of the State emission reduction requirement proposed for EGUs to non-EGUs. EEI opposes this proposed policy as discussed elsewhere in these comments. Taking the argument a step further, if EPA in the final CalR model rule allows for opt-ins, which should only create additional emission reductions and allowance allocations, then EEI believes that the agency should make crystal clear the fact that such opt-ins would not disqualify the States' EGUs from participating in the EPA administered cap-and-trade program.

Finally, for non-EGUs, the supplemental proposal describes on pages 32693-95 several 'more stringent requirements both for developing baseline emission rates and for projecting future emission levels.' EPA has not justified these requirements, which are intended to force States that are subject to CAIR, and that consider achieving some of their CalR reduction obligations from non-EGU source categories, to develop and use extremely (and probably unrealistically) conservative emission baselines and emission reduction estimates for those source categories.

At a minimum, EPA should not impose on States the second of two alternative emission reduction calculations described on pages 32694-95. That approach would use the lower of (1) historical baseline or (2) estimated 2010 (or 2015, as the case may be) baseline emissions. It would be arbitrary for EPA to require use of a historical baseline where that baseline is lower than a more reasonable and technically supported future-year baseline**.**

Response:
See preamble. Regarding determining baselines, EPA believes its proposed baseline calculation for heat input and emissions rate (see preamble and other responses to comments in this section for further details) provides a baseline that more closely estimates utilization and emission rates for the period prior to the unit opting in than any specific alternative calculations proposed by commenters. This commenter provides no specific alternative calculation for EPA to consider and comment on. Regarding this commenter's suggestion that the alternative opt-in approach is arbitrary in that it provides a lower baseline than a more reasonable and technically supported future-year baseline would provide, this commenter proposes no specific alternative baseline calculation for EPA to consider and comment on. The alternative opt-in approach was included in response to comments suggesting EPA allow alternative methods for opting in. See preamble for further discussion of the alternative opt-in approach.

Comment:

EPA's proposed restrictions on non-EGUs that opt into the CalR cap-and-trade program are a disincentive to participation. Specifically, limiting participation to boilers and turbines, requiring opt-in for both NOx and SO2, Part 75 monitoring requirements and allocations significantly discounted from baseline emission rates are inappropriate or not justified in many cases. For example, non-EGU boilers and turbines burning natural gas have virtually no SO_2 emissions. Mandating Part 75 monitoring for SO_2 or discounting SO_2 allocations would be inappropriate and not justified. Furthermore, requiring Part 75 monitoring for NOx emissions on gas-fired boilers and heaters is not cost-justified when periodic or parametric monitoring would be sufficient. EPA should re-evaluate the proposed restrictions placed on non-EGU opt-ins to encourage participation in the CalR cap-and-trade program.

Response:
EPA has modified its originally proposed opt-in provisions in response to comments. See preamble for further discussion. EPA monitoring requirements under part 75 allow for alternative monitoring methods for low emitting units. As discussed in the preamble, monitoring consistent with part 75 is required for all units in the CAIR, including opt-ins, due to the importance of accurately measuring emissions in a trading program.

Comment:
EPA is arbitrarily restricting the ability of Non EGUs to opt into the CAIR Cap-and-Trade Program: EPA's many conditions for non-EGUs to opt into the CAIR cap-and trade program will limit program participation needlessly. Consequently, rather than designing a program that will achieve additional environmental benefits and/or reduce the total cost of achieving reductions under both the NOx SIP Call and CAIR, EPA is restricting opportunity and increasing costs.

First, instead of allowing non-EGUs to opt into the cap-and-trade program, EPA proposes to give States discretion whether to allow it or not. EPA leaves the decision on whether it will achieve its goals to another. Second, EPA restricts the type of facilities that can participate to only boilers and turbines that (1) exhaust to a stack or duct and (2) meet the same monitoring requirements as CAIR-affected units. Third, while letting State's decide whether to allow facilities to opt-in, EPA asserts that if non EGUs are allowed to opt-in, they must do so for both the NOx and SO2 reductions. Fourth, any facility that decides to opt-in must monitor according to the Part 75 requirements, and report for a minimum of one full year prior to opting in. Fifth, EPA does not grant non-EGUs the same flexibility that it extends to EGUs regarding the ability to use allocations at the facility, rather than the unit. Finally, EPA will require reductions from these units that are equivalent to what the EGUs can achieve in a 'highly cost effective' manner despite the Agency knowing that no other group of facilities can achieve reductions as cheaply as EGUs.

While some of these conditions may be legitimate, taken together they amount to a significant restriction on the opportunity and disincentive for others to participate. API urges EPA to not restrict the opt-in provisions so severely. In particular, API believes that EPA should be encouraging States to permit facilities to opt into the CAIR cap-and-trade program, does not believe that requiring facilities to opt into both the NOx and SO2 programs is justified or

necessary, and believes that EPA should lower the expected reductions from non-EGUs while extending its policy of allowing source-level compliance for opt-in units.

Response:
EPA has modified its originally proposed opt-in provisions in response to comments. See preamble for further discussion. As discussed in the preamble, monitoring consistent with part 75 is required for all units in the CAIR, including opt-ins, due to the importance of accurately measuring emissions in a trading program. Part 75 does allow for alternative monitoring methods. Despite what this commenter states, compliance for non-EGUs that opt-in to the CAIR and EGUs affected by the CAIR are done at the facility level. States do have discretion on whether or not to have an individual unit opt-in provision. See preamble.

Comment:
At 69 FR 32713, EPA solicits comment on whether opt-in provisions for units not otherwise subject to the Transport Rule should be included in the final rule and includes a description of a potential opt-in approach. We have several concerns with this approach. First States should be able to make the decision as to which units should be in the program, not the sources. Second, by allowing sources to opt into the Transport Rule program, EPA may reduce the effectiveness of the Acid Rain Program because, as written, the proposed retirement ratios would not apply.

Response:
The retirement ratios will apply to opt-in units the same as to all other units in the CAIR. The retirement ratios will be reflected in the value of the allowances that opt-in units will receive. Therefore, EPA does not believe that allowing units to opt-in to the CAIR will reduce the effectiveness of the Acid Rain Program. States do have the flexibility to choose whether or not to have an individual unit opt-in provision. See preamble.

Comment:
EPA's suggested conditions for allowing units not subject to the mandatory CAIR program to 'opt in' are so stringent that they will discourage many environmentally beneficial opt-ins. These problems could be fixed with no cost - indeed, with benefits - for EPA's emission reduction goals.

Response:
EPA has modified its originally proposed opt-in provisions in response to comments. See preamble for further discussion.

Comment:
As currently proposed in the two announcements, the CAIR would require participation by electricity generating units (EGUs) and would only allow non-EGU boilers to opt-in. This narrow scope prohibits participation by a number of non-EGU categories to the detriment of the program. It is in EPA's interest to encourage participation by a broader universe of potential sources.

PCA suggests not only that EPA remove the boiler-only restriction on the opt-in section, but that the final rule take additional steps to encourage participation by manufacturing facilities that utilize industrial furnaces and other sources that have historically measured emissions on an output basis. For example, this has always been the case for Portland cement plants. Such plants, when they opt in, should be evaluated on an output based basis. This is the traditional method by which sources in that industry measure their emissions, and it would be very difficult if not impracticable for them to change. Broadening the program to those sources that could take advantage of an output-based basis would expand the universe of potential opt-in participants to the benefit of the program and the other participants.

In an effort to bolster participation in the opt-in program, enhancing its accessibility to more non-EGU sources is only half of the equation. The other half is to make it more attractive, through regulatory relief and other incentives.

CAIRs ability to integrate the multiple overlapping requirements of the Clean Air Act into a simpler regulatory system represents one of its major potential advantages. EPA should frame its final rule to achieve as many benefits as possible by regulatory action.

There are several examples of regulatory incentives that are within EPA's authority to incorporate in the final CAIR. Compliance with the IAQR should satisfy all obligations both for EGUs and opt-in sources under the regional haze and BART rules and the Clean Air Act §126 petitions.

Response:
EPA has expanded applicability of the opt-in provision to include more units in response to comments. See preamble for further discussion. Also see preamble for discussion of regulatory relief for opt-in units. Regarding allocating on an output-basis, see preamble discussion under allocations for further discussion.

Comment:
EPA must also clarify that opt-ins allowed for non-EGU sources would not disqualify any State's EGUs from participating in the CAIR cap-and-trade program.

Response:
The opt-in provision EPA is finalizing does not restrict EGUs from participating in the CAIR cap-and-trade program as an opt-in unit provided such EGU satisfies the requirements of the opt-in provision. Furthermore, the opt-in provision EPA is finalizing does not restrict EGUs affected by the CAIR, i.e., EGUs that meet the applicability requirements, from participating in the CAIR cap-and-trade program.

Comment:
The trading program should allow for streamlined opt-in of small CHP facilities and streamlined/alternative, less burdensome, monitoring requirements. This will extend the coverage of the emission cap and promote the wider use of this valuable technology.

Response:
Small CHP facilities can use the voluntary opt-in provision provided they meet the criteria. See preamble for further discussion. Furthermore, small CHP facilities could qualify to use the alternative monitoring provisions of part 75. See preamble opt-in section for further discussion.

XIII.K. Monitoring and reporting provisions

Comment:
Significant investments have been made to monitor and report emissions and surrender allowances under the existing title IV allowance trading program. A change in the title IV rules from unit-based to facility-based compliance would require significant modifications to existing systems. As a result substantial resources and time will have to be allocated to modify these systems, while significant changes will have to be developed and implemented for business planning strategies, including those associated with generation dispatch and emissions trading. the commenter believes that any change from the current unit-based compliance reporting system should be at the election of the facility owner(s), and should be available (with notice to the permitting authorities) at the beginning of any calendar year. The current unit-based compliance reporting system should be retained to accommodate joint ownership and other special arrangements that may not affect an entire facility.

Response:
This comment is addressed in Section IX of today's preamble.

Comment:
Implementation of the Interstate Transport Rule Should Not Result In the Imposition of Any New Monitoring, Recordkeeping or Reporting Requirements for ARIPPA Facilities.: Although ARIPPA facilities consistently have been among the lowest emitters of NOx in the electric power generation industry, ARIPPA facilities have been required to expend significant resources to implement changes to monitoring programs under both the MOU and the NOx SIP Call. These efforts have secured no additional environmental benefits, and simply have resulted in the disadvantageous treatment of the cleanest sources. In light of these efforts, there is no justification for imposing new requirements or material changes in the NOx monitoring, recordkeeping and reporting programs that have been established pursuant to the NOx SIP Call. Further, to the extent that, notwithstanding the issues discussed in Section 1 above, the Agency determines that the SO2 provisions of the Interstate Transport Rule will apply to ARIPPA facilities, ARIPPA requests that its member facilities not be required to incur the significant costs associated with Part 75 continuous emission monitoring systems for SO2. Existing continuous emission monitoring systems utilized by non-Part 75 sources to monitor SO2 provide reliable and accurate data upon which the Agency can rely, not only for compliance purposes but also for source participation in interstate trading programs.

Response:
EPA believes that Part 75 monitoring and reporting requirements entail the appropriate monitoring approach for a program that is relied upon by numerous States to ensure that interstate transport of

pollution is reduced. EPA includes this requirement in order to assure the reductions needed to reduce the impact on downwind States. The requirements are in place to provide this assurance. The full discussion for the need for Part 75 monitoring and reporting is found in the preamble to the SNPR and is incorporated here.

XIII.L. Use of Allowance Auctions

Comment:
We suggest that EPA include a model rule provision requiring an auction of a certain portion of the emission allowances allocated to each State.

Response:
EPA is giving States the flexibility to choose their methodology for allocating NOx allowances. While EPA has provided a description of some of the options open to States and outlining some of their key features, EPA believes that the policy choice on allocations does not impact the environmental goals of the CAIR program and leaves it up to the States to choose policies that most match their particular circumstances.

Comment:
Auctioned vs. grandfathered allocations -We recommend that some fraction of the emission allocations under the rule be designated for auction. While we do not recommend a specific percentage, we believe it is important to auction some portion of the allocations, especially to generate revenue that can be used to increase the net benefits of the program. For example, auction revenue can be used to help overcome market barriers to energy efficiency and renewable energy, producing public goods that increase the emission reductions and economic benefits resulting from implementation of the rule. More than 20 States, many of which are covered by the proposed rule, operate public benefits programs for energy efficiency and renewable energy. Auction proceeds could be used to supplement such funds.

Response:
EPA is giving States the flexibility to choose their methodology for allocating NOx allowances. While EPA has provided a description of some of the options open to States and outlining some of their key features, EPA believes that the policy choice on allocations does not impact the environmental goals of the CAIR program and leaves it up to the States to choose policies that most match their particular circumstances.

Comment:
Auctioned vs. grandfathered allocations: We recommend that some fraction of the emission allocations under the rule be designated for auction. While we do not recommend a specific percentage, we believe it is important to auction some portion of the allocations, especially to generate revenue that can be used to increase the net benefits of the program. For example, auction revenue can be used to help overcome market barriers to energy efficiency and renewable energy, producing public goods that increase the emission reductions and economic benefits resulting from implementation of the rule. More than 20 States, many of which are covered by the proposed rule, operate public benefits programs for energy efficiency and renewable energy. Auction proceeds could be used to supplement such funds.

Response:

EPA is giving States the flexibility to choose their methodology for allocating NOx allowances. While EPA has provided a description of some of the options open to States and outlining some of their key features, EPA believes that the policy choice on allocations does not impact the environmental goals of the CAIR program and leaves it up to the States to choose policies that most match their particular circumstances.

NOTE: A response to the subsequent comments, many of which share common concerns about allowance auctions, is included at the end of this section

Comment:
Allowances purchased through the EPA auction programs should be available for use on a one-to-one basis to avoid inequities. Allowance allocations should not include requirements for States to reserve a portion of their budgets for auction.

Comment:
EPA asked for comments on whether States should reserve a portion of their budget for auctions. Virginia currently plans to auction calendar year 2004 and 2005 set asides for new sources as mandated by our General Assembly. At the same time the General Assembly has passed legislation that forbids us to use auctions in the future. Accordingly, Virginia opposes setting aside a portion of the budget for future auctions if such credits would only be available if the Commonwealth used an auction to make the allocations.

Comment:
EPA should avoid requiring States to reserve a portion of their budgets for auction.: In the proposed IAQR, EPA correctly questions whether requiring States to reserve a portion of their budgets for auction would intrude on State prerogatives. See 69 Fed. Reg. 4566, 4632/2. MOG submits that case law requires that EPA's question be answered in the affirmative. In Virginia v. EPA, 108 F.3d 1397, 1404 & 1407-10 (D.C. Cir. 1997), the D.C. Circuit held that EPA lacked the authority to require States to adopt a particular control measure to achieve emission reductions necessary to meet section 110(a)(2)(D) of the CAA. See also Union Electric Co. v. EPA 427 U.S. 246,269 (1976); Train v. Natural Resources Defense Council, 421 U.S. 60, 79 (1975). If EPA lacks the authority to require States to adopt a particular control measure, then it follows that EPA lacks authority to require States to reserve a portion of their budgets for auction. Moreover, EPA does not explain, and MOG fails to see, how a required auction would ensure environmental benefits. MOG submits that an auction would only serve to increase costs for regulated EGUs and would be inconsistent with EPA's stated goal of a cost-effective program. Further, MOG believes that an auction would discourage the development of new, cleaner energy sources. Although an auction requirement may help States solve their budget deficits, EPA is not in the business of solving the budgetary woes of the States. For all of the foregoing reasons, MOG submits that EPA should avoid an auction requirement.

Comment:

In the proposed rule preamble, EPA 'strongly encourages' States to reserve a portion of their allowances for an auction. EPA further indicates that it sees benefits in requiring States to auction its allowances. We believe that EPA lacks the authority to dictate how a State can allocate its allowances or require States to auction allowances. Furthermore, it is inappropriate for EPA to 'encourage' States to auction allowances, and to lead States to believe that their SIP submissions will be or may be treated differently by EPA depending on whether they auction allowances. EPA should remove all references to allowance auctions in the rulemaking. To the extent that EPA includes a list of optional methodologies for States to consider for allocating allowances in the SNPR, EPA should refrain from favoring or preferring one method to another.

Comment:
EPA solicits comments on whether requiring States to reserve a portion of their budgets for auction intrudes on State prerogatives. The TCEQ comments that States should have the prerogative to decide how new sources obtain allowances. Since allowance set-asides could be resource intensive for States, the decision to reserve and then auction or allocate the set-aside allowances versus requiring new sources to buy into the cap should be made by each State.

Comment:
EPA seeks comment on whether a State participating in the cap and trade program should be required to reserve a portion of its allowances for auction. Possible uses of the proceeds of such auctions will be proposed in a supplemental notice. While States may find such auctions useful for funding a variety of worthwhile projects, it should not be the role of EPA to dictate auctions or how their proceeds might be used.

Comment:
Allowance Auctions - In the proposed rule preamble, EPA 'strongly encourages each State to consider reserving a portion of its allowance budget for an auction'. Alliant Energy believes that EPA does not have legal authority, as well as, that it is inappropriate for EPA to 'strongly encourage' States to conduct auctions. This may lead agencies to believe that their SIP submissions will be treated differently by EPA, depending on whether they conform to EPA's apparent policy preference for auctions. We note that the concept of auctioning emissions allowances has been discussed in detail in the context of Clear Skies, where it was determined that there was no apparent environmental benefit from auctioning allowances, while the compliance cost would simply increase. Alliant Energy recommends that EPA take a neutral stance on the issue of auctions, as this is the fair and equitable approach given that ultimately customers will end up paying the potential additional compliance costs incurred.

Comment:
In the proposed rule preamble, EPA 'strongly encourages each State to consider reserving a portion of its allowance budget for an auction.' at 4623 col. 2. In fact, EPA goes beyond this by saying that it 'sees benefit in requiring States to reserve a portion of their budgets for auction, but has concerns about whether such a requirement would intrude on State prerogatives.' (Citing Virginia v. EPA, 108 F.3d 1397 (D.C. Cir. 1997). EPA indeed has no authority to limit States'

choice of emission control methods in this way, and no such requirement is permissible under the Act and under cases such as Virginia. UARG also believes it is inappropriate for EPA to 'strongly encourage[]' States to conduct auctions; States should not be led to believe that their SIP submissions will be treated differently by EPA depending on whether they conform to EPA's apparent policy preference for auctions –a policy preference that should have no effect on EPA's review or approval of SIPs.

Comment:
With regards to allowance auctions, LPPC takes exception to EPA's proposal to promote or require the use of auctions by States in implementing the trading program. We disagree that with EPA's proposal to 'strongly encourage each State to consider reserving a portion of its allowance budget for an auction' whereby the proceeds from such auction 'would be fully retained by the State to be used as they see fit.' LPPC sees no benefit from such an approach to the regulated entities and believes that it would unnecessarily subject fossil fuel-fired generation to extremely burdensome and costly compliance obligations. Furthermore we believe that mandating States to auction a portion of the allowances would intrude on State prerogatives, contrary to the Federal-State partnership established under the Act. If any allowances are withheld from affected EGUs for auction, proceeds from auction sales should be remitted to the original holders from which the allowances were withheld.

Comment:
States should not be given the option to decide whether to initially issue CAIR allowances for free or pursuant to an auction, or some combination of these two methods. Allocating allowances for free would certainly lessen the financial impact of the program on the affected sources that already bear the compliance costs associated with CAIR. It would also give States the ability to determine the initial allowance recipients.

Comment:
Regarding budget allocation, specifically, States should not be required to set aside a percentage of allowances for auction (FR Vol. 69 No. 20 pg. 623), we feel that overly prescriptive methodology is intrusive for a number of reasons. First, it oversteps the federal role in supporting States in environmental control. Second, it goes against precedent established in the $_{\text{OTC NOx}}$ Budget Program and subsequent NOx SIP Call. We believe States are in the best position to allocate allowances and administer State specific programs. States rely on EPA to facilitate a stringent, coordinated approach to address national and regional emissions. For this extensive a program, it is also necessary for EPA to provide well defined guidance and consistent inventories that follow a well defined protocol. We believe the best use of resources is for EPA to oversee the allocation, tracking, and reconciliation of allowances similar to its role in the $_{\text{OTC NOx}}$ Budget Program and NOx SIP Call. Finally, we believe it would interfere with ability of some States to opt out of portion of trading program where the rule allows.

Comment:

In the preamble to its Interstate Air Quality Rule (IAQR), EPA requested comment on the emissions caps and budget program in the proposed rule. (69 FR 4623) In particular, the agency recommended that States consider auctioning a portion of their allowance budgets and requested comment on the issue of whether the rule should require States to auction some or all of their allowance budget. The Commonwealth of Virginia believes that States should be given the fullest measure of flexibility possible in choosing how to allocate emission allowances under this rule. Such a rule would recognize States historical property interest in the value of assets under their jurisdiction, would encourage innovation in allocation based on particular State needs, would likely improve economic efficiency, and would not affect the environmental impact of the emissions regulated under the proposed rule. The emission caps imposed by the IAQR rule ensure that variations in allocation methodology will not significantly affect air quality outcomes from the emissions regulated by this rule. Thus, EPA has no regulatory interest in the allocation methodology so long as it does not interfere with the smooth operation of the regional market for allowances. The States do, however, have a longstanding interest in how valuable environmental assets are allocated within their borders. Pursuant to that interest Kentucky and Virginia have already initiated programs to sell their interests in nitrogen oxide (NOx) allowances under the Ozone Transport Sip call. Kentucky is currently selling a portion of its allowance budget through a brokerage house. Virginia is currently preparing to auction five percent of its 2004 and 2005 vintage NOx allowances in June of 2004. There seems little doubt that, given the fiscal distress currently being experienced by most States, other States will choose to follow the lead of Kentucky and Virginia in capturing some of the scarcity rents associated with this valuable public property. Different States will establish different allocation mechanisms according to local needs and priorities. How they do so is not relevant to EPAs interest in protecting air quality. In fact, there is a definite advantage to allowing local jurisdictions to choose their own allocation method. Local experimentation will likely lead to the generation of new information and new approaches. For example, in the process of preparing for its upcoming auction, Virginia is engaged in path-breaking research into the economics of allowance auction design. This information will help improve the design of future allocation efforts at the State and federal level. It is Virginia's view that EPA cannot be assumed to have greater expertise than the States in the allocation of State environmental assets. First, EPA has no special expertise in auctions; States use auctions on a routine basis to both purchase and dispose of property. States have access to all of the same economic literature as EPA and are fully capable of making their own choices about how they wish to allocate their allowance budget. Second, even in the recent past, EPAs own allocation proposals have not had any particular merit and may be seen as economically inefficient.

In particular, the recent model State allocation rule recommended under the NOx SIP Call has numerous deficiencies and gives sources incentives inconsistent with cost minimization. Third, there is no a priori reason necessarily to prefer an auction for a commodity already actively traded in a competitive market. The auction literature demonstrates that the bidding strategies for most auction forms collapse into a single strategy in the presence of an active competitive market for the commodity being sold. As is currently true for Kentucky, States may choose other forms of sale for reasons of their own. This issue is simply not of regulatory moment, and EPA should decline to take a regulatory position on how allowances are sold, if they are sold. State circumstances vary,

so State choices may vary also. EPA is simply not in a position to determine what is best for the States in choosing allocation methods. Since EPA has little subject-matter expertise not already available to States, and since States may have very good reason for choosing different mechanisms for allocating allowances, it follows that any federal rules in this area stand a better than even chance of hurting more than they help. Federal involvement in this essentially local choice is at least as likely to lower efficiency as it is to increase it. The Commonwealth of Virginia respectfully requests that EPA remain neutral as to the allocation methods available to the States under the IAQR.

Comment:
EPA States that it believes States should retain a portion of the allowance budget for an auction. The revenues could be used for local reductions in nonattainment areas. EPA believes the auctions would be beneficial, but is concerned about making these mandatory. It is not clear whether auctions would apply to $_{SO2, NOx}$ or both. Depending on what is needed to implement an auction system, this program could require a lot of effort and resources. EPA should make auctions a voluntary program and provide guidance and assistance.

Comment:
EPA should not encourage States to auction allowances. EPA encourages States to consider auctioning allowances for general revenue and has requested comment on whether it should set up its model trading rule with a provision that auctions some part of the allowances to be allocated. 69 Fed. Reg. 4623. This is a bad idea which ignores sound and proven environmental policy. Numerous studies point out the obvious–the price of electricity increases as generators purchase emission allowances on top of investing in control equipment. Other studies, document that affordable electricity is a key element in public health policy. Auctioning allowances will undoubtedly increase the price of electricity in and around the covered region due to the increased stringency of the emission standard. Using emission allowances for tax revenue could also result in fuel switching implications that EPA has not considered.

Comment:
Allowances should be distributed to EGUs only. Allowances should be distributed only to fossil fuel generating EGUs. If some portion of the allowances is auctioned for purposes of facilitating a well-functioning market, proceeds from the sales should be remitted to the original holders of the allowances who have to bear the costs of emission reductions. It is not within EPA's authority to require a State to auction a portion of the State's allowance budget and to fully retain the revenues for a State to use as it sees fit. It is not appropriate for EPA to strongly encourage' a State to auction allowances and retain the revenues as it may lead to the appearance that a State with an auction will receive more favorable treatment in getting its SIP approved.

Comment:
Allowance auctions should not be encouraged. In the proposed rule preamble, EPA 'strongly encourages each State to consider reserving a portion of its allowance budget for an auction.' In fact, EPA goes beyond this by saying that it 'sees benefit in requiring States to reserve a portion of

their budgets for auction, but has concerns about whether such a requirement would intrude on State prerogatives.' EPA has no authority to limit States' choice of emission control methods in this way, and no such requirement is permissible under the Act. EEI also believes it is inappropriate for EPA to 'strongly encourage' States to conduct auctions; States should not be led to believe that their SIP submissions will be treated differently by EPA depending on whether they conform to EPA's apparent policy preference for auctions - a policy preference that should have no effect on EPAs approval of SIPs. The concept of auctioning emission allowances has been discussed in detail in the context of Clear Skies. Due to virtual unanimity within the electric generation industry, the Senate markup draft (S.1844) of late 2003 dispensed with the auction provisions. In essence, it was determined that there was no environmental benefit of auctioning allowances, while the compliance cost would simply increase, in some cases substantially, for wholesale coal-based generators. Further, in State jurisdictions where generation remains regulated (about half of the country), while consumer prices 'theoretically' are increased to cover the higher costs, in reality customer rate or fuel clause freezes mean, at best, that there will be substantial regulatory lag in recovery. More likely, there will be less than full recovery of costs, at least until several years after required capital expenditures for installed controls. Regarding the wholesale generators, since most of these coal units are on the margin during off-peak periods in many parts of the country (and the cost of credits is usually included as a marginal cost along with fuel), retail customers may also be subject to higher prices as a result of the requirements in deregulated markets. Given the mosaic of deregulated and regulated States that currently exists, to auction allowances could create a vastly different impact on one company versus another.

Comment:
EPA's draft rule suggests that future allowances may be made available through an auction mechanism. While this approach could work for a new source, it is inherently unjust for existing sources. EPA should not allow for an auction of allowances under the new rule.

Comment:
The IAQR should also use an allowance allocation distribution system for NOx and SO2 and not encourage State use of auction provisions as the proposal currently does. The latest Senate draft of the CSA (S. 1844) eliminated the auction provisions in favor of a more equitable allocation system.

Comment:
We recommend that some fraction of the emission allocations under the rule be designated for auction. While we do not recommend a specific percentage, we believe it is important to auction some portion of the allocations, especially to generate revenue that can be used to increase the net benefits of the program. For example, auction revenue can be used to help overcome market barriers to energy efficiency and renewable energy, producing public goods that increase the emission reductions and economic benefits resulting from implementation of the rule. More than 20 States, many of which are covered by the proposed rule, operate public benefits programs for energy efficiency and renewable energy. Auction proceeds could be used to supplement such funds.

Comment:
'The EPA sees benefits in requiring States to reserve a portion of their budgets for auction, but has concerns about whether such a requirement would intrude on State prerogatives. We solicit comment on this issue.'EPA should not require an auction provision. Instead, EPA should allow for provisions in the rule that would create an auction alternative for States. Each State has a different mechanism for addressing revenue collection and corresponding dispersal. Missouri does not support this provision due to difficulties regarding handling of funds for this purpose. This requirement would be a major issue for implementation of this rule in Missouri and should be removed.

Comment:
We believe that EPA should not be encouraging States to consider reserving a portion of their allowance budgets for an auction. We strongly disagree with the concept of the States conducting auctions of allowances. As EEI correctly points out in their comments, this will create a mosaic of trading programs across a mosaic of regulated and deregulated States. To auction allowances would create vastly different impacts from one company versus another, with the financial burden ultimately falling disproportionately upon the customers in some States and regions.

Comment:
EPA should not encourage or require allowance auctions. In the preamble to the proposed rule, EPA strongly encourages each State to consider reserving a portion of its allowance budget for an auction. EPA has no authority to limit States' choice of emission control methods by either strongly encouraging or requiring States to reserve a portion of their budgets for auction. States should not be led to believe that their SIP submissions will be treated any differently in any manner by EPA, depending on whether they can conform to the Agency's apparent preference for auctions.

Comment:
The model cap and trade program should not include State options to auction significant portions of allowances.
EPA proposes to give considerable leeway to States regarding CAIR allowance distributions including the option of whether to auction all or a portion of the State budgeted allowances, at 23710 col.2-3. While the CAA gives States considerable autonomy in devising SIPs to meet certain CAA federal mandates, we believe the unlimited auctioning by a State of its budgeted allowances is contrary to the formulation of a 'highly cost effective' CAIR program. EPA has attempted to construct a CAIR program to address interstate emissions transport 'significant contribution' to downwind (downstate) NAAQS nonattainment based on the 'highly cost-effective' component as defined in the NOx SIP Call rule and Michigan v. EPA. By auctioning all or significant portions of a State's budgeted allowances, the cost of the CAIR program would be considerably higher than EPA anticipates, as EGUs would not only need to bear the cost of installing emissions control technologies and/or buying allowances to cover emissions above allowance baselines, but may also have to bear the additional cost of allowances needed to

emissions below baselines. Clearly the auctioning of all or significant portions of allowances would jeopardize EPA benchmark level of emissions reductions judged to be highly cost-effective, and therefore, EPA should impose ceilings on the number of allowances offered for auction. Thus, EPA should place certain restrictions on State auctions. The amount of allowed allowances for auction should be an insignificant amount based on a proportion of a State's total allowance budget.

Comment:
The model cap and trade program should not include State options to auction significant portions of allowances. EPA proposes to give considerable leeway to States regarding CAIR allowance distributions including the option of whether to auction all or a portion of the State budgeted allowances, at 23710 co1.2-3. While the CAA gives States considerable autonomy in devising SIPs to meet certain CAA federal mandates, we believe the unlimited auctioning by a State of its budgeted allowances is contrary to the formulation of a 'highly cost effective' CAIR program. EPA has attempted to construct a CAIR program to address interstate emissions transport 'significant contribution' to downwind (downstate) NAAQS nonattainment based on the 'highly cost-effective' component as defined in the NOx SIP Call rule and Michigan v. EPA By auctioning all or significant portions of a State's budgeted allowances, the cost of the CAIR program would be considerably higher than EPA anticipates, as EGUs would not only need to bear the cost of installing emissions control technologies and/or buying allowances to cover emissions above allowance baselines, but may also have to bear the additional cost of allowances needed for emissions below baselines. Clearly the auctioning of all or significant portions of allowances would jeopardize EPA benchmark level of emissions reductions judged to be highly cost-effective, and therefore, EPA should impose ceilings on the number of allowances offered for auction. Thus, EPA should place certain restrictions on State auctions. The amount of allowed allowances for auction should be an insignificant amount based on a proportion of a State's total allowance budget.

Comment:
EPA should not encourage emission allowance auctions. On page 32710 of the Supplemental Proposal, EPA discusses the concept of auctions of emissions allowances. Noting that EPA has softened its discussion of this issue from its January proposal –no longer 'strongly encourage[ing] each State to consider reserving a portion of its allowance budget for an auction' or 'see[ing] benefit in requiring States to reserve a portion of their budgets for auction'–PPL nevertheless notes its continued opposition to allowance auctions, as discussed in at length in PPL's earlier comments to this docket.

PPL takes issue with EPA's suggestion that States could auction allowances rather than distribute them to regulated sources without charge (page 32710). The effect of allowance auctions, or at least allowance auctions in which the auction proceeds accrue to the State, is to force affected sources to pay not only for emissions that exceed the emission cap level but also to pay for the right to emit beneath the cap –even though there is no legal basis for regulating emissions beneath the cap. Further, by requiring sources to pay for the right to emit below the allowance cap,

allowance auctions would undermine EPA's 'highly cost-effective' determination, which is in turn a central basis for CAIR itself. Auctioning emission allowances has been discussed in detail in the context of Clear Skies. Due to virtual unanimity within the electric generation industry, the Senate markup draft (S.1844) of late 2003 dispensed with the auction provisions. In essence, it was determined that there was no environmental benefit of auctioning allowances, while the compliance cost would simply increase, in some cases substantially, for wholesale coal-based generators. Further, in State jurisdictions where generation remains regulated (about half of the country), while consumer prices 'theoretically' are increased to cover the higher costs, in reality customer rates or fuel clause freezes mean, at best, that there will be substantial regulatory lag in recovery in States where electric generation is regulated. More likely, there will be less than full recovery of costs, at least until several years after required capital expenditures for installed controls. Regarding the wholesale generators, since most of these coal units are on the margin during off-peak periods in many parts of the country (and the cost of credits is usually included as a marginal cost along with fuel), retail customers may also be subject to higher prices as a result of the requirements in deregulated markets. Further, given the mosaic of deregulated and regulated States that currently exists, to auction allowances could create a vastly different impact on one company versus another. PPL requests that EPA document the adverse consequences of auctions as an allowance allocation methodology in its final rule. In the proposed rule preamble, EPA 'strongly encourages each State to consider reserving a portion of its allowance budget for an auction.' In fact, EPA goes beyond this by saying that it 'sees benefit in requiring States to reserve a portion of their budgets for auction, but has concerns about whether such a requirement would intrude on State prerogatives.' EPA indeed has no authority to limit States' choice of emission control methods in this way, and no such requirement is permissible under the Act. PPL also believes it is inappropriate for EPA to 'strongly encourage States to conduct auctions; States should not be led to believe that their SIP submissions will be treated differently by EPA depending on whether they conform to EPA's apparent policy preference for auctions –a policy preference that should have no effect on EPA's approval of SIPs. The concept of auctioning emissions allowances has been discussed in detail in the context of Clear Skies. Due to virtual unanimity within the electric generation industry, the Senate markup draft (S.1844) of late 2003 dispensed with the auction provisions. In essence, it was determined that there was no environmental benefit of auctioning allowances, while the compliance cost would simply increase (and profitability decrease), in some cases substantially, for wholesale coal-based generators. Given a mosaic of deregulated and regulated States, to auction allowances could create a vastly different impact on one company versus another.

Comment:
MOG also opposes EPA's proposal to allow States to auction allowances. As EPA correctly noted in the January 30, 2004 proposal, requiring States to reserve a portion of their budgets for auction would intrude on State prerogatives. See 69 Fed. Reg. 4566,4632/2.

Comment:
We also strongly disagree with the suggestion that States consider auctioning off some or all of the NOx CAIR allowances. This would undermine certainty in utility emission reduction planning and

increase the economic impact on affected utilities. Regardless, EPA properly proposes to leave this and other allocation issues for resolution by the States.

Comment:
All LPPC members agree that allowance auctions are inappropriate mechanism for allocation. However, if any allowances are withheld from affected EGUs and auctioned (e.g., to newer units), proceeds from auction sales should be remitted to the original holders from which the allowances were withheld.

Comment:
H. The model cap and trade program should not include State options to auction significant portions of allowances. EPA proposes to give considerable leeway to States regarding CAIR allowance distributions including the option of whether to auction all or a portion of the State budgeted allowances, at 23710 co1.2-3. While the CAA gives States considerable autonomy in devising SIPs to meet certain CAA federal mandates, we believe the unlimited auctioning by a State of its budgeted allowances is contrary to the formulation of a 'highly cost-effective' CAIR program. EPA has attempted to construct a CAIR program to address interstate emissions transport 'significant contribution' to downwind (downstate) NAAQS nonattainment based on the 'highly cost-effective' component as defined in the NOx SIP Call rule and Michigan v. EPA. By auctioning all or significant portions of a State's budgeted allowances, the cost of the CAIR program would be considerably higher than EPA anticipates, as EGUs would not only need to bear the cost of installing emissions control technologies and/or buying allowances to cover emissions above allowance baselines, but may also have to bear the additional cost of allowances needed to emissions below baselines. Clearly the auctioning of all or significant portions of allowances would jeopardize EPA benchmark level of emissions reductions judged to be highly cost-effective, and therefore, EPA should impose ceilings on the number of allowances offered for auction. Thus, EPA should place certain restrictions on State auctions. The amount of allowed allowances for auction should be an insignificant amount based on a proportion of a State's total allowance budget.

Comment:
The model cap and trade program should not include State options to auction significant portions of allowances. EPA proposes to give considerable leeway to States regarding CAIR allowance distributions including the option of whether to auction all or a portion of the State budgeted allowances (23710 co1.2-3). While the CAA gives States considerable autonomy in devising SIPs to meet certain CAA federal mandates, we believe the unlimited auctioning by a State of its budgeted allowances is contrary to the formulation of a 'highly cost effective' CAIR program. EPA has attempted to construct a CAIR program to address interstate emissions transport 'significant contribution' to downwind (downstate) NAAQS nonattainment based on the 'highly cost-effective' component as defined in the NOx SIP Call rule and Michigan v. EPA. By auctioning all or significant portions of a State's budgeted allowances, the cost of the CAIR program would be considerably higher than EPA anticipates, as EGUs would not only need to bear the cost of installing emissions control technologies and/or buying allowances to cover emissions

above allowance baselines, but may also have to bear the additional cost of allowances needed to emissions below baselines. Clearly the auctioning of all or significant portions of allowances would jeopardize EPA's benchmark level of emissions reductions judged to be highly cost-effective, and therefore, EPA should impose ceilings on the number of allowances offered for auction. Thus, EPA should place certain restrictions on State auctions. The amount of allowed allowances for auction should be an insignificant amount based on a proportion of a States total allowance budget.

Comment:
We believe that EPA should not be encouraging States to consider reserving a portion of their allowance budgets for an auction. We strongly disagree with the concept of the States conducting auctions of allowances. As EEI correctly points out in their comments, this will create a mosaic of trading programs across a mosaic of regulated and deregulated States. To auction allowances would create vastly different impacts from one company versus another, with the financial burden ultimately falling disproportionately upon the customers in some States and regions. These concerns become magnified when we consider the possibility of surrendering Acid Rain allowances, granted to the EGUs by Congress under the Clean Air Act, to the States. Detailed legal and technical comments on the trading program are presented in the comments filed by UARG and EEI.

Comment:
Noting that EPA has appropriately softened its discussion of auctions from the initial CAIR proposed rulemaking notice, where it strongly encouraged each State to consider reserving a portion of its allowances for auction, we nevertheless reiterate our continued opposition to the use of allowance auctions for distributing allowances under a cap-and-trade program. Auctions will force affected sources to pay for emissions emitted even below what is allowed under a cap, significantly increasing the cost of compliance and will undermine EPA's 'highly cost-effective' determination, which is the basis for the emission caps established by the CAIR.

Comment:
Ameren does not support the use of auctions as a method of allocating allowances. Allowance auctions only serve to penalize existing EGUs. In order to comply with the new CAIR rule existing units must install expensive control systems to meet the CAIR requirements. These control systems must be shoe-horned into place retrofitting and incorporating this new infrastructure with existing systems. From a planning and installation point of view it is much more expensive to retrofit control equipment than to design this equipment into a new plant. When building a new plant planners are able to incorporate the current control requirements into the design of the facility. Existing plants were never designed to accommodate these add on technologies. By allowing the use of auctions EPA is basically leveling the playing field between new and existing units. Existing units will have to pay first for the retrofit controls and second for the right to emit NOx and SO2 that it already had the right to emit. If auctions are part of the allocation scheme the proceeds must to be returned to the EGUs in proportion to the original Statewide allocations. If the proceeds from the auction are given to the States there is no guarantee that the money would be

used in implementation and compliance with this rule. Ameren does not support the auction concept as part of the CAIR implementation.

Comment:
On page 32710 of the Supplemental Proposal, EPA discusses the concept of auctions of emissions allowances. Noting that EPA has softened its discussion of this issue from its January proposal – no longer 'strongly encourag[ing] each State to consider reserving a portion of its allowance budget for an auction' or 'see[ing] benefit in requiring States to reserve a portion of their budgets for auction' – EEI nevertheless notes its continued opposition to allowance auctions, as discussed at length in EEI's March 30 comments. EEI takes issue with EPA's suggestion that States could auction allowances rather than distribute them to regulated sources without charge (page 32710), The effect of allowance auctions, or at least allowance auctions in which the auction proceeds accrue to the State, is to force affected sources to pay not only for emissions that exceed the emission cap level but also to pay for the right to emit beneath the cap – even though there is no legal basis for regulating emissions beneath the cap. Further, by requiring sources to pay for the right to emit below the allowance cap, allowance auctions would undermine EPA's 'highly cost-effective' determination, which is in turn a central basis for CAIR itself. Auctioning emission allowances has been discussed in detail in the context of Clear Skies. Due to virtual unanimity within the electric generation industry, the Senate markup draft (S.1844) of late 2003 dispensed with the auction provisions. In essence, it was determined that there was no environmental benefit of auctioning allowances, while the compliance cost would simply increase, in some cases substantially, for wholesale coal-based generators. Further, in State jurisdictions where generation remains regulated (about half of the country), while consumer prices 'theoretically' are increased to cover the higher costs, in reality customer rate or fuel clause freezes mean, at best, that there will be substantial regulatory lag in recovery. More likely, there will be less than full recovery of costs. Regarding the wholesale generators, since most of these coal units are on the margin during off-peak periods in many parts of the country (and the cost of credits is usually included as a marginal cost along with fuel), retail customers may also be subject to higher prices as a result of the requirements in deregulated markets. Further, given the mosaic of deregulated and regulated States that currently exists, to auction allowances could create a vastly different impact on one company versus another. A detailed discussion of the problems with auctioning allowances is provided in an article by American Electric Power's Bruce Braine. EEI requests that EPA not recommend auctioning of allowances in the final rule, or, at a minimum, document the adverse consequences of auctions as an allowance allocation methodology.

Comment:
If EPA allows a State to auction off its allowances, the cost of the CAIR program may be considerably higher than EPA estimates. Sources would then bear the cost of installing controls and/or buying allowances and, in addition, the extra cost of purchasing any allocated allowances. The true costs of the program may then exceed EPA benchmarks, skewing the cost-effectiveness calculation and rendering the currently proposed reductions not highly cost effective. Auctions should, therefore, not be allowed.

Comment:
Commenter does not support an allowance auction approach, as that adds significant cost to compliance.

Comment:
For those air pollutants for which the final rules establish an emissions trading program, the method for distributing allowances becomes a critical design element of the trading program. In such cases, LPPC supports the allocation of allowances to only those units subject to the emission reduction requirements and strongly opposes the distribution of allowances through any type of allowance auction system. Although different allowance allocation methodologies may be appropriate for different pollutants, whatever methodology adopted must result in an equitable allocation of the contra1 obligations to those generating facilities. For this reason, LPPC urges EPA to finalize model trading rules that reflect these important guiding principles. It will be equally important for EPA to encourage affected States to adhere to these principles.

Response:

EPA notes that the example allocation method presented in the model trading rule does not include auctions. While EPA has provided a description of some of the different allocations options open to States and outlined some of their key features, EPA believes that the State's policy choice on allocations does not impact the environmental goals of the CAIR program. EPA leaves it up to the States to choose policies that best match their particular needs and circumstances.

EPA is neither encouraging nor discouraging States from using auctions for allocating some portion of their allowances, and is certainly not requiring that they do so.

EPA does not agree with some commenter's statements that if a State chooses to auction NOx allowances it would impact our determination of CAIR as a highly cost effective rule. EPA's highly cost effective determination is based on a number of metrics, including marginal cost of reductions per ton. The marginal cost of NOx reductions under CAIR are based on (for a given level of required reductions) the costs of controlling the next ton of NOx within the trading region. This measure does not depend on how allocations were allocated, and would thus not be at all impacted by decisions to auction allowances. Allocations and purchases of allowances represent transfers of wealth, i.e. transfer payments, and do not represent social costs or direct resource costs that enter into cost effectiveness calculations.

A decision by States to auction some allowances is thus a distributional one - it would not necessarily increase the overall costs of this rule to society, but rather put some of the value of the allowances for the remaining emissions into the hands of States rather than in those of the utilities. As suggested by some commenters, a State could even decide to provide the revenues generated from the auction back to the EGUs (as is done in the Acid Rain Program).

Some commenters believed that by allowing States to auction some allowances (and having generators pay for them) EPA is effectively regulating emissions beneath the cap, and question EPA's legal basis for being able to do so. Such an argument seems to question the very basis of a cap and trade program, which effectively sets an economic cost for every ton of emissions. As part of a cap and trade program, polluters must submit an allowance (or allowances), which has clear value on the allowance market, in order to emit a ton of pollution. It is this opportunity cost for every ton emitted (under the cap) that provides EGUs with the incentive to reduce emissions. The total amount of allowances specifically corresponds to the amount of permissible emissions under the cap. Even for the situation where all allowances are allocated for free to generators, if a unit wants to emit more than its allocation, it would need to purchase allowances from market - and would have to pay for emissions that are under the cap.

EPA acknowledges that the auction provision in the Clear Skies proposal was removed in the Senate markup draft, but also notes that this removed the requirement to auction off allowances at a national level. In this rule, EPA is clearly not requiring auctions of NOx allowances, or the adoption of any other particular allocation system for that matter. EPA does believe that States should decide for themselves the extent to which they might want to rely on auctions to allocate allowances, and encourages the commenters to voice their concerns at that level.

EPA also notes that currently new units that are covered for SO_2 under title IV do not receive an allocation of allowances under title. These need to buy allowances to cover their all of their emissions, either on the market or through the EPA auction.

XIII.M. Model Trading Rule Applicability

Comment:
EPA's proposed Rule to Reduce Interstate Transport of Fine Particulate Matter and Ozone (Interstate Air Quality Rule) (the IAQR) as proposed at 69 Fed. Reg. 4566 (January 30, 2004) properly carves out those electricity generating units (EGUs) serving generators of 25MW or less, but it poses a serious threat to other small fossil fuel-fired electric generating stations with less than 250MW capacity that are poorly represented in the analysis that EPA uses to support this rulemaking. Small Generating Stations (<250MW potential facility-wide generating capacity) will face severe pressure to shutdown if the IAQR is implemented as EPA proposes in this rule. Losing these Small Generators will disrupt the regional distribution of electricity and reduce the security and reliability of our Nation's electricity supply. Dover Light & Power applauds EPA for carving out the smallest EGUs (<25MW generating capacity) and we encourage the agency to extend that relief to all small generating stations for whom the cost of control is not highly cost effective.

Dover Light & Power supports EPA's decision to exclude fossil fuel-fired electric generating units (EGUs) with a nameplate capacity of 25MW or less from the IAQR. By excluding de minimis generators, Congress and EPA also recognize that air regulations that are appropriate for large EGUs are not always appropriate for smaller EGUs. Large generators have multiple advantages that allow them to more easily and cost effectively attain the reductions mandated by the IAQR. For example, large EGUs can: (1) achieve economies of scale not available to Small Generators, (2) lessen the risk associated with inherently uncertain pollution credit markets by sharing credits among multiple owned plants, (3) spread control installation costs over large customer bases and (4) more easily raise the substantial capital investments needed to purchase emissions controls. In contrast, de minimis generators cannot afford the multi million dollar investments required by the IAQR, would be unable to pass these costs along to their customers, and would not be able to protect themselves by sharing credits among multiple regulated units. Excluding de minimis generators from the IAQR ensures that AMP-Ohio's small municipal generators, including units at Dover Light & Power, will not be forced to shutdown prematurely by this rulemaking.

The rationales supporting the exclusion of de minimis generators from the IAQR also support a regulatory scheme carefully tailored to ensure that it has a fair and proportionate impact on generators of all sizes. Small Generators face severely disproportionate burdens under the IAQR that threaten their viability as electric utilities. Dover Light & Power supports relief for Small Generators, which we define as those with a facility-wide capacity of 250MW or less (including those willing to restrict actual electric output to 250MW or less). NOx and SO2 controls are not highly cost effective for these Small Generators. Many also lack the customer base to distribute these costs broadly to minimize their impact on individual customers. As a result, their viability is threatened by the IAQR. Relief is warranted because Small Generators provide real benefits to the security and reliability of the electricity generation and distribution system.

Response:
The commenter suggests that EGUs less than 250 MW capacity are poorly represented in the analysis EPA used to support the CAIR, that including units between 25 and 250 MW will cause these units to face severe pressure to shutdown and that the shutdown of these units will disrupt the regional distribution of electricity and reduce the security and reliability of the Nation's electric supply. The commenter suggests all of the above will result without providing any analysis or information to support its claim. As a result, EPA considers this comment speculative. EPA has emissions and control cost information for EGUs between 25 and 250 MW and used this information in its determination that cost-effective controls are available for these units. EPA emissions data shows that EGUs between 25 and 250 MW comprise a significant portion of NOx and SO2 emissions. EPA estimates that approximately 1/3 of the SO_2 reductions, and 30 percent of the NOx reductions, required under today's rule come from plants between 25 MW and 250 MWe. See preamble for further discussion. The commenter's claim that NOx and SO2 controls for these units are not cost-effective is not supported by any information to prove its claim and is therefore speculative. To the contrary, EPA modeling shows that units between 25 and 250 MW will put on controls as part of our highly cost-effective set of control actions. These units also have the option to coal-switch, alter dispatch, or purchase allowances. See preamble for further discussion. Also see Regulatory Impact Analysis for discussion of retirements.

Comment:
In lieu of the language proposed in the SNPR, EPA should adopt a definition for EGU that, according to the commenter, is the Acid Rain Program's definition of affected utility. The commenter stated that the Acid Rain definition of EGU is "all fossil fuel-fired units with a nameplate capacity greater than 25 MWe supplying more than 1/3 of potential electrical output to the grid."

Response:
See preamble.

Comment:
The proposed definition of cogeneration unit is too broad and EPA should use in the CAIR program the same definition that is used in the NOx SIP Call, i.e., where a unit uses fossil fuel for at least 50 percent of its annual heat input during a specified period. The same commenter also proposed excluding large wood-fired boilers and black liquor recovery furnaces.

Response:
See preamble. Furthermore, using a 50 percent threshold for defining fossil-fuel fired was more important in the NOx SIP Call because industrial boilers and turbines were covered as affected sources. In the CAIR, industrial boilers and turbines are not covered as affected sources.

Comment:
Commenter is opposed to EPA's proposed change to narrow the scope of the cogeneration exemption, as compared to the exclusion provided under the acid rain program. This narrowing of the cogeneration exemption is likely to have adverse SO_2 allowance impacts that could undermine the competitiveness of cogeneration facilities. For example, under the proposed transport rule, a cogeneration unit that burns coal, oil and/or gas must meet FERC QF efficiency standards in order to be exempt. In contrast, the acid rain program only required cogeneration facilities to meet the FERC QF efficiency standards if they burned oil or gas. If this proposed change is adopted, coal-fired cogeneration that received no allowance allocation because they qualified for the acid rain exemption, would need to hold SO_2 allowances under the IAQR trading program. The commenter is concerned about the competitive disadvantages and unfairness of having to purchase these allowances and, as a result, believes that the best solution would be for EPA to continue the exemption in the first instance.

Response:
See preamble. In addition to the response given in the preamble, EPA would point out that this commenter assumes any coal-fired cogeneration facility will not meet the efficiency standard without providing any information (e.g., a detailed example of a coal-fired plant that would not meet the standard or other technical analysis) to support its assumption. As a result, EPA considers this response speculative. As discussed in the preamble, EPA performed detailed analysis to support its conclusion that most coal-fired cogeneration facilities would meet the efficiency standard.

Comment:
The efficiency standards should not apply to solid fuel-fired cogeneration units because solid fuel-fired unit efficiency is based on HHV (higher heating value) while gas, or oil-fired unit efficiency is based on LHV (lower heating value).

Response:
See preamble.

Comment:
Several commenters suggest EPA should exempt all cogeneration units (or all qualifying cogeneration units under the Public Utility Regulatory Policy Act or "PURPA") instead of using the proposed criteria because of the high efficiency and other benefits of cogeneration.

Response:
Similar to the Acid Rain Program and the NOx SIP Call, EPA is including an exemption for cogeneration units that meet certain criteria. See preamble for further discussion. EPA is not providing an exemption for all cogeneration units because fossil fuel-fired cogeneration units can emit significant amounts of the pollutants this rule is designed to reduce, i.e., NOx and SO2. Furthermore, neither the Acid Rain Program nor the NOx SIP Call granted an exemption for all

cogeneration units and this commenter has not justified broadening the proposed exemption to cover all cogeneration units.

Comment:
The 1/3 of potential electric output capacity criteria should be applied on an annual basis.

Response:
See preamble.

Comment:
Several commenters requested EPA confirm that, for purposes of applying the 1/3 potential electric output criteria, simultaneous purchases and sales of electricity are to be measured on a "net" basis, as is done in the Acid Rain Program. At least one commenter suggested that the net approach also be applied to purchase and sales that are not simultaneous.

Response:
See preamble.

Comment:
Regarding facilities with multiple cogeneration units, some commenters suggested aggregating multiple cogeneration units that are connected to a utility distribution system through a single point when applying the 1/3 potential electric output capacity criteria. These commenters suggested that it is not feasible to determine which unit is producing the electricity exported to the outside grid.

Response:
See preamble.

Comment:
Regarding an exemption for IPP facilities, some commenters stated that certain independent power production (IPP) facilities are exempt from the Acid Rain Program and that they should also be exempt from the CAIR program and model-cap-and-trade rules.

Response:
See preamble.

Comment:
There is little difference, from an air quality standpoint between a stack labeled as a 25 MW unit and one labeled as a 24.9 MW unit, yet this analysis would have States believe that emissions from the 25 MW unit are transported, while emissions from the 24.9 MW unit are not. The purpose of a cap-and-trade program is to provide sources that are expensive to scrub with a way out: instead of scrubbing their emissions, stacks can buy credits from other stacks that are less expensive to scrub. Some sort of divider is likely necessary, since at some point monitoring costs begin to be

excessive for the amount of emissions generated. However, this line should be set lower than it is in this proposal. EPA should reconsider the placement of this dividing line and justify it.

Response:
See preamble section VIII applicability for discussion of why 25 MW cutoff was chosen.

Comment:
EPA is proposing to apply the 18 CFR 292.205 operating and efficiency standard requirements to cogeneration units that are considered to be EGUs under this rule. As EPA notes, these efficiency standards were applied under the FERC rules for Qualifying Facilities in order to ensure that high efficiency units and legitimate cogeneration facilities were able to avail themselves of the PUPA protections. EPA properly notes that the efficiency standards were only applied to gas and oil fired facilities under the FERC rulemaking. As those standards were applied, gas and oil fired cogeneration facilities typically incorporate combustion turbines(Brayton cycle) and use Lower Heating Value of fuels. If the EPA intends to apply these efficiency requirements to solid fuel fired cogeneration facilities, they need to account for the typical Higher Heating Value convention used with solid fuel firing facilities, as well as the highly variable fuel moisture content and resulting heating value (especially for non-fossil fuels) and their impact on achievable and calculated cycle efficiency when the Rankine cycle (boilers and steam turbines) is used. While advocating higher cycle efficiency is an understandable cause, all fuel types and equipment capabilities need to be considered so that it is technically possible for all legitimate cogeneration facilities to meet the definition and efficiency requirements. These issues are part of the reason that the FERC did not apply efficiency requirements to solid fuel fired cogeneration facilities in the first place. There should be no inherent prejudices against a particular fuel (solid fuel in this case) within the CAIR rulemaking. In fact, considering the current imbalance of natural gas supply/demand and the resulting high price of natural gas, EPA should be ensuring that continued/increased use of high efficiency clean solid fuel fired cogeneration facilities is encouraged by ensuring that any efficiency standards are achievable by the extremely diverse solid fuel fired cogeneration facilities.

Response:
See preamble for EPA's response on the use of Higher Heating Value and Lower Heating Value in calculating cogeneration unit efficiency. See TSD entitled "Cogeneration Unit Efficiency Calculations" in the docket for a response regarding different types of solid fuels. EPA agrees that there should be no prejudice against particular fuels. This is one reason why EPA proposed and is finalizing an approach that applies an efficiency standard to all fuel types instead of applying an efficiency standard only to oil and gas-fired cogeneration units. See preamble section VIII for further discussion.

Comment:
Although the States ultimately have the flexibility to determine which source sectors and sources to obtain the required emissions reductions from, EPA is recommending that only EGUs greater than 25 MW (including cogeneration units greater than 25 MW supplying more than one third of

their potential electric output capacity and selling more than 25 MW to any utility power system) be controlled under the CAIR program. We are concerned that EPA's definition of EGU for purposes of the CAIR is inconsistent with EPA's definition of that same term for purposes of title IV. For example, title IV exempts certain units from title IV applicability and/or CEMS requirements. The proposed CAIR does not include these exemptions. Consequently, in its proposed form, the CAIR would apply to, and require CEMS for, certain low-emitting units and other units that are currently exempt from title IV. We encourage EPA to compare CAIR's applicability to that of title IV, to exempt from CAIR those units that are exempt from title IV, and to exempt from CAIR's CEMS requirements those units that are exempt from title IV's CEMS requirements.

Response:
Units affected by title IV are required to meet the monitoring and reporting requirements in 40 CFR part 75. Part 75 generally requires CEMS, but has alternative monitoring requirements for certain small units, low-emitting units, or units infrequently used. No unit affected by title IV is exempt from part 75 requirements; however, some may qualify to use monitoring methods that do not require continuous emissions monitoring systems. Part 75 is not being modified in this rulemaking. All of the monitoring options currently available to sources affected by title IV are available to CAIR sources as well. The choices in monitoring methodology are dependent on fuel type and emissions. These limitations do not change under CAIR. Therefore, CAIR CEMS requirements are the same as title IV CEMS requirements. There are several differences between the CAIR and title IV applicability, e.g., cogeneration definition, exemption for Independent Power Producers or "IPPs," and the use of form 860 for generators. The definition of cogenerator under the CAIR is different than title IV because the CAIR definition applies an efficiency standard to all fossil fuels. See preamble section VIII for further discussion. Also, in calculating the amount of power sold, the CAIR updates power sales annually while title IV uses a three-year rolling average. EPA adopted annual updating under the CAIR because it provides a more accurate representation of what units are in the business of selling power. The IPP exemption under title IV is not available under the CAIR. See preamble section VIII for further discussion. Lastly, under the CAIR, electric generating units are no longer required to submit form 860 as was required under title IV. EPA believes form 860 is outdated and has been significantly revised to the point of making it no longer necessary.

Comment:
Commenter supports the de minimis treatment for utility units of < 25 MW nameplate capacity. EPA's proposed Rule to Reduce Interstate Transport of Fine Particulate Matter and Ozone (Interstate Air Quality Rule) (the 'IAQR') as proposed at 69 Fed. Reg. 4566 (January 30, 2004) properly carves out those electricity generating units (EGUs) serving generators of 25MW or less, but it poses a considerable threat to the other small fossil fuel-fired electric generating stations with less than 250MW capacity that are not adequately represented in the analysis that EPA uses to support this rulemaking. APPA recommends significant changes to this rule to protect small generators and to enhance the efficiency and effectiveness of the proposed cap and trade system. We encourage the EPA to allow for additional comments on the smaller systems or smaller

generators with current nameplate capacity between now and June 31, 2004 to allow for further clarification on this issue as well as to address the EPA's model rule on IAQR. This additional time is needed.

Commenter supports EPA's decision to exclude fossil fuel-fired electric generating units (EGUs) with a nameplate capacity of 25MW or less ('de minimis generators') from the IAQR. A considerable number of APPA's electricity generating members operate municipally-owned generators a capacity of 25MW or less. Congress directed EPA to use this 25MW de minimis threshold in the Acid Rain program and in the regulation of hazardous air pollutants (HAPs) to carve out these less significant sources from the regulations being imposed on the electric utility sector. See 42 U.S.C. § 7651a(8 (excluding EGUs of 25MW or less from regulation as an existing unit); see also, 42 U.S.C. § 412(a)(8)(excluding EGUs of 25MW or less from the electric utility steam generating unit MACT source category).

EPA also used this 25MW de minimis threshold to exclude Small Generators from its previous interstate transport rule, the NOx Budget Trading Rule. See 40 CFR § 97.4. Thus, excluding de minimis generators from the IAQR is appropriate and consistent with their statutory and regulatory treatment under the Clean Air Act.

By excluding de minimis generators, Congress and EPA also recognize that air regulations that are appropriate for large EGUs are not always appropriate for smaller EGUs. Large generators have multiple advantages that allow them to more easily and cost effectively attain the reductions mandated by the IAQR. For example, large EGUs can: (1) achieve economies of scale not available to small generators, (2) lessen the risk associated with inherently uncertain pollution credit markets by sharing credits among multiple owned plants, (3) spread control installation costs over large customer bases and (4) more easily raise the substantial capital investments needed to purchase emissions controls. In contrast, de minimis generators cannot afford the multi-million dollar investments required by the IAQR, would be unable to pass these costs along to their customers, and would not be able to protect themselves by sharing credits among multiple regulated units. Excluding de minimis generators from the IAQR ensures that small municipal generators will not be forced to shutdown prematurely by this rulemaking.

Response:
See preamble.

Comment:
As detailed at length in AMP-Ohio's March 30, 2004 comment letter, the Proposed Rule to Reduce Interstate Transport of Fine Particulate Matter and Ozone (Interstate Air Quality Rule) (the 'IAQR') threatens the continuing existence of Small Generators. Small Generators (i.e. those with <250MW generation capacity) play multiple and crucial roles in the national energy market including: (1) relieving transmission congestion; (2) providing necessary reactive power; (3) increasing system reliability; (4) providing key peak production capacity; (5) enhancing fuel diversity; and (6) protecting against wholesale price spikes. Additionally, certain local areas

depend heavily on the electricity produced by Small Generators to keep the lights on. The CAIR proposal should include safeguards to ensure that these rules do not contribute to the premature shutdown of Small Generators and the over-consolidation of electrical generation capacity that jeopardizes our secure and reliable supply of energy.

Relying on the cap and trade market in the CAIR proposal to establish a cost effective option for Small Generators is insufficient. The IAQR anticipates the widespread installation of scrubbers and SCR at large facilities where such control measures are 'highly cost effective.' However, at small generating facilities where scrubbers and SCR are demonstrably not cost effective, the IAQR anticipates premature shutdown of 3100 MW of coal fired capacity. In an efficient cap and trade market, the cost of an allowance will reflect the average cost of control, but as EPA recognizes, the average cost of control will not be low enough to avoid forcing many Small Generators to shutdown. Small Generators are less able to absorb the disproportionate burdens due to financing obstacles, unique space constraints, and the lack of a large customer base to broadly distribute substantial costs. See American Public Power Association (APPA) Comment (March 30, 2004). The actual elimination of Small Generators could be much greater than EPA projects if CAIR's cap and trade market does not include adequate protection for small sources.

Such protection is warranted to preserve the unique benefits of Small Generators and because the consolidation of generating capacity in large units may exacerbate downwind impacts. Interstate transport of pollutants is, in part, a function of the flow rate, stack height and other dispersion characteristics. Emissions from larger units will be dispersed farther than smaller units, thereby increasing the potential for interstate impacts. Thus, a market that does not protect against the elimination of Small Generators could be shifting electrical generation to modes that run counter to the goal of the rule: to minimize interstate impacts. EPA has a sufficient basis to justify protecting Small Generators from some or all of the adverse consequences posed by this rulemaking.

AMP-Ohio's March 30, 2004 comment letter proposes several ways to help preserve the contributions of Small Generators including: (1) revising the definition of 'affected EGU' to exclude Small Generators (e.g., <250 MW) where controls would not be 'highly cost effective'; (2) establishing a tiered implementation schedule applicable to the largest EGUs first; (3) providing Small Generators with subsidized allowances to offset their additional compliance costs; and (4) creating a blanket emissions exemption to level the playing field between large and small EGUs. AMP-Ohio understands that EPA still 'intends to respond to comments received on the January 2004 proposal and today's SNPR when it promulgates the final rule.' 69 FED. REG. 32682, 32708 (June 10, 2004). Accordingly, AMP-Ohio hereby incorporates its March 30, 2004 comment letter by reference and again urges EPA to focus on preventing the undesirable removal of Small Generators from the United States power grid.

Response:
See preamble for a discussion of why EPA chose 25 MW as the cutoff for applicability under the CAIR. Despite the benefits of small generators that this commenter describes, EGUs greater than

25 MW emit significant amounts of NOx and SO2, the pollutants this rule is designed to reduce. See preamble. EPA's cost-effectiveness analysis showed that it was cost-effective to control units between 25 MW and 250 MW. See preamble. The commenters claim that the actual elimination of small generators could be much greater than EPA projects if CAIR's cap and trade market does not include "adequate protections" for small sources is speculative because commenter does not provide any data or analysis to support its claim. It is unclear what commenter means by the suggestion to "create a blanket emissions exemption to level the playing field between large and small EGUs."

Comment:
EPA should not include cogeneration units in the definition of 'Electric Generating Unit.' The Notice of Proposed Rulemaking treats 'cogeneration units' the same as other 'electric generating units.' We think this is improper for the following reasons.

Cogeneration units are not like other electric generating units. There are inherent differences in the operation of 'combined heat and power(CHP)' units and other conventional power sources. Although CHP operations generate electricity, from the standpoint of manufacturers, their primary function is to utilize excess heat to generate process steam for a manufacturing or other process. This secondary use of the heat makes them up to 70 percent more efficient than electric utilities and consequently much cleaner. This fact causes us to question whether 'further' controlling cogeneration units really are 'very cost-effective.' EPA's proposal does not discuss this issue, probably because CHPs have been lumped together with other EGUs. We are concerned that without careful consideration of whether additional controls are 'very cost-effective' for cogeneration units, EPA's final IAQR may impose regulatory burdens improperly that will likely inhibit the use of cogeneration units. Commenter incorporates comments submitted by CIBO on the cost-effectiveness of further controls on other industrial boilers and combustion units.

Regulating CHPs like other conventional power sources is contrary to national energy policy.

Commenter also submits that regulating cogeneration units with other conventional power sources is contrary to national energy policy, which encourages the energy efficient use of CHP technology. Inclusion of cogeneration units within a cap-and-trade program could disadvantage the installation of new CHPs which will have to obtain 'allowances' that may not be readily available particularly for new sources. Since States do not have to provide 'new source set-asides' in their cap-and-trade programs, inclusion of cogeneration units under the IAQR will clearly disadvantage the use of CHP technology, even though the President's 2002 National Energy Policy calls for 120,000 megawatts of new CHP operations to be developed by the year 2012. Requiring retrofit pollution control technology on existing CHPs also will unfairly burden companies that invested in CHP technology. Consequently, commenter urges the Agency to consider how that goal can be achieved if cogeneration units are included in the final IAQR definition of 'electric generating units.'

Although commenter does not support regulating cogeneration units under the IAQR, if EPA proceeds this way, it must define 'cogeneration units' consistent with policies and regulations in the Acid Rain program.

If cogeneration units are regulated under the IAQR, then EPA must adopt a definition of 'cogeneration unit' that is consistent with existing CAA regulations and policy. Id. At 4610. Under the acid rain program, the calculation of whether more than 'one-third' of the unit's energy is supplied to the transmission grid is determined by subtracting the power the 'host' company buys back for process steam and other industrial uses from the gross MW generated by the unit and sold to the transmission grid. (Generally such arrangements contemplate lower costs for the host, further incentivizing investment in more energy-efficient independent power production, consistent with national energy policies.) Thus, commenter recommends that EPA's definition of 'cogeneration unit' should specifically spell out this determination of 'net' output in determining whether 1/3 of the unit's power is being sold to the electricity transmission grid.

Response:
Contrary to the commenter's statement, the notice of proposed rulemaking does not treat "cogeneration units" the same as other "electric generating units." EPA proposed and is finalizing an exemption for cogeneration units. See preamble section VIII for further discussion and for a response to the remainder of this comment.

Comment:
The phrase, 'producing electricity for sale' could be interpreted to mean any amount of electricity for sale. EPA's proposed definition of cogeneration applies some additional threshold criteria. But those thresholds are not apparent for non-cogeneration units that might solely be producing electrical power with some small amount sold to a utility grid.

Response:
For non-congeneration units, "producing electricity for sale" means any amount of electricity for sale. See preamble for further discussion.

Comment:
In the proposal, the CAIR would apply to units that burn any amount of fossil fuel, consistent with the applicability of the Acid Rain Program. Though this is a departure from the definition of 'fossil fuel-fired' for EGUs under the NOx SIP Call (i.e., >50 percent heat input from fossil fuels), we nevertheless understand EPA's intent to tie the CAIR program as closely as possible to the Acid Rain Program. That is why we so strongly believe that it would be a mistake to fail to include the exemptions from the Acid Rain Program that were mandated by Congress. However, if EPA chooses to depart from Congressional intent for that program in the development of the CAIR, then we believe that EPA should also reconsider the overly broad definition of 'fossil-fuel-fired,' in light of the fact that a number of EGUs burn only minor amounts of fossil fuel.

For example, several of our small IPPs burn only de minimis amounts of natural gas or propane during start-up to warm equipment and initiate combustion of the primary (non-fossil) fuels in their stoker-type boilers. Our biomass facilities burn, as their primary fuel, a non-fossil renewable resource that contributes no new greenhouse gases to the atmospheric-terrestrial system. These facilities typically are subject to an enforceable permit limit of 10 percent on the allowable annual heat input from fossil fuels, and have actual annual heat input from such fuels of less than 1 percent. It makes no sense to consider these units as 'fossil-fuel-fired,' and we would suggest that if EPA is not willing to provide for the Acid Rain exemptions, it should consider using a reasonable low percentage annual heat input as a threshold within the definition of fossil-fuel fired, to avoid subjecting units such as these (units that are providing the nation a non-fossil energy alternative) to costly new regulation.

Response:
See preamble. Also see response to comments elsewhere in this section.

Comment:
If EPA were to evaluate CHP units as a separate source category, API believes that CHPs would not meet the significance criteria proposed. Specifically, they would not contribute emissions to downwind areas that amount to more than 1 percent of the annual NAAQS and that controlling them will not achieve attainment in more than 0.5 percent of the county or parishes in the lower 48 States. Conversely, taking CHP units out of the targeted source category will not change EPA's finding that non-CHP EGUs are making significant contributions to nonattainment in other States. Consequently, EPA should delete CHPs from the definition of EGU and not include them in the CAIR program.

Response:
EPA used contribution to downwind nonattainment as a criteria for determining which States, not which sources, are affected by the CAIR. To determine which sources are affected by the CAIR, EPA used cost-effectiveness as a criteria. This comment is inaccurate by suggesting that EPA used contribution as a criteria to determine what sources are affected. EPA therefore considers this comment irrelevant. Furthermore, commenter "believes that CHPs would not meet the significance criteria proposed," but provides no data or analysis to support its claim. This comment is therefore speculative.

Comment:
EPA should exclude gas-fired Combined Heat and Power (CHP) units from the EGU source category. Regulation of CPUs under the CaiR will provide disincentives for building new units at a time when the Department of Energy has adopted a goal of doubling the nation's CHP capacity by 2010. Gas-fired CHP units are a very small part of the total NOx and SO_2 inventory and account for only 3 percent of the nation's electric generating capacity. Therefore in all likelihood, CHP units contribute less than 1 percent of the annual NAAQS in downwind areas and controlling them will not achieve attainment in more than 0.5 percent of the counties or parishes in the United

States. EPA should delete CHP units from the definition of EGU and from the scope of the CalR program.

Response:
See preamble. See also responses to previous comments in this section and the response to commenters arguing for a general exemption for all CHP units given earlier in this section.

Comment:
West Virginia is a small State with only a small group of non-EGUs with a modest amount of emissions, but with several large EGUs affected by the current NOx SIP Call rules. If the non-EGU trading program is isolated and stranded by disallowing access to emission allowances under a substituted plan for large EGUs under the IAQR, then the pool of options to achieve 'cost-effective' reductions would be seriously diminished, and it would especially unfairly impact opt-in units under the NOx SIP Call, such as one of our members who chose to opt-in due to such market opportunities. Options for meeting NOx allowances would also essentially be reduced for non-EGUs to just one: unit-specific controls. Accordingly, we strongly urge EPA to fashion an allocation and trading program that will fully preserve non-EGU access to the full emissions markets.

Response:
EPA has modified its proposal to allow non-EGUs under the NOx SIP Call to participate in the CAIR ozone season trading program. See preamble.

Comment:
Commenter's facilities emit SO_2 at rates substantially lower than most conventional coal-fired utility units, and therefore should not be required to further reduce SO_2, emissions under the CAIR. Virtually all of the commenter's facilities have been constructed under permits imposing stringent SO_2 emission limitations, consistent with current Best Available Control Technology ('BACT') standards. Commenter's facilities have achieved low SO_2 emissions by utilizing limestone injection within the fluidized bed combustion zone. The limestone injection technology typically achieves greater than a 90 percent reduction in SO_2 emissions from these sources. As a result, SO_2, emissions from commenter's plants are significantly lower than the emissions from conventional coal-fired units. Based upon a recent analysis conducted in support of its proposed renewable portfolio standard, the Pennsylvania Department of Environmental Protection has concluded that pulverized coal boilers (without scrubbers) typically emit SO_2 in the range of 2-3 Ibs/MMBtu, while anthracite waste coal facilities have achieved SO_2 emission rates of 0.20-0.25 Ibs/MMBtu.

The Agency's analysis of SO_2 control technology in developing the CAIR related solely to large, conventional coal-fired utility units, many of which have not been subjected to BACT determinations. Specifically, the Agency based its SO_2 control analysis solely on the application to large EGUs of Flue Gas Desulfurization ('FGD') systems. The Agency apparently did not consider the appropriateness or feasibility of such technology for facilities firing waste coal or

those utilizing CFB technology. CFB technology generally is incompatible with the use of back-end controls, for reasons of technical and/or economic feasibility. Both NOx and SO2 emission controls are effectively accomplished for CFB boilers in the combustion zone, through operational controls, rather than through 'back-end' control equipment. The commenter's facilities have optimized these operational controls to satisfy the stringent NOx and SO2 standards currently applicable to these sources.

Further, given the relatively small size of the individual commenter's facilities and their low baseline SO_2 emissions, application of add-on control technologies would be cost prohibitive. The use of limestone injection within the fluidized combustion zone has reduced SO_2 emissions from ARIPPA facilities to such an extent that there is limited practical potential for further significant SO_2 reductions. Therefore, on a cost per ton basis, the (theoretical) application of FGD to a CFB unit would exceed – – by orders of magnitude the marginal cost per ton estimates assumed by the Agency in developing the CAIR.
In light of the commenter's facilities' success in maximizing control of SO_2 emissions from CFB units, and the infeasibility of further control, these facilities should not be subjected to the CAIR SO_2 control requirements. Commenter's facilities would be economically disadvantaged by being required to reduce SO_2 emissions to the same extent as conventional units. Such requirements essentially would penalize commenter's facilities for maximizing SO_2 control efforts earlier than their utility counterparts.

Response:
EPA applauds the owners of CFB units that have achieved reductions as described in this comment. Despite the fact that these units may emit very low amounts of SO_2, such units still have the potential to emit SO_2 which this rule is designed to reduce, particularly if SO_2 controls are not in operation. Such units are also a source of SO_2, which this rule is designed to reduce. EPA realizes that some of commenter's facilities may be Independent Power Producers. For a discussion of why the exemption for Independent Power Producers under the Acid Rain Program is not continued under the CAIR, see preamble. Finally, EPA notes that units emitting at low levels will not necessarily have to reduce emissions. Units have the option of reducing emissions or purchasing allowances. Low-emitting units should not have to purchase large amounts of allowances and thus the negative impact of being affected by the CAIR is somewhat mitigated. The EPA does not agree with the commenter that the $_{SO2}$ reduction capability of a CFB boiler already equipped with limestone injection cannot be improved further. The CFB boilers mentioned in the comment are designed for 90 percent $_{SO2}$ removal. The EPA notes that $_{SO2}$ removal rates greater than 90 percent have been achieved at certain CFB installations.[113,114] Therefore, the Agency believes that it is possible to use techniques, such as increased limestone

[113]A. Basak, et. al., "Emission Performance Summary from Nucla Circulating Fluidized Bed Boiler Demonstration Project," 1991 International Conference on Fluidized Bed Combustion, Montreal, Canada, April 21-24, 1991

[114]D. Beacon, et. al., "Advanced Emission Controls at Mt. Poso Pyroflow Circulating Fluidized Bed Boiler," 1991 International Conference on Fluidized Bed Combustion, Montreal, Canada, April 21-24, 1991

injection rate, to enhance the $_{SO2}$ control performance of an existing CFB boiler. Additionally, a CFB plant can also be retrofitted with a backend polishing spray dryer absorber (SDA) to reduce $_{SO2}$ emissions. A CFB installation equipped with a polishing SDA has been operating for several years.[115]

Comment:
Unit size and emissions are the most important factors to consider in defining applicability - more important than whether a unit is primarily used to generate electricity (FR Vol. 69 No. 20 pg. 4610). EPA considers emissions from the electric power industry to be 'a relatively large amount,' and requests comment on how to determine what constitutes 'a relatively large amount' of the relevant emissions from other sectors. Clearly, EGU units are a significant source of these pollutants, and most significantly responsible for the transport of pollutants into the OTR. However, beyond that, EPA should not try to redefine applicability or whether a source constitutes a 'relatively large amount' of emissions. There is no need to do so, and it is a term with no legal basis or precedent of use. As a qualitative description, it's fine; as a regulatory threshold or applicability standard, it is not.

Response:
The comment is unclear. See preamble section VIII for a discussion of applicability criteria.

Comment:
Commenter supports the de minimis treatment for utility units of < 25 MW nameplate capacity. Commenter is very concerned about the timing implementation for the two phases in this rulemaking. The public power community's smaller generating stations (<250 MW potential facility-wide name plate capacity) will face pressure to shutdown if the IAQR is implemented as EPA proposes in this rule because of anticipated operating expenses associated with new compliance assurance method or CEMs. Losing these small generators will disrupt the national distribution of electricity and reduce the security and reliability of our nation's electricity supply. Commenter also supports the EPA's commitment to a cap and trade system to achieve NOx and SO2 reductions and we offer a number of suggestions to maximize flexibility within that system. One suggestion is to implement this rule in phases starting with the largest generating stations where emission controls are most cost effective and return the largest reductions in emissions with downwind impacts. Using this approach, the utilities least likely to shutdown due to the costs of control would bear the burden during the initial phases. Small generating stations for which these control costs seriously threaten viability would be regulated in later phases if the downwind impact on nonattainment remains a concern. Commenter offers this approach to minimize the number of smaller generators that might be forced to shutdown and to reduce the negative effects of large scale consolidation in the utility sector. While trading may increase the opportunity for marginal units to purchase allowances rather than retrofit, there are significant lower case cost associated with installation of monitoring, etc. Commenter believes the final rule should allow States to make these determinations where the viability of a smaller utility is threatened.

[115]W. Goodrich, et. al, "Summary of Air Emissions from the First Year Operation of JEA's Northside Generating Station," ICAC Forum '03, Nashville, Tennessee

Response:
EPA used IPM to evaluate the cost effectiveness of CAIR (assuming that all affected States choose to implement reductions by controlling EGUs, using the model cap and trade rule). Using IPM, we modeled CAIR on all potentially affected EGUs -- including units as small as 25 MW -- and determined that the CAIR reductions can be obtained using highly cost-effective controls on EGUs. See section IV of the CAIR NFR preamble for further discussion of EGU cost effectiveness. Furthermore, commenter's statement that smaller units less than 250 MW will face pressure to shutdown if the CAIR is implemented is speculative because commenter provides no data or analysis to support its claim. Also see other responses to comments in this section. States are allowed to determine what reductions are required of individual sources.

Comment - Small, low-emitting units should be exempt from participating in the CAIR cap-and-trade program: EPA should include in the CAIR cap-and-trade program applicability provision an exemption for small, low-emitting units. The commenter recommends that the exemption apply to units that emit less than 25 tons per year of NOx, like the exemption in the NOx SIP Call. EPA indicates that a small unit exemption is not necessary, in part, because small, low-emitting units will be able to take advantage of special monitoring and reporting procedures in Part 75 that simplify the requirements for low mass emitting units. Although such simplified requirements will serve to relieve some of the administrative burden associated with the CAIR cap-and-trade program, the regulatory burden on such units would still be unreasonably high relative to the negligible environmental benefit that would result from including them in the CAIR cap-and -trade program.

Response - The NOx SIP Call allows States to exempt gas- or oil-fired sources emitting less than 25 tons of SO_2 in any ozone season from the requirements of the NOx SIP Call trading program provided that the source take a permit condition that ensures that SO_2 emissions in the ozone season not exceed 25 tons. The State is also required to remove the associated number of tons from its trading budget reducing the number of allowances available. The "25 ton exemption" is an optional trading rule provision for States in the NOx SIP Call. Very few sources actually took advantage of the provision.

Since adopting NOx SIP Call requirements, EPA has further amended its Part 75 monitoring requirements for small sources making it easier and less expensive for these sources to comply with the monitoring provisions of the program. There is a concern that emissions could shift to these small units if they are not monitoring and reporting emissions. In balancing the environmental benefit of including these sources with the cost which has been greatly reduced, the benefits outweigh the cost of participation.

Comment - commenter urges EPA to adopt in the IAQR an exemption for low emitters or units that are not in the Acid Rain Program and that operate a minimal amount of time. EPA adopted a similar such exemption in the NOx SIP Call. See 63 Fed. Reg. 57355, 57415-15, 57459, 57462-63,57484, & 57487-88.

Response - see response to previous comment.

Comment:
The rules must apply to all fossil-fuel fired boiler and turbines serving an electrical generator with a nameplate capacity greater than 25MW and producing electricity for sale (except for certain cogeneration units).'(69 FR 32709). This approach is unnecessarily operating against the very flexibility EPA seeks to embrace in its rule making. Coupled with the provision that does not allow States to lower their SO_2 budgets, this program design could leave States participating in this program unable to address EGU- or non-EGU-related emissions that interfere with nonattainment or maintenance in the future.

Response:
See preamble for a discussion of why EPA is not assuming reductions from non-EGU boilers and turbines. States have the flexibility to require reductions from non-EGUs if they choose. See preamble and other responses to comments in the response to comments document.

Comment:
Opt-in or Expansion for Non-EGU's: The proposal reflects the principle that States may allow non EGUs to participate in an interstate allowance trading program. For both NOx and SO2, EPA should ensure that Statewide EGU emission budgets - and therefore the allowances available to EGUs - are not reduced to provide allowances for non-EGUs. As suggested by EPA in the proposed rule, when States devise sector-specific budgets, any allowances for non-EGUs should be in addition to EGU allowances as reflected in EGU Statewide caps. In order to expedite attainment of the 8 hour ozone and $PM_{2.5}$ standards, EEI encourages EPA to adopt and promote a fair, technically-justified program for additional source categories.

Response:
Additional source categories can take advantage of the opt-in provision. Any allowances for opt-in units would be in addition to the State-level EGU budgets. See preamble.

XIII.N. General

Comment:
MidAmerican favors a national approach with broader applicability that provides MidAmerican the flexibility to determine how best to comply while balancing the costs, environmental requirements, economic development potential, and the reliability of the electric generation and transmission system. A nation-wide cap and trade program will maximize the ability to achieve cost effective reductions. [[(1000, p.7)]]

Response:
As directed under the CAA, EPA developed the CAIR to address those States that were shown to significantly contribute to the nonattainment of the $PM_{2.5}$ and ozone NAAQS in other States.

Comment:
A. Impacts on Natural Gas Demand
The U.S. natural gas supply sector is currently, and is projected to be, severely challenged in meeting the nation's growing demand for natural gas. This situation has caused natural gas prices to increase to record levels with significant natural gas demand destruction within non-electric sectors. The U.S. Energy information Agency (EIA) concludes that high natural gas prices are likely to continue to increase until 2010. This situation is a difficult one for petrochemical manufacturers and other gas consumers. A significant portion of the increased demand, and therefore upward price pressures on natural gas, is attributed to the acceleration of target dates for compliance with clean air act requirements, the increased levels of emissions reductions contained in some proposed initiatives, and EPA's encouragement of natural gas use (at the expense of higher value uses) as a means of Clean Air Act compliance when other alternatives are available. One of the more telling impacts of these clean air efforts is pressure on coal-fired electric generation. Any reduction in coal usage from electricity generation will be replaced by additional natural gas-fired generation. This increased gas-fired generation and corresponding increase in natural gas demand by the utility sector will further exacerbate the challenges facing the U.S. gas production and supply sector. Illustrative of this point is the fact that since 1996, natural gas demand within the electric sector has increased over 4.7 BCFD, or 45
percent. The domestic petrochemical industry is primarily based upon natural gas and natural gas liquids. About 70 percent of U.S. petrochemical manufacturers use natural gas liquids as feedstocks. In contrast, about 70 percent of petrochemical producers in Western Europe and Asia use naphtha (a heavy oil) as a feedstock. While oil is a global commodity with its price set on the global market, natural gas liquids are generally locally-traded commodities. For this reason, price increases in natural gas have had a larger impact on competitiveness in North American-produced petrochemicals. NPRA realizes that EPA, in this rulemaking, can do nothing to increase the development of additional supplies of domestic natural gas resources. NPRA believes, however, that the Agency can—and must—through rulemakings such as these, act to limit unwise forced use of natural gas in electric utility generation. Any downward adjustment in current and projected electric utility consumption of natural gas will have a positive impact on natural gas availability. Therefore, in order to be ultimately successful, any multi-emissions regulations must be flexible in

timing and scope. This will allow the use of diverse, abundant and affordable energy sources, including clean coal, nuclear, and renewables for electric generation where viable. Sound energy and economic policy requires this approach in any clean air regulatory or legislative initiatives. NPRA believes that EPA's proposed rule on Interstate Air Quality, if implemented with these principles in mind, will at a minimum avoid further aggravation of an already precarious natural gas supply/demand balance.

Response:
CAIR builds upon the findings of the National Energy Policy Development Group; to provide reliable, affordable, and environmentally sound energy for America's future. Recognizing the need for an integrated approach to environmental, energy, and economic policy, CAIR is an example of aggressive environmental regulation that recognizes and balances the need for energy diversity, reliability, and affordability. CAIR has been designed to achieve significant emission reductions of NOx and SO2 without significantly impacting fuel prices. Economic modeling using the Integrated Planning Model shows that there will be a very small impact on natural gas prices with CAIR. Although natural gas prices have been high, longer-term forecasts indicate that prices will come down as new supplies are discovered and brought to market. As gas prices remain high, there is greater incentive to rely upon the cleanest burning coal-fired electricity generating units to meet electricity demand. In addition, we anticipate much of the new electricity demand in the future to be met by new and existing coal-fired sources, as additional advanced pollution controls are installed and utilized to meet the requirements of CAIR. Roughly 75 percent of coal-fired capacity will have advanced pollution control equipment by 2015 with CAIR. The commenter's call for flexibility in timing and scope of CAIR will not assist with providing certainty to industry, and could exacerbate the impacts, particularly on natural gas prices. Strong and clear caps serve to stimulate the market for trading allowances and ensure efficiency. Also, CAIR does not 'force' use of natural gas in electricity generation. The goal of cap and trade programs is to reduce emissions at least cost while maintaining fuel diversity, and forcing use of a particular fuel type runs counter to that goal. CAIR provided clear emission reduction targets while allowing sources the flexibility to meet the requirements in a cost-effective manner.

Comment:
Several commenters suggest that the requirement that participation in the EPA-administered trading program should not be predicated on emission reductions from EGUs alone but rather allow EGU trading in the EPA-administered program even when some reductions are achieved through controls on non-EGU sources. EPA should allow States the option of including reductions from non-EGUs to meet the reduction requirements in CAIR and allow the EGUs to participate in the regional trading program. Reasons given by commenters for allowing non-EGU reductions to be allowed include the fact that many States have required controls on non-EGUs in the ozone season and those control measures could produce cost-effective reductions year-round, this was not required in the NOx SIP Call trading program or it is arbitrary or inconsistent with the NOx SIP Call. Because this is the most cost-effective overall approach States will choose it even if they would like to use another approach to achieve the required emission reductions.

Response:
This issue is addressed in Section VII of today's preamble.

Comment:
There are more restrictions on non-EGU emission reductions than on reductions from EGUs. Treatment of emission sources is unequal and unjustified and appears to deter States from regulating non-EGUs. These restrictions raise federalism issues. Some States are already regulating non-EGUs with EGUs in cap and trade programs, and the non-EGUs have the same requirements as EGUs. One commenter suggests allowing States the option of integrating non-EGUs that are in the NOx SIP Call trading program into the CAIR trading program without the restriction on participating in the regional program. Another comment relates to the apparent inconsistency of allowing these sources to opt-in but not allowing States to regulate them directly. An additional comment supports efforts to ensure that non-EGU reductions have rigorous procedures in place to ensure reductions including strict emission reduction tracking procedures.

Response:
EPA believes that the requirements for demonstrating reductions from non-EGUs are comparable to requirements for EGUs. See further discussion in Section VII of today's preamble. EPA has considered all comments relating to ozone season NOx concerns including preservation of the SIP Call. In response, EPA has decided to create a CAIR ozone season NOx program for States determined to have a significant impact on ozone nonattainment in other States. Use of this program will satisfy the requirements of the NOx SIP Call for EGUs. To address the non-EGUs that are part of the NOx SIP Call trading program, the Agency has decided to allow States to include these sources in the CAIR ozone season NOx program at SIP Call emissions levels. Regarding opt-ins, see response to comments addressed in section XIII.J.

Comment:
Should the IAQR require States to impose caps on any source category it chooses to regulate to meet its $_{NOx\ or\ SO2}$ budgets? Yes, if a budget is assigned to a source category, the only means of demonstrating compliance with that budget is imposition of a cap along with periodic accounting for all sources covered by that cap. If States choose to control other sources, those sources should be capped in the same manner that EGUs are capped.

Response:
This comment supports the requirements of the final CAIR. States have the choice to obtain the required reductions from any sources. However, as discussed in section VII of today's preamble, it is necessary to ensure that those reductions are achieved, particularly since the reductions are being required in response to a State's impact on another State. While the final CAIR provides States with flexibility, the rule requires States to cap the emissions of any source category for which they are requiring CAIR reductions to provide this certainty.

Comment:

In the SNPR, Connecticut was the only State identified as contributing significantly for only ozone. The proposed rule requires Connecticut to control NOx emissions in the ozone season. The proposal allows the State to choose to control NOx year-round and participate in the EPA-administered NOx program if the State desires. The State commented that its specific options are: continue to participate in the NOx SIP Call program, controlling both EGUs and non-EGUs in the ozone season only; have a State run intrastate trading program that meets NOx SIP Call and CAIR requirements; or allow Connecticut EGUs to participate in the annual CAIR NOx trading program. The State questioned which currencies would be fungible in the various trading programs (i.e., ozone season and annual or State-only and regional). There is also a question of whether choosing to participate in the annual program for EGU controls would in fact achieve adequate emission reductions for the ozone problem.

Response:
In response to comments, EPA has changed its approach to NOx control requirements in States identified as contributing significantly for ozone, like Connecticut. EPA has decided that it is appropriate to have both ozone season and annual NOx limits. Ozone season limits apply in States that are significant for ozone; annual limits apply in States that are significant for PM2.5; and both ozone season and annual limits apply in States that are significant for ozone and PM2.5. Connecticut may choose to participate in the ozone season NOx trading program. Ozone season NOx allowances are not fungible with annual NOx allowances. If the State chooses to allow its EGUs to participate in the ozone season program, banked allowances (pre-2010 NOx SIP Call allowances) can be brought into the new program. (See today's preamble for additional discussion of these issues.)

Comment:
Several commenters suggest that the NOx SIP Call be fully preserved. Allowing States to remove EGUs from the seasonal NOx SIP Call program would negatively impact the non-EGU sources remaining in the program. Non-EGUs would have to install additional controls to make up for the lost allowances. The commenters requested that EPA better explain the pros/cons of having the EGUS staying in or moving out of the seasonal program.

Response:
EPA has determined that a CAIR ozone season SO_2 program is necessary and agrees that States should have the option to include the non-EGUs in the NOx SIP Call trading program in the new CAIR ozone season program at their NOx SIP Call emissions levels.

Comment:
If a State chooses to regulate EGUs but does not participate in the CAIR programs and possibly also chooses to regulate non-EGUs to achieve the required reductions, the State must still establish sector budgets (emission caps) for EGUs, adhere to EPA's definition of EGU, and require Part 75 monitoring. 69 FR 32691-92. This limits the discretion that States should have in reducing stationary source emissions to the extent required by the CAIR.

Response:
EPA includes this requirement in order to assure the reductions needed to reduce the impact on downwind States. The requirements are in place to provide this assurance. They are also comparable to the requirements on States that choose to use the regional trading programs to achieve the required reductions.

Comment:
Trading should be allowed across the broadest possible interstate region to capitalize on all efficiencies. However, numerous States have made attempts to 'circumvent' the nationwide SO_2 trading program as established by title IV of the Clean Air Act Amendments of 1990. Unfortunately, the proposed transport rule leaves many issues subject to State-by-State variability and interpretation, which could result in a less efficient and comprehensive program. That the proposal allows States to exclude the Model Cap and Trade Rule from their SIP filings only opens the door for a limited trading market if numerous States choose to allow owners of allowances in those States to participate in 'the market.' A shallow market might allow relatively few participants to influence allowance prices. Participants and outside observers could lose faith in such a limited market. EPA should make every attempt to promote unfettered emissions trading in the IAQR.

Response:
EPA agrees that as large a trading area possible that meets the stated environmental goals is the most cost-effective option. However, States have the right under the SIP process to achieve emission reductions in whatever way they choose provided the approach meets certain minimum requirements. Cost effective options exist for States to achieve CAIR reductions through other control approaches and they have that option.

Comment:
In applying the cap and trade system to the IAQR, EPA has the benefit of a well-worked-out approach and sets of regulations that provide a ready model.

Response:
This is consistent with today's action.

Comment:
The City of Chicago strongly supports federal action to reduce air emissions from coal-fired power plants. The City's support of a multipollutant control strategy for coal-fired power plants is outlined in Mayor Daley's 2001 Energy Plan and has been part of the City's air quality agenda since the late 1990s. The City also supports a cap-and-trade system to achieve reductions of sulfur dioxide (SO_2) and nitrogen oxides (NOx). Such a system has already proven to be effective in achieving nationwide reductions of such pollutants.

Response:
This is consistent with today's action.

Comment:
We understand that the model results discussed in the IAQR proposal indicate that nonattainment with the revised ozone and particulate standards will be widespread. Additionally, we understand that attainment of the new standards cannot be achieved in many cases only through reductions in local emissions. Given that reductions in the impact of long range transport emissions will be required to achieve the new ambient standards, we agree that the proposed approach, a cap and trade program administered by the EPA, is the most cost effective method of achieving the required reductions.

Response:
This is consistent with today's action.

Comment:
The IAQR is based on the highly successful cap and-trade regulatory mechanism. We agree with EPA and industry analysis that this construct allows flexibility in achieving emission reduction targets in the most cost effective way. We are concerned about the viability and pricing in these emerging markets, and would encourage EPA to work diligently on individual State's participation and smooth, equitable transitions from existing allowance trading programs. These steps must be taken to give the new, emerging market a chance to be a viable compliance option.

We continue to support EPA's Clear Skies bill, and see numerous benefits to having such a congressional mandate. These have been widely discussed, and include federal requirements for trading in all States and consistent and equitable allowance allocations. Absent such a robust 'jumpstart' to the allowance market, it may be difficult to rely on allowances for compliance in the first years of the program, thereby aggravating the compliance schedule concerns we have.

Response:
EPA also believes that it is important to provide for a smooth transition between the existing SO2 and NOx allowance trading markets and the requirements of the CAIR. For that reason, the CAIR allows both SO2 and NOx SIP Call allowances to be used for compliance in the CAIR SO2 and CAIR ozone-season NOx markets. EPA is committed to assisting States as they develop their CAIR mandated SIP revisions.

Comment:
This commenter supported the Phase I and II NOx and SO2 Caps proposed in the IAQR as a cost-effective way to ameliorate downwind nonattainment. The emissions reductions proposed in the IAQR will achieve significant progress toward the attainment of air quality goals by bringing a substantial number of nonattainment areas into or closer to attainment of the 8-hour ozone and $PM_{2.5}$ NAAQS. Such reductions will be achieved through a regional cap-and-trade program. Midwest Generation supports the IAQR trading program as sound public policy. Indeed, it will secure important environmental benefits by placing an absolute cap on emissions, encouraging

sources to reduce emissions below the caps, and incentivizing sources to develop increasingly effective, efficient technology.

Response:
This comment is generally supportive of the CAIR approach.

Comment:
The feasibility and cost of implementing the IAQR will critically depend on the regional cap-and-trade programs for NOx and SO2. Yet, because the context here is a rulemaking rather than legislation, EPA is not in a position to dictate the specifics of these programs. Instead, each covered State has the discretion to determine, in the first instance, whether to participate in one or both of the regional trading programs. In addition, the proposed Rule contemplates that States will have significant discretion as to the allocation of allowances to EGUs or even to other types of sources.

The commenter appreciates that States will have a significant degree of authority over how they meet their IAQR obligations. However, because emission trading is so central to ensuring cost minimization, feasibility, and planning certainty, the commenter urges EPA to use all of its available resources to promote the establishment of NOx and SO2 regional trading programs that reflect best practices. The ultimate costs of the IAQR will be a function, in great part, of the extent to which State trading rules are consistent, flexible, and integrated.

The supplemental trading rule is a key instrument that EPA can use to steer States toward consistent and cost-effective program designs. A critical aspect of the supplemental rule will be its guidance on allowance allocation methodologies.

However, EPA should not rely solely on the supplemental trading rule to communicate with the States on the regional trading program. EPA also needs to use its resources for education, mentoring, and guidance. The commenter believes that most States would welcome substantial assistance from EPA in developing their trading rules, in particular those States that are covered by the rule but that have not participated in the NOx SIP Call or Ozone Transport Commission trading programs.

Response:
EPA is committed to assisting States as they develop their CAIR mandated SIP revisions, including key elements such as the SO_2 allocation methodology. Where there needs to be consistency and strong provisions that everyone must follow for the sake of the program, EPA is making a strong effort for that to occur.

Comment:
Generally speaking, a market-based emission trading system is a more appropriate regulatory framework for today's restructured, competitive electric power industry. A market-based system encourages innovation and allows companies the flexibility to meet emission limits in the most

cost-effective manner. Market mechanisms provide incentives to reduce emissions earlier, and ensure affordable energy, maintenance of fuel diversity and enhancement of the nation's energy security.

The commenter strongly supports EPA's efforts to develop and implement the proposed cap-and-trade option to achieve the NOx and SO2 budgets under the IAQR. Such an approach, as demonstrated by the acid rain and NOx SIP-Call trading programs, will enable the power sector to achieve the NOx and SO2 reduction obligations in the most cost-effective and flexible manner.

In an upcoming supplemental rulemaking, EPA will propose 'model trading rules' that States can elect to adopt in order to implement reduction requirements. The commenter looks forward to providing comments on the supplemental rule that will address the cap-and-trade program and working with EPA to ensure the workability of this emission trading scheme.

EPA should develop clear allowance allocation rules that correct the inequities occurring under the existing acid rain trading program.

As EPA moves forward on development of the supplemental rule, the Agency should keep in mind that a key design element of the emissions trading programs contemplated by the IAQR will be the rules for the allocation of allowances. (It is expected that EPA's model trading rules will specify formulas for allocating allowances to each affected electric generating unit and possibly the procedures for the auction of allowances.) Although different allowance allocation rules may be appropriate for different pollutants, whatever methodology adopted must result in an equitable allocation of the control obligations to the covered facilities. The commenter looks forward to working with EPA on the establishment of allocation methodologies that can be efficiently administered and reflect the views of our members on key priority issues.

While members of the commenting organization have varying viewpoints on the different possible allocation methodologies, the commenting organization members agree that EPA's model trading rule should contain clear rules that consider the distributive effects of the allowance allocations on all EGUs affected under the program. Specifically, EPA should strive to develop model allocation rules that do not create barriers to new market entrants or, in the case of the title IV acid rain program, perpetuate the inequities arising from the existing allowance allocation scheme.

States may need to play an important role in the allocation of allowances, particularly to the extent that these issues are not fully addressed by EPA in the model trading rule. The commenter generally believes that States, in such cases, should have some discretion to develop allocation rules that are responsive to local needs, priorities and equities.

Response:
EPA is committed to assisting States as they develop their CAIR mandated SIP revisions. EPA does not have the authority to require States to use any particular approach to achieving the mandated emission reductions. Further, EPA believes that States should have the flexibility to

choose an approach that best suits their unique circumstances. While EPA has required that States that choose to participate in the EPA-administered cap-and-trade programs use the model rules to ensure consistency from State-to-State, EPA has identified the NOx allocation methodology as a key area of flexibility. EPA will assist States as they develop their NOx allocation procedures.

Because the CAIR necessarily relies upon title IV SO_2 allowances, which have already been allocated to sources by the CAA in perpetuity, States will not have any discretion in allocating SO_2 allowances in the CAIR.

Comment:
The commenter believes that emissions trading is a key component of any proposed emission control program for NOx and SO2, whether it be under the CAIR or in multipollutant legislation, in order to ensure that the desired emissions reductions are achieved in the most cost-effective manner. Several studies conducted by EPA and also by environmental organizations such as Resources for the Future, Environmental Defense and others have demonstrated that emissions trading for NOx and SO2 does not create 'hotspots' or other environmental concerns. Given the importance of trading, the commenter is concerned that the proposed CAIR would allow States to opt out of trading. Allowing States to opt out of trading could impose significant compliance costs on companies such as the commenter's, which operate EGUs in multiple jurisdictions. Accordingly, the commenter requests that EPA mandate allowing trading in all States subject to the CAIR.

Response:
EPA does not have the authority to require States to use any particular approach to achieve the mandated emission reductions. Further, EPA believes that States should have the flexibility to choose an approach that best suits their unique circumstances.

Comment:
Absent passage of multi-emissions legislation, EPA must proceed to meet existing legal requirements under the Clean Air Act (CAA) that will also result in reductions of these emissions. The tremendous success of the EPA's Acid Rain program has demonstrated the innovative benefits of cap-and-trade programs, compared to fragmented command-and-control regulatory regimes. EPA's most recent proposals for Interstate Transport and Mercury reductions seek to build upon the Acid Rain model, however there are larger stakes involved when implementing multiple emissions reductions across the nation's electric generation fleet. Therefore, we support the EPA's market-based proposals for Interstate Transport and Mercury as the next best alternative to multi-emissions legislation.

Response:
This is consistent with today's action.

Comment:

If the EPA makes the decision to expand the rule to include the West, the commenter urges the Agency to recognize and design the program for the unique issues facing our region. Specifically, the rule should apply to the West only if it: maximizes flexibility through the use of the broadest possible emissions trading programs; and provides adequate allowance allocations beyond what Western Regional Air Partnership (WRAP) provides and streamlining of the permitting of new power plants.

Response:
The Final CAIR does not include western States or WRAP member States. Mechanisms to address any needs to reduce emissions in the West would be addressed under separate rulemakings.

Comment:
The commenter is an avid supporter of a robust, Federally-administered emissions trading program, which provides the States with guidance for allowance allocations. As with the NOx SIP Call, we see the need for a strong model trading program - one that provides the States with a strong incentive to adopt in whole, rather than piecemeal, if a robust trading program is to be assured.

Response:
See response to comments by Electric Power Supply Association (OAR-2003-0053-0918)

Comment:
The commenter strongly supports EPA's effort to provide flexibility by permitting the use for compliance of any allowances from other units at the same source. We urge EPA to ensure that the concept is also extended to the NOx rules.

Response:
Today's action finalizes facility-level compliance mechanisms for both NOx and SO2 for sources in States that choose to use the CAIR model rules.

Comment:
The commenters generally support the CAIR proposal's use of an emissions cap-and-trading program to achieve further reductions in utility emissions reductions.

Response:
This is consistent with today's action.

Comment:
The commenter commends the EPA for proposing a rule that uses a market-based cap-and-trade approach, rather than an inflexible command-and-control regime, to attain national ambient air quality standards (NAAQS) for ozone and fine particulate matter ($PM_{2.5}$).

Under the IAQR, the EPA would allocate emission allowances for NOx and SO2 to each State, which would then distribute those allowances to affected sources. According to the EPA, those sources would be able to choose among several compliance alternatives, including installing pollution control equipment; switching fuels; or buying excess allowances from other sources that have reduced their emissions. A cap-and-trade program does not allow a company to escape emissions reductions; it merely allows those emission reductions to be made in the most efficient manner. Because each source must hold sufficient allowances to cover its emissions each year, the limited amount of allowances available should ensure that required reductions are made. States could meet proposed emissions reductions using one of two options for compliance: 1) requiring utilities to participate in an interstate cap-and-trade system that limit emissions, or 2) meeting an individual State emissions budget through measures of the State's choosing.

The proposed IAQR would establish a cap-and-trade system for NOx and SO2 based on the EPA's acid rain program. Experience with the SO_2 allowance trading program under title IV of the Clean Air Act (CAA) demonstrates that an efficient cap and trade program will effectively deliver emissions reductions, in a cost effective manner. In fact, title IV delivered millions of tons of early SO_2 reductions - at the lowest possible cost to utilities and their customers. The TAB lauds the EPA's goal of moving away from the litigation-inspiring, economy-sapping command-and-control mandates of the past and toward more flexible market mechanisms such as cap-and-trade to ensure environmental improvements with modest economic disruption. This approach is the most effective way to achieve substantial NOx and SO2 reductions.

A multi-pollutant cap and trade program is the most effective way of achieving substantial emission reductions from the electric utility industry. A cap and trade program compels utilities to target reductions for the units where controls would be most cost effective i.e. the larger units with the highest emissions. It also provides the system-wide flexibility necessary to mitigate risk associated with trying innovative control technologies.

Such a program must however, be setup in an equitable manner.

Response:
EPA agrees with the benefits highlighted by the commenter and with their view that the programs should be designed with "equity" as a guiding principle.

Comment:
Generally, the commenter supports the multi-pollutant, cap-and-trade approach reflected in this rule, and believes that it represents a sensible, cost effective approach to controls for large EGUs seeking to comply with multiple EPA requirements and is fashioned after programs that have been shown to work well for NOx and SO2.

Response:
This is consistent with today's action.

Comment:
The commenter supports use of a cap-and-trade program as the mechanism for compliance with the IAQR. As has been demonstrated through the Acid Rain Program, cap and trade programs can effectively improve ambient air quality and provide adequate compliance flexibility.

While the States will have substantial discretion to develop, submit, and administer their SIPs in response to the IAQR, the success of the two major market-based programs under the Clean Air Act, the Acid Rain Program and the NOx SIP Call, is largely due to the scope and uniformity of the trading programs used to implement them. In the case of the Acid Rain Program a national cap, uniform allocations, and unimpeded trading and banking of allowances have contributed to the unparalleled success of the SO_2 reduction program. In the case of the NOx SIP Call, EPA established a federal trading and banking rule that could be utilized by the affected States as a model for their programs, and relieved the States of the administrative tasks of establishing and administering the allowance accounting system. A similar program for the IAQR is the surest way to insure its success, and avoid the creation of inconsistent, inflexible, and potentially ineffective State programs.

Both of these programs also attribute a portion of their exemplary compliance records to the use of early reduction credits, CSPs, or similar mechanisms that can be used to address potential manpower or other resource shortages, force majeure events, and the need to insure the reliability of electric service while accommodating the sometimes extended outages required to tie in new control systems.

Response:
This is generally consistent with today's action.

Comment:
Portions of the Clean Air Interstate Rule (CAIR)'s proposed NOx and SO2 allowance trading programs are contrary to the national energy policy goal to promote fuel diversity and energy national security. The commenter objects to the elements of this rule that discourage the use of coal and encourage the increasing over-reliance on natural gas to fuel future electricity generation.

While the ability to opt-in can provide environmental and trading benefits, sources regulated under other programs will only be willing to participate if the opt-in program has the requisite flexibility to suit their needs. One key impediment is the CAIR proposal's insistence that opt-in units participate in 'both the NOx and SO2 cap-and-trade programs.' Id. At 32713. This requirement would deter the most obvious source of opt-in participants those in NOx SIP Call program but not implicated by the instant rulemaking. While these entities may see benefits associated with the CAIR NOx trading market (particularly given the substantial risk of a deteriorating NOx SIP Call market upon the departure of all 'affected EGUs'), few will likely be willing to also take on substantial SO_2 reduction projects to meet the CAIR SO_2 obligations.

The only rationales forwarded for this 'mutual participation' requirement are to (1) offset the burden of their participation with additional emissions reductions, and (2) encourage integrated control strategies. First, the additional burden on regulators and the market of additional participants appears to be minimal including little more than the issuance of a permit and the maintenance of a compliance account. This relatively minor burden would certainly be offset by the anticipated environmental gains associated with voluntary emissions reductions. Second, there is no apparent special need to provide additional encouragement for integrated control strategies. Where such combined strategies are mandated by other rules or are innately the most efficient means of achieving pollution reduction, sources already have ample incentives to effectuate a combined strategy. However, it seems highly unlikely that a source not separately subject to SO_2 requirements will voluntarily initiate an 'integrated control strategy' simply to gain access to the CAIR trading markets. Rather, this source will simply choose not to participate thus precluding the benefits that can otherwise be secured.

The commenter supports the EPA's proposal to switch from unit level credits to source level credits in both title IV and proposed CAIR programs. This change will remove a purely technical stumbling block which provided no additional level of environmental protection and no administrative benefit. This and other changes aimed at reducing the costs of participating in trading market programs and the risks associated with participation can only enhance the viability of these markets.

Response:
EPA received several comments regarding the proposed requirement that a unit must "opt-in" for both pollutants. The final CAIR allows units to opt-in for a single pollutant or both.

Today's action finalizes facility-level compliance mechanisms for both NOx and SO2 for sources in States that choose to use the CAIR model rules.

Comment:
To address the inequities under the proposed cap and trade design, that would result from rewarding those EGUs which have been the slowest to control or who have actually been substantially in non-compliance for many years, the commenter requests that the dates (2010 and 2015) and/or the new trading ratios (2 for 1, 3 for 1, etc.) Be substantially accelerated for those older EGUs which EPA has determined are non-compliant with NSR/BACT and those EGUs which are BART eligible. For example, the 2 for 1 allowance requirement for these sources might be applied in 2006, or the currently proposed 2010 and 2015 (or 2008 and 2013 as requested) allowance requirements for these sources might be 3 to 1 and 4 to 1 respectively. These mechanisms would be consistent with EPA's market approach, and would generate a larger degree of health and environmental benefits at earlier dates. Some portion of these additional allowances should be redistributed to States which have historically maintained lower emissions rates so that they could to accommodate new, well-controlled sources in the future.

Response:

The timeline for the CAIR emission reductions have been shown to be technically feasible. (See the Boilermaker TSD.) Accelerating these timelines would create significant compliance issues and significantly increase the compliance costs of the CAIR and prevent the programs from being highly cost-effective and avoiding potential overkill at the federal level.

Comment:
The commenter feels that they have already made substantial NOx reductions, preliminary analysis indicates that the proposed EPA levels will be more stringent and may require further controls to be installed. Even though the commenter plans to reduce emissions at its existing units to off-set emissions from a new unit, the reductions being proposed by EPA and later allocated by the State, from preliminary analysis, appear to be more stringent than those contemplated by the commenter.

Response:
EPA acknowledges that many sources have already made NOx emission reductions in response to regional and State and local programs. The CAIR is intended to provide additional regionwide reductions necessary to assist States in attaining the PM2.5 and ozone standards. As a result, some sources are expected to install emission control equipment.

Comment:
The commenter supports the implementation of a safety valve and safety valve fund. The creation of safety valves of $2,000 for SO_2 and $3,000 for NOx is an effective means for improving the economic efficiency of attainment plans. The safety valve fund can enhance technological innovation by providing capital that might otherwise be unavailable. Additionally, a safety valve will serve as a relief for sources who face prohibitive control costs. Moreover, it provides greater certainty by establishing a ceiling above which the cost of emissions reductions will not go. Finally, a safety valve gives EPA the flexibility to obtain emissions reductions from sources that are not within the ambit of its regulatory power.

An effective cap and trade program locks in environmental benefits, while allowing selection of the most cost-effective compliance option. To ensure a broad range of compliance options, the cap-and-trade program under the mercury rule and IAQR should be consistent with previous trading rules. Trading should be allowed across the broadest possible interstate region. There should be no restrictions on banking of emission allowances. The IAQR and mercury rules should provide utilities with the incentive to undertake early reduction measures, such as year round operation of SCRs currently operated during the ozone season. This will provide immediate NOx and mercury reduction benefits. In addition, any banked NOx and SO2 reductions should be carried forward into the new program without devaluation. We believe that EPA has ample legal authority to implement a cap and trade approach under both the mercury rule and IAQR and we see compelling reasons for EPA to utilize that approach.

Response:

The final CAIR does not include an emissions "safety valve" (i.e., a provision that allows sources to comply with the cap by "buying" allowances from a future year or above the cap should the allowance market reach a specified price). (A "safety valve fund" is simply the pool of funds into which the source would pay for access to the safety valve allowances.) EPA does not believe that a safely valve is necessary because the NOx and SO2 are well established markets with a variety of established control options. EPA analysis has shown that the timing and levels of reductions mandated by CAIR could be achieved in a cost-effective manner. In addition, EPA has provided mechanisms (i.e., the CAIR CSP and the banking of NOx and SO2 allowances into the CAIR) that can allow sources with uniquely difficult control scenarios to ease their transition into compliance with the CAIR caps. EPA believes the cap and trade approach inherently provides any source that may have prohibitively high control costs with the opportunity to mitigate its control costs by purchasing allowances: thereby, letting the market find cheaper emission reductions.

The final CAIR model rules allow for unrestricted banking and early reductions credits. EPA has attempted to develop the model rules to parallel the existing NOx SIP Call model rule and also intends the separate mercury cap-and-trade model rule of the CAMR to be as similar as possible and to have comparable start time. This parallel structure will minimize confusion for States and sources as they comply with the requirements of the programs.

Comment:
The commenter supports EPA's proposal to implement the IAQR through a cap-and-trade program, and recognizes the benefits (e.g., reduced compliance costs) that trading can provide. Whether it is the title IV Acid Rain Program, the $_{OTC\ NOx}$ Trading Program, the Section 110 NOx SIP Call or the proposed IAQR, trading can provide greater environmental and public health, benefits at lower cost than conventional command and control programs. Trading programs with banking also provide incentives for additional reductions before mandated deadlines. At the same time, cap-and-trade programs must be carefully designed and implemented to ensure the expected environmental benefits and to prevent deleteriousness interactions with other programs.

Response:
This is consistent with today's action.

Comment:
Using cap-and-trade programs to address multiple pollutants is the most cost-effective way of achieving substantial emission reductions. Cap-and-trade programs provide strong incentives for utilities to make reductions at the units where controls are the most cost-effective, with a focus in almost all cases on the larger units with the highest emissions. They also provide the system-wide flexibility necessary to mitigate risk associated with trying innovative control technologies. Experience with the SO_2 allowance trading program under title IV of the CAA demonstrates that an efficient cap-and-trade program will effectively deliver emissions reductions. In fact, title IV delivered millions of tons of early SO_2 reductions – at a low cost to utilities and their customers.

A cap-and-trade program does not allow a company to escape emission reductions; it merely allows those emission reductions to be made in a more cost-efficient manner.

On page 32709 of the supplemental proposal, EPA discusses the tremendous benefits of emissions trading for the regulated community and the environment. The commenter has for more than 15 years strongly supported emissions trading and continues to note the overwhelming success of the acid rain SO_2 trading program and the utter lack of any 'hot spots' being created by emissions trading programs. The commenter commends the agency for implementing the CAIR through cap-and-trade programs.

Some critics view emissions trading as 'buying the right to pollute,' expressing concern about local 'hot spots' where emissions could increase as a result of emissions trading. However, based on many years of real-world experience, studies of the acid rain allowance trading program, conducted by EPA, the environmental group Environmental Defense and others, demonstrate that trading has not significantly affected the pattern of where decreases in sulfur deposition actually occurred. The clear success of the acid rain SO_2 trading program provides reliable evidence to dispel fears about localized effects.

The economics of trading will help to minimize local deposition. The trading of allowances almost always involves large coal-based power plants controlling their emissions more than required and selling allowances to smaller plants. Thus, economies of scale of pollution control investment will favor investment at the larger plants and will produce reductions in emissions at the plants of greatest interest. Furthermore, EPA and States have authority to address local issues if the need ever arises.

Response:
This is generally consistent with today's action.

Comment:
The commenter supports market-based trading mechanisms to provide flexibility and cost-effective pollution reductions.

The commenter firmly believes that market-based trading mechanisms can be a cost-effective and flexible method for achieving emission reductions. The commenter (a State) instituted a State open market trading program in 1996, one of the first in the country to do so. The cap-and-trade mechanism appears to be the preferred market-based system embraced by the EPA and is currently being used in the federal Acid Rain program and the NOx SIP Call trading rules. The commenter has chosen to follow the cap-and-trade program for its NOx SIP Call rules and supports incorporation of this type of trading mechanism in the IAQR.

Response:
This is consistent with today's action.

Comment:
The commenter commends EPA for its intended continued application of a market-based approach to achieve NOx and SO2 reductions proposed in the IAQR. Emissions trading provides electric utilities with a greater degree of flexibility than a traditional command-and-control approach, allowing facilities to target reductions at those units where it is most cost-effective to do so and minimizing the potential for shutdown of units for which major pollution control investments are not economically feasible. In the preamble to the proposed rule, EPA discusses to varying degrees a number of issues related to the development of a model cap-and-trade program it intends to address in more detail in the SNPR.

Response:
This is consistent with today's action.

Comment:
The commenter eagerly awaits the Supplemental Notice of Proposed Rulemaking (SNPR) that will spell out more details of the proposed cap-and-trade program. The commenter trusts that the SNPR will preserve one of the basic precepts of air pollution control policy that States can, outside the federal prerogative in the mobile source area, implement more stringent controls than federal rules.

Response:
The CAIR, in accordance with the CAA, preserves the authority of State and local air authorities to implement more stringent emission controls on sources in their jurisdictions.

Comment:
The proposal reflects the principle that States may allow non-EGUs to participate in an interstate allowance trading program. For both NOx and SO2, EPA should ensure that Statewide EGU emission budgets –and therefore the allowances that could be expected to be available to EGUs –are not reduced to provide allowances for non-EGUs. Any allowances for non-EGUs should be in addition to EGU allowances as reflected in EGU Statewide caps.

Response:
The commenter inaccurately describes the CAIR as providing CAIR allowances to non-EGUs. CAIR EGU budgets would not be reduced to provide allowances for non-EGUs.

Comment:
EPA should provide for interstate emission trading programs for both NOx and SO2.

Once EPA has provided the justification needed to impose an emission reduction program of a pollutant, like $_{NOx\ or\ SO2}$, the commenter generally supports an approach based on the granting, redeeming and trading of marketable emissions allowances. As EPA recognizes in its preamble, a properly implemented cap-and-trade program results in the required emissions reductions being made in the most flexible and cost-effective manner possible. EPA should not, however, make

such programs more burdensome than needed by unnecessarily increasing the stringency of the proposed EGU caps.

Response:
This is consistent with today's action.

Comment:
The success of this program will be very reliant upon adequate monitoring. The EPA must make it clear to Congress and the Administration that contained monitoring of acid deposition is essential to assess both the success of the program and where it may be improved. In order for this to occur, Congress and the Administration must commit to make sufficient funds available throughout the course of the program. Evaluating the long-term environmental response to the emission reductions will require the continuation and expansion of networks and data collection efforts. These must include long-term monitoring of air quality, wet and dry deposition, ecological changes of streams and lakes, soil chemistry, and the health of critical plants and animals.

Response:
EPA would continue to operate long-term ambient air and deposition monitoring networks to assess progress toward the environmental goals of the CAA and agree with commenter on the value of sound environmental monitoring..

Comment:
As indicated in our previous comments regarding the original proposal, we have a keen interest in EPA's rule making efforts regarding this matter. Generally speaking we are supportive of the cap-and-trade methodology the EPA is proposing. We believe the greater flexibility inherent in this methodology provides the most cost effective means of accomplishing the emission reduction objectives.

Response:
This is consistent with today's action.

Comment:
The commenter takes a special interest in the secondary benefits of the reduction in acid deposition throughout the eastern portion of the nation and in the most sensitive area, the Adirondack Park. The new cap and trade program envisioned in the proposed rule and the target caps in total emissions meet or exceed the recommendations in the Report to Congress by the National Acid Deposition Assessment Program in 1998. EPAs regional cap-and-trade approach for these two pollutants is also consistent with the recommendations of several other subsequent reports including those by the National Academy of Sciences, Environmental Defense, the Clean Air Network, the Southern Appalachian Mountains Initiative (SAMI), and the Association of New England Governors and Eastern Canadian Premiers.

Response:

This is consistent with today's action.

Comment:
The commenter will not be in a position to support any form of SO_2 for NOx and opposite trading until all ambient plans are developed that provide firm attainment budgets for the respective pollutants. We have no technical basis to account for uncertain emission projections associated with such a trading scheme. However, optimized multi-pollutant control approaches that could still provide an incentive at the unit performance level for going beyond the minimum system reduction need continue to be of interest.

Response:
The final CAIR does not include interpollutant trading mechanisms.

Comment:
The commenter supports the cap-and-trade methodology incorporated into this proposal. The commenter believes that the flexibilities inherent in the averaging, banking and trading of emissions 'allowances' provide the most cost-effective means of accomplishing emissions reductions. The NOx and SO2 cap-and-trade programs have proven this is the best approach for achieving the reductions in emissions.

Response:
This is consistent with today's action.

Comment:
Other initial concepts described in the proposal that pose significant problems are: States are able to opt out, thus depleting the supply of allowances available for trade and further increasing allowance prices. We recommend the program to be amended in the following manner: States should not be given the ability to opt out of the EPA's program as this will reduce the pool of allowances available for trading and will increase allowance prices even further.

Response:
EPA does not have the authority to require States to use any particular approach to achieving the mandated emission reductions. Further, EPA believes that States should have the flexibility to choose an approach that best suits their unique circumstances.

Comment:
On page 4628, the EPA describes all the advantages to a cap-and-trade program. EPA should also analyze the disadvantages of the program, which includes potential local impacts and the use of banked allowances which can prolong the ultimate date when the program is implemented, i.e., when the actual emission levels equal the cap levels.

EPA states that the Acid Rain Program would not reach full implementation until after 2010. Phase I of the Acid Rain Program began in 1995. It will be 15+ years after the initial

implementation date before the Acid Rain Phase II cap will be reached. This is without any pre-1995 banked allowances. Currently, there are 9.3 million SO_2 allowances banked from title IV.

Response:
EPAs analysis has shown that the CAIR can positively impact the attainment of air quality standards while using a cap-and-trade approach and banking mechanisms. The CAIR rulemaking has examined several potential issues associated with the CAIR and the cap-and-trade option, that includes a study of the technical feasibility of compliance. The CAIR is designed to reduce regionwide emissions as part of a strategy where States would address any persistent, local nonattainment. The banking and later withdrawal of banked allowances and the influence this has on the emissions levels and air quality has been examined thoroughly in setting up the program.

Comment:
NESCAUM States have years of experience in implementing cap-and-trade programs, and are supportive of such programs to reduce emissions over broad geographic areas. The commenting group supports EPA's choice to implement the IAQR through a trading framework, and believes that such a program should be one of many tools used by EPA and States to address transport and attainment. We also know from experience that a cap-and-trade program must be designed and implemented mindfully. Certain checks and balances must be in place in the program design to ensure that the trading program meets its environmental and public health goals.

Response:
EPA agrees.

Comment:
When it amended the Act in 1990, the Congress established the first, large-scale cap-and-trade program to address emissions from power plants. The experience with the Acid Rain program is directly relevant to the IAQR rule because the universe of regulatory targets is similar. Some critics of the current proposal has argued that physical differences between emissions (say, mercury versus sulfur dioxide) dictate that the Acid Rain experience is less than helpful. This criticism makes little sense. The importance of the previous experience is that it vindicated certain economic principles applicable to certain sources.

The commenter also believes that cap-and-trade proposals provide an important opportunity for effective Clean Air Act reform. The commenter recognizes that reasonable cap-and-trade programs are more rational than command-and-control regulatory programs. The commenter stands ready to work with the Administration, Congress, and others to develop a cap-and-trade program that will maximize the program's benefits while avoiding undue negative consequences.

The commenter believes new cap-and-trade programs can only bring greater rationality to the Act if such programs are accompanied by reasonable and appropriate reform of existing programs.

Response:
This is generally consistent with today's action.

Comment:
The final comment of the CenSARA States relates to the method by which EPA developed this rule. States and local agencies have significant experience in the control of emissions. States and local agencies need to work together in developing and implementing regional solutions. States and local agencies will be directly affected by this rule. Emissions inventories were developed for emissions sources with which the States and local agencies are very familiar. Yet, in the end, EPA completely closed the process to States and local agencies. This goes completely counter to EPA's oft recited mantra of State/federal partnerships. This also goes completely counter to EPA's goal of working with States to address regional issues as stated in EPA's own strategic plan. The CenSARA States and local agencies would encourage EPA to take advantage of State and local agency expertise in the future and to insure that States and local agencies are included in activities, such as emissions inventory development for significant modeling projects, when States and local agencies are obviously much more familiar with the subject than EPA. [[(p.3)]]

Response:
The CAA requires EPA to establish NAAQS and States to implement them with the assistance of EPA. To this effect, the States and local air authorities have gained significant experience in implementing air programs. The CAIR is an example of this process and includes a EPA-administered, regionwide cap and trade programs as cost-effective mechanisms to implement these emission reduction requirements.

Comment:
EPA proposes to require that 'States may include only reductions attributable to measures that are not otherwise required under the CAA.' EPA claims that '[t]his exclusion of credit is consistent with the NOx SIP Call.' EPA fails to justify its claim. In fact, it is our understanding that in the NOx SIP Call, only those emission reductions that were already on the books at the time of the rulemaking and that were included in the 'base case' for purposes of that rulemaking, were excluded from credit. Here, however, with respect to non-EGUs, EPA proposes to exclude from credit 'specific measures that are mandated under the CAA (which may have been further defined by EPA rulemaking) based on the classification of an area which has been designated nonattainment for a NAAQS, such as vehicle inspection and maintenance programs.' EPA says that if measures have not already been adopted, they are to be excluded from both the base case and the control case.

The commenter questions the rationale for this restriction. CAIR's ostensible purpose is to reduce NOx and SO2 emissions within individual States by a given amount, to eliminate significant contribution as determined by EPA. As long as an emission reduction measure was not included in the base case EPA used to determine a State's contribution to other States' nonattainment air quality under CAA § 110(a)(2)(D), there is no justification for not crediting emission reductions from that measure toward the State's CAIR emission reduction obligation. Thus, for example,

EPA acknowledges that its 2010 base case for its CAIR determination 'did not account for requirements for reasonably available control technology (RACT), reasonably available control measures (RACM), and vehicle inspection/maintenance in any new 8-hour ozone or $PM_{2.5}$ nonattainment areas, as these areas had not been designated at the time of the modeling.' Emission reductions from each of these measures, therefore, would achieve reductions below the emission level EPA used in its determination of air quality contribution. It would be arbitrary and capricious for EPA to deny States credit toward their CAIR emission reduction obligations for emission reductions from these 'beyond-base-case' measures.

EPA does not stop there, however. It also proposes, in effect, retroactive application of emission reduction requirements upon a subsequent determination that non-EGU reductions used to meet CAIR are 'required' for other purposes under the CAA. After describing its proposal to deny credit to beyond-base-case measures included in SIP submittals for nonattainment areas, EPA states: It is likely that CAIR SIP submittals will be due before or at the same time that some of these other SIP submittals [e.g.,nonattainment area SIPs] are due. States relying on reductions from controls on non-EGUs must commit in the CAIR SIP revisions to replace the emissions reductions attributable to any CAIR SIP measure if that measure is subsequently determined to be required in meeting any other SIP requirement related to adoption of control measures. The State could make this replacement by decreasing its EGU emissions cap or a non-EGU emissions cap, if applicable, by the appropriate amount.

Such a requirement would lead to downward ratchets in emission caps – and, presumably, allowance levels – after sources already had made control strategy determinations. EPA fails to consider the questions that such approach raises. For example, what if a cap decrease compelled installation of more scrubbers or more SO_2 post combustion control equipment? How much time would sources have to adjust to a decreased cap? If a cap decrease reduced allowance allocations that already had been distributed to sources, what could a source do if it had sold allowances that the State would have to ask be surrendered? To decrease a cap, would a State have to undertake rulemaking to change its SIP, subject to EPA approval procedures under CAA § 110(k), or does EPA contemplate - by using the word 'commit' - that SIPs will have to contain 'automatic trigger' provisions? What would be the legal justification for such an approach? How would States know when a trigger provision must be activated? And by what event? At a minimum, EPA must provide additional explanation of these and related issues in a further supplemental notice before the public could have any meaningful notice of what the Agency intends by imposing these restrictions on emission reductions from non-EGU source categories. Before proceeding with these restrictions, EPA also would need to explain how the prospect of a decreased EGU emission cap for SO_2 (suggested in the passage quoted above from the supplemental proposal) could be reconciled with EPA's separate proposal of a fixed, uniform title IV allowance surrender ratio. Perhaps EPA does not explain or try to justify these points because EPA's real purpose in this part of the supplemental proposal is to make reliance on non-EGO reductions for any part of CAIR compliance so burdensome and uncertain for States (and, given EPA's threat of future declining caps, for EGU and non- EGU sources themselves) that States will view non-EGO reductions as not

being a real choice under CAIR. For the reasons discussed above, if that is the purpose - or the effect - of EPA's proposal on this point, it is unlawful.

Response:
EPA has considered these comments and addresses them in Section VII of today's preamble.

Comment:
On page 4626 of the proposal, EPA states that SIPs may need to require the retirement or elimination of certain title IV allowances under the Acid Rain Program. This obligation raises several issues. While most States have the authority to adopt more stringent NOx/ SO_2 emission limits, or can require compliance with their own trading programs established for purposes that are different from the Acid Rain program, it is not clear what authority States would have to require retirement of allowances issued by EPA under title IV. EPA should clarify in the final rule how a State can require a source to retire or eliminate allowances that have been given under the federal Acid Rain Program.

Response:
As discussed in Section IX.B of the preamble, EPA has the authority under title IV to terminate or limit the authorization provided by a title IV allowance. Consequently, EPA has the authority to require in today's final rule that States in the CAIR SO_2 region adopt regulations that terminate or limit such authorization. In the case of a State that wants to participate in the EPA-administered CAIR SO_2 trading program, EPA is requiring that the State adopt regulations that, among other things, establish tonnage equivalents for title IV allowances in the CAIR SO_2 trading program that eliminate what would otherwise be a surplus of title IV allowances resulting from the more stringent SO_2 emission cap under the trading program. In the case of a State that wants to meet CAIR SO_2 emission reduction requirements through EGU reductions but without adopting the EPA-administered CAIR SO_2 trading program , EPA is similarly requiring the State to adopt regulations that eliminate the surplus resulting from such EGU reductions. However, EPA is not specifying any particular mechanism for elimination of the surplus. In either case, after the State submits the regulations in a SIP revision and EPA approves the SIP revision, the regulations become a federal action whose provisions for termination or limitation of the authorization provided by title IV allowances are within EPA's authority under title IV. So long as a State has generic authority to adopt SIP revisions to meet requirements imposed by EPA under the Clean Air Act (which authority the State must have in order to submit any SIP or SIP revisions), the State has authority to adopt regulations meeting EPA requirements under CAIR, including the requirement to eliminate surplus title IV allowances.

Comment:
According to EPA, the States have full flexibility in choosing which sources must be reduced, and if a State requires reductions from EGUs then it MUST impose caps on the EGUs' emissions. Compartmentalizing the rule - EGUs under a national rule and non-EGUs State-by-State (if at all), leads to a questionable control and possibly an inadequate control strategy. The 'core applicability' section of IAQR indicates that States can regulate other sources and include them in the cap and

trade portion of the program. If a State chooses to regulate other source categories, EPA is proposing that these be included in the cap and trade program ONLY if EPA and the State agree that each source category can meet all of the requirements that are mandated for EGUs (e.g., monitoring according to 40 CFR Part 75 and the ability to clearly assign legal responsibility for compliance).

In this rulemaking, EPA has chosen not to regulate non-EGU sources due to a lack of information available for EPA to determine cost-effective control measures. Accordingly, the State-specific NOx and SO2 budgets established in the proposal do not account for non-EGU sources. However, the proposed rule does not prevent a State from regulating non-EGU's within the context of its implementation of the rule. To the extent States choose to regulate non-EGU's in their State rules implementing the IAQR, EPA must allow the States to include the emissions from non-EGU's in the State budget baseline and the State emission caps must be adjusted accordingly to compensate for these additional sources.

The NOx Budgets for each State are developed from information from electric power plants. This may not be sufficient if non-EGUs are incorporated into the allowance and trading programs. In States with large concentrations of industrial sources of NOx , such as petroleum refiners, chemical manufacturers, or smelters, these sources may be as large as EGUs for NOx emissions in those sections of their States. The NOx Budgets should have a mechanism to increase the budget if non-EGU sources are incorporated by regulation. In the absence of a mechanism to increase the budget for non-EGUs, the EPA should direct States to not include non-EGUs in their allowances.

EPA intends to provide States the option to include non-EGUs in meeting the requirements of IAQR. This not only ignores the data indicating the best opportunities for cost effective reductions but also introduces the burden of dealing with State-to-State variation in rules and technical requirements. Without a consistent approach, the benefits of uniform, standard controls for similar facilities are lost, resulting in increased costs and regulatory burden. Having different State programs could result in 'leakage' of emission credits to non-EGU sources. The commenter recommends that IAQR excludes non-EGUs as identified by EPA but provide the States with the options to allow a non-EGU to 'opt-in' if its feasible economically or will result in a lower regulatory burden.

Response:
EPA has considered these comments. Section VII of today's preamble specifies when a State may use the CAIR model rules and also explains the procedures for accounting for CAIR reductions from non-EGUs. EPA agrees that a consistent approach is necessary for all States and that in order for a trading program to function, additional consistencies are needed. These are also explained in Sections VII and VIII of today's preamble. Opt-ins are also discussed in Section VIII.

Comment:

Program Applicability: EPA has developed two separate programs within the IAQR for NOx and S02. This is reasonable. EPA is considering 'if you are in one program, you should be in both.' This is not acceptable, these are separate programs and applicability should be based on the contribution of only that one pollutant. Further, there are many facilities that have invested in pollutant specific reductions based on state or local needs, and a joint applicability would result in double jeopardy for these facilities. NRG requests that EPA maintain independent applicability.

Response:
This suggestion is consistent with the approach taken in the final CAIR.

Comment:
If EPA continues to utilize an emissions allowance trading/banking control approach as the primary means to provide incentive to early reductions and system retrofit flexibility, it also needs to backstop that flexibility by adopting a strong set of unit-based (or facility-based) performance standards for an integrated set of air pollutants (including SO_2, NOx, HAPs, and other ambient PM-2.5 precursors) in addition to the State level budgets. Performance standards ensure hot spot problems in the system are resolved over time, that an optimized multi-pollutant system control investment is pursued and to provide local areas certainty in crafting honest emission budgets within their attainment SIPs and long-term maintenance plans.

Response:
The CAIR will work in concert with other CAA programs to assist States in achieving the NAAQS. One example is the New Source Performance Standards, which mandate minimum performance standards for new units. In addition, States retain the authority to establish emission limits for sources of interest through their State and local permitting programs.

Comment:
Virginia generally supports this approach [[(cap and trade for NOx and SO2)]] for reducing emissions. It allows sources to put on pollution control equipment in the most cost effective manner. However, EPA needs to emphasize that States have the right to preclude trading in areas where nonattainment exists. Unrestricted trading of SO_2 under Title IV of the Clean Air Act worked very well because there were few if any SO_2 nonattainment areas and it did not matter where the reductions occurred. Unrestricted trading of SO_2 under the NOx SIP Call has been a problem for States with nonattainment areas and the need to meet 'rate of progress' requirements in nonattainment SIPs. We hope that EPA will be more forthcoming in the IAQR rule that States have the right and indeed the necessity to restrict such trading within nonattainment areas.

Response:
The final CAIR model rules does not restrict the trading of allowances. There is no evidence that the NOx SIP Call market – which does include trading restrictions in the form of flow control – has hampered States in their efforts to achieve the NAAQS. EPA continues to support States in their efforts to address their persistent nonattainment issues. The CAIR (and the NOx SIP Call)

preserve the State's authority to place permit limits on sources, independent of the regionwide cap and trade programs.

Comment:
We have some additional concerns over the ability of plants to trade pollution credits. While the cap and trade system for NOx and SO2 may indeed achieve reductions on a national scale, it may also provide no relief at all in locations where pollution credits are used in lieu of real controls. Since industry is left to decide where cleanup does and does not take place, many of the oldest and dirtiest power plants, primarily located in the Midwest, will continue to emit high levels of pollutants. These plants burn coal without scrubbers or other pollution controls and produce as much as 80 to 90 percent of the air pollutants impacting the Northeast. [[p.3]]

Response:
The CAIR is meant to reduce the interstate transport of emissions that contribute to persistent nonattainment in other States. These regionwide emission reductions will work in concert with State efforts to address their own, persistent nonattainment issues. States retain the authority to require additional reductions from their sources.

In addition, EPA analysis has shown that the greater emission reductions take place at the dirtier sources. For a detailed discussion, see the CAIR NFR preamble and other sections of this response to comment documents.

Comment:
PSEG believes that emissions trading is a key component of any proposed emission control programs for NOx and SO2, whether it be under the IAQR or in multipollutant legislation, in order to ensure that the desired emissions reductions are achieved in the most cost-effective manner. Several studies conducted by EPA and also by environmental organizations such as Resources for the Future, Environmental Defense and others have demonstrated that emissions trading for NOx and SO2 does not create 'hotspots' or other environmental concerns. [[(p.4)]]

Response:
This comment is generally supportive of the final CAIR approach.

Comment:
A flexible market-based approach to reducing emission is imperative to the success of the IAQR: The proposed IAQR would establish a cap and-trade system for sulfur dioxide (SO_2) and nitrogen oxides (NOx) based on the EPAs acid rain program. According to the EPA, States, industry and even many in the environmental community, the acid rain program has reduced SO_2 emissions faster and at significantly lower cost than if trading had not been allowed. The NAM lauds the EPA's goal of moving away from the litigation-inspiring, economy-sapping command-and-control mandates of the past and implementing more flexible market mechanisms such as cap-and trade to ensure environmental improvements with modest economic disruption. This approach is the most effective way to achieve substantial NOx and SO2 reductions.

The EPA's 'Acid Rain SO_2 Cap and Trade Program Success Story' (www.epa.gov/airmarkets/arp) summarized the success of the acid rain program in reducing emissions of NOx and SO2. According to the report, in 2002, SO_2 emissions from power plants were 10.2 million tons, nine percent lower than the year 2000 and 41 percent lower than 1980. NOx emissions from power plants also continued a downward trend, measuring 4.5 million tons in 2002, a 13 percent reduction from 2000 and a 33 percent decline from 1990 emissions levels. Acid deposition has been substantially reduced, allowing lakes and streams in the Northeast to begin recovering from decades of acid rain. All of this has been accomplished while the cost of compliance is substantially lower than estimated. The acid rain program is now projected to cost just one quarter of original EPA estimates.

Under the IAQR, the EPA would allocate emission allowances for NOx and SO2 to each State which would then distribute those allowances to affected sources in relation to the acid rain program allocations. According to the EPA, those sources would be able to choose among several compliance alternatives, including installing pollution control equipment; switching fuels; or buying excess allowances from other sources that have reduced their emissions. Because each source must hold sufficient allowances to cover its emissions each year, the limited amount of allowances available would ensure that required reductions are made. States could meet proposed emissions reductions using one of two options for compliance: 1) requiring utilities to participate in an interstate cap-and-trade system that limits emissions, or 2) meeting an individual State emissions budget through measures of the State's choosing.

Despite critics' claims that market-based cap-and trade programs allow companies to avoid emission reductions by buying and selling allowances, the truth is that these programs allow companies to reduce emissions in a more efficient manner. Trading of emission allowances is a less costly means to achieve pollution reductions. Traditional command-and-control regulatory approaches can be needlessly expensive because they impose similar reduction requirements on sources that sometimes incur very different control costs, rather than concentrating reductions at those sources with the lowest control costs and highest emissions. [[0706, pp. 5-6]]

Under the IAQR, trading of allowances should be permissible across the broadest possible interstate region. Broad geographic trading will not result in 'hot spots,' as proven by the acid rain program's success in reducing SO_2 emissions without producing localized effects. [[0706, p. 6]]

Response:
The CAIR region includes those States that were found to be significant contributors. EPA encourages States to use the EPA-administered, regionwide cap and trade programs to achieve the mandated emission reductions in a highly cost-effective manner.

Comment:
We recognize that there is a concern about potential mercury 'hot spots' in this kind of program. However, under a cap and trade program, the larger emitters will be the first to be controlled.

Consequently, we do not believe that hot spots will actually develop. Even if a hot spot were to arise despite these reductions, EPA and the States have the ability to such address issues as necessary in the future. But to argue against a cap and trade approach relying solely on the assumption that hot spots may occur means that you will be discarding all the other environmental benefits of an integrated multi- pollutant program. [[(1238, p.4)]

Response:
This comment is generally supportive of the final CAIR approach.

Comment:
CEG believes that NOx and SO2 allowance trading is a critical element of the proposed emission control programs for NOx and SO2 in order to ensure that the desired emissions reductions are achieved in the most cost-effective manner. Several studies conducted by EPA, Resources for the Future, Environmental Defense and others have demonstrated that emissions trading for NOx and SO2 does not create 'hotspots' or other environmental concerns. Accordingly, we are concerned that EPA's proposal would allow certain States to opt-out of trading, if they so desired. If this were to occur, it could significantly impact the cost of the IAQR rule in a negative manner. Accordingly, we request that EPA consider mandating allowance trading in all affected States. Alternatively, if EPA does not believe that it can mandate trading, the Agency should indicate in the final rule how non-participation of one or more States in an interstate allowance trading program would affect the overall cost effectiveness of the program. [[(p.4)]]

Response:
This issue is addressed in the CAIR NFR preamble and other sections of this response to comment document.

Comment:
A multi-pollutant cap and trade program is the most cost-effective way of achieving substantial emission reductions from the power generation industry. A cap and trade program compels utilities to target reductions for the units where controls are most cost-effective, with a focus in almost all cases on the larger units with the highest emissions. It also provides the system-wide flexibility necessary to mitigate risk associated with trying innovative control technologies. Experience with the SO_2 allowance trading program under Title IV of the Clean Air Act demonstrates that an efficient cap-and-trade program will effectively deliver emissions reductions. In fact, Title IV delivered millions of tons of early SO_2 reductions – at a low cost to utilities and their customers.

A cap-and-trade program does not allow a company to escape emission reductions; it merely allows those emission reductions to be made in a more cost-efficient manner. [[pp. 13-15]]

Emission Trading 'Hot Spots'- Some critics view emissions trading as 'buying the right to pollute,' expressing concern about local 'hot spots' where emissions could increase as a result of emissions trading. However, based on many years of real-world experience, studies of the acid rain allowance trading program, conducted by EPA, the environmental group Environmental

Defense and others, demonstrate that trading did not significantly affect the pattern of where decreases in sulfur deposition actually occurred. The clear success of the acid rain SO_2 trading program provides reliable evidence to dispelfears about localized effects. The economics of trading will help to minimize local deposition. The trading of allowances almost always involves large coal-based power plants controlling their emissions more than required and selling allowances to smaller plants.

Thus, economies of scale of pollution control investment will favor investment at the larger plants and will produce reductions in emissions at the plants of greatest interest. Furthermore, States have authority to address local issues if the need ever arose. [[pp. 13-15]]

Response:
This comment is generally supportive of the final CAIR approach.

Comment:
In addition, the OEUEA encourages EPA to address the issues pertinent to the integration of any IAQR SO_2 allowance program with the existing Title IV program. [[p.2]]

Response:
EPA has given significant consideration to the interaction of the CAIR and title IV. This is discussed in detail in the CAIR NFR preamble and other sections of this response to comment document.

Comment:
Penalties for Inadequate Allowances: EPA plans to propose a system of automatic penalties for facilities that fail to obtain sufficient allowances to cover emissions for the compliance period. EPA has not said whether they will be financial, allowance-based, or both. Because EPA proposes to allow banked Title IV allowance to be used for compliance with the IAQR, which Delaware does not agree with, we think EPA should include stringent allowance penalties requiring the use of allowances at a higher than required ratio. This would hasten the retirement of the banked allowances from the Title IV program, thereby increasing the chances of meeting the phase II target by the deadline. Whatever penalty system is chosen, we agree with EPA that it should not limit the ability of the permitting authority to take enforcement action. [[pp. 4-5]]

Response:
This comment is generally supportive of the final CAIR approach.

Comment:
While the proposed IAQR lacks regulatory language, it appears that there is little or no incentive for affected sources to pursue early reductions and/or early control installations. Perversely, without a defined and purposeful process to limit banking and use of allowances, there is little

economic incentive for early installations. As a precedent, the 'progressive flow control' provisions of the regional SO_2 control program in the northeast and mid-Atlantic States, has been proven to be an effective tool to provide affected sources with the flexibility inherent in banking, yet defines limits on banking that protects the timing and reduction level of the program. We believe that EPA needs to define substantial regulatory and market-based incentives in the IAQR to ensure early decisions and investments in control and monitoring systems, regulatory certainty, and balanced use of available resources and capital. Appropriate incentives for early reductions would increase the certainty that available resources, including skilled labor, are used efficiently and skillfully. [[0772, p. 4]]

Response:
The final CAIR includes early emission reduction incentives but does not restrict banking. These provisions are discussed in the CAIR NFR preamble and other sections of this response to comment document.

Comment:
No Restrictions on Banking. At 69 Fed. Reg. 32718 EPA is proposing that banking of allowances after the start of the CalR NOx and SO2 cap-and-trade programs be allowed with no restrictions. DPL agrees and asks EPA to adopt this approach. DPL believes that no restrictions on banking encourages early reductions and/or over-control in certain years. Conversely, flow control has proven to be overly complex and discouraging of over-control. [[(p.4)]]

Response:
This comment is generally supportive of the final CAIR approach.

Comment:
EPA currently withholds 105 funds to fund the acid rain and the NOx SIP Call cap & trade program tracking, and the proposed transport rule will also involve both pollutants. We would object to EPA withholding additional 105 funds to use under the IAQR program to be used for the cap and trade program. If funds are needed, they should come from EPAs budget. [[(p.1)]]

Response:
The CAIR NFR does not address implementation funding issues. EPA will take this comment into advisement as it works with the State and local air authorities to identify resources for the implementation of the CAIR.

Comment:
Budgets and Sector Inventories: EPA's IAQR position contains specific EGU budgets for jurisdictions for the purpose of the cap and trade program, but does not propose any baseline inventories and budgets for the other source sectors. The rationale is that there is no need for sector baseline inventories and budgets to be established by rule for jurisdictions choosing to participate in the model trading programs. EPA is proposing that if a jurisdiction chooses to obtain some or

all of the required emission reductions from source categories other than EGUs, the sector baseline inventories and budgets should be developed by the jurisdiction and be subject to EPA approval as part of the transport SIP. The commenter thinks this approach invites many problems, including the creation of significant inventory and budget inconsistencies, variability, quality control problems, and a resulting lack of certainty in the resulting emission reductions. EPA would have to enforce extremely tight and inflexible inventory rules and standards in order to minimize such problems. These would be difficult for states to implement and for EPA to enforce. The commenter recommends that the sector baseline inventories and budgets be included in the rule, as was done for the NOx SIP Call.

The commenter also recommends that EPA issue a total budget for each jurisdiction as was done for the NOx SIP Call. EPA needs to hold each jurisdiction to this total budget, regardless of what sector the reductions come from and regardless of any trading that takes place. This is needed to ensure and verify that each jurisdiction meets its obligation under the IAQR.

Response:
EPA disagrees that the proposed approach will be problematic or that commenter's alternative -- that EPA establish baselines for all sources or sectors in the CAIR itself -- would be any less problematic. Estimation of historic and future emissions of sources or sectors other than EGUs is always challenging, and different estimates can result depending on estimation method, available data, and assumptions. Few non-EGU sources have continuous emissions monitoring systems in place. If EPA were to promulgate baseline inventories for non-EGU sources they would in most cases have to be based on inventory estimates that were made in the past for purposes other than for use as baselines for measuring reductions to comply with the CAIR and that are not systematically documented as to method and underlying data and assumptions. Moreover, EPA would have to establish baselines for all sources/sectors in all CAIR-subject States, most of which the applicable State would not ever consider as a source of reductions for complying with the CAIR. EPA thinks it is a more practical and accurate approach to have States establish the baselines only for sources/sectors that need them and to have those baselines subject to comment and EPA approval as part of the CAIR SIPs.

Also, the comment mischaracterizes how baselines and budgets work under the NOx SIP Call. The NOx SIP Call in fact does not hold States to keep actual emissions from all sources below the budgets included in the NOx SIP Call rule. Those budgets were only an accounting tool used to develop a control plan which could be predicted to achieve the required emission reduction. Once a control plan has EPA approval, the obligation of the State is to implement the source/sector-specific rules that are part of the plan. The Sstate is not responsible for keeping total emissions below any budget.

In sum, EPA shares the commenter’s concerns about sector baselines and has chosen an approach we believe will help ensure real reductions are achieved if States choose to regulate non-EGUs under CAIR. Section VII of today’s preamble further discusses these procedures.

Comment:
Congress exempted certain IPPs, including ARIPPA facilities, from the Clean Air Act Title IV Acid Rain Program enacted in 1990. The justifications for the exemption were twofold. First, Congress recognized that lPPs are clean and reliable sources of energy that should be encouraged by clean air legislation. Second, Congress acknowledged that IPPs face unique economic constraints due to the effect of long-term, fixed-price contracts. Specifically, in light of those contracts, such facilities cannot pass on the cost of additional (post-contract) environmental compliance measures to any consumer. Therefore, Congress specifically exempted qualifying IPPs that meet specified criteria from the Acid Rain Program. Congress thereby demonstrated its intent that these sources should receive preferential treatment under the Acid Rain Program. [[(1846, p.6)]] The Agency's preambles to both the proposed CAIR and the supplemental proposal repeatedly emphasize the interrelationship between the proposed rule and the Title IV Acid Rain Program requirements for SO_2 control. However, the Agency's efforts to integrate the two programs result in the inequitable treatment of ARIPPA facilities. First, the preambles discuss the identity of EGUs subject to Title IV and those likely to be affected by the Clean Air Interstate Rule. The Agency has proposed to exempt some cogeneration facilities from the CAIR based upon the same criteria on which they are exempted from the Acid Rain Program. Inexplicably, however, the Agency has not proposed to exempt other IPPs from the CAIR in the same manner as they were exempted from the Acid Rain Program. The Agency offers no explanation for its apparent failure to extend the Acid Rain Program exemption to all IPPs under the CAIR. [[(1846, p.7)]] Second, the Agency proposes to allocate state SO_2 budgets under the CAIR based exclusively on Acid Rain Program allowances. Specifically, the Agency proposes that each state SO_2 budget for affected EGUs under the CAIR would be equivalent to the total of Acid Rain Phase II allowances for that state, reduced by appropriate retirement ratios. The Agency makes no provision in the proposed allocation process for non-acid rain EGUs, including the ARIPPA facilities. Thus, through application of the CAIR SO_2 provisions, ARIPPA facilities essentially would be penalized for their prior exemption from the Acid Rain Program, an exemption that was intended to provide preferential, not inequitable, treatment of those facilities. [[(1846, p.7)]] The Agency's goal of integrating the proposed CAIR with the Acid Rain Program should not single out ARIPPA facilities for disadvantageous treatment. Consistent with the original exemption of IPPs from the Acid Ran Program, ARIPPA facilities should be exempt from the CAIR SO_2 control requirements. [[(1846, p.7)]]

Response:
See CAIR NFR and responses in other sections of this response to comment document.

Comment:
MidAmerican submits that the EPA has the ability to amend the acid rain regulations to further reduce NOx and SO2 through Phase III of the Acid Rain program. By creating Phase III of the Acid Rain program, the overall further success is improved by continuing the existing national market based system for SO_2 and the creation of a national market based system for NOx that would bring benefits to all states, as opposed to only those states east of a certain modeling domain. [[(1000, p.8)]] The ability of an administrative agency to administer a congressional

program necessarily requires the formulation of policy and the making of rules to fill any gap left, implicitly or explicitly, by Congress. The Congressional findings and declaration of purpose underlying Title IV of the Clean Air Act continue to be applicable today - to effectuate reductions in NOx and SO2 by requiring compliance by affected sources with prescribed emission limitations by specified deadlines utilizing an emission trading system. The definition of an 'affected unit' was not limited to EGUs - rather, Congress prescribed that control measures to reduce emissions from steam-electric generating units should be initiated without delay. There was no determination that other facilities that emit NOx and SO2 could not or should not be regulated under Title IV. [[(1000, p.8)]] MidAmerican submits that Congress provided EPA the ability to make additional reductions in NOx and SO2 beyond the Phase II reductions or it would have more firmly concluded the program in 2009. Congress did not prescribe that no further reductions should be made after 2009; by requiring review every 5 years after January 1, 1995 (without an end date), Congress intended that Title IV would continue to make progress in reducing emissions after 2009. While EPA states in the IAQR that it does not have the authority to remove the statutory requirements of Title IV and must work within the context of the existing Clean Air Act, EPA has acknowledge that the Title IV rules will be amended to go beyond what Title IV originally required (e.g., by submitting more than one SO_2 allowance for every ton emitted). EPA has not seemingly assessed its ability to implement a Phase III of the Acid Rain program. MidAmerican encourages EPA, in its Supplemental Notice, to submit for review and comment proposed language to implement a Phase III to Title IV of the Clean Air that provides for a national program of further reductions in NOx and SO2 from EGU and non-EGU sources, utilizing a cap-and-trade system. [[(1000, pp.8-9)]]

Response:
The commenter suggests that EPA should have achieved the emission reductions of CAIR by modifying the existing title IV programs. Title IV provides for a rate-based SO_2 reduction program and does not provide for a SO_2 allowance system. For SO_2, EPA disagrees with the commenter that title IV provides EPA with the authority to go below Acid Rain Program Phase II levels. Today's action is based upon the authority granted to EPA under title I of the CAA. Also, title IV provides EPA with the authority to regulate "utility units," and would not allow EPA to affect non-EGUs, as the commenter suggestes.

The CAIR region is based upon those States for which EPA modeling has shown to be significant contributors to $PM_{2.5}$ and ozone nonattainment in other States. This does not allow EPA to affect States beyond this region.

Comment:
Throughout the CAIR, EPA has indicated that it is trying to mesh the CAIR rule with the existing acid rain rules found in 40 C.F.R. Part 72. EPA has given continued life to the Acid Rain approach by proposing that the CAIR SO_2 allowance allocations be based on the Acid Rain system of allocations. However, EPA has eliminated important, Clean Air Act ('CAA') based exemptions from the Acid Rain Program that will adversely effect AES. [[(p.1)]] See Docket #1708, pp.2-5, for further discussion of this issue.

Response:
The CAIR does not directly affect sources as the Acid Rain Program. The CAIR requires States to reduce their emissions and provides them with the flexibility to achieve these reductions by regulating sources of their choosing. States may choose to regulate cogeneration units. States may elect to participate in the EPA-administered cap and trade program which, under the model rules, would affect EGUs and provide an exemption for some cogeneration units. This exemption is not identical to that of the title IV and the CAIR NFR preamble discusses this in detail.

Comment:
In addition to numerous regulatory processes (i.e., SIP revisions, permitting, etc.) that must be negotiated, merchant EGUs' access to capital markets will complicate decision making required to justify and plan expenditures on a given unit. NRG recognizes EPA's desire to implement the Phase I provisions of the IAQR by 2010; NRG requests that EPA elaborate steps requiring states to streamline their regulatory processes to help instead of impede the achievement of this objective. [[1050, p. 3]]

Response:
EPA has provided some mechanisms to facilitate a smooth and timely SIP submittal and review process. These include establishing an 18 month SIP submittal period and some streamlining of the permits.

The CAIR requires States to revise their SIPs to achieve additional NOx and SO2 reductions. EPA does not have the authority, nor does CAIR address, State rulemaking processes. EPA is committed to working with the States as they develop their SIPs and making the process as efficient and effective as possible.

Comment:
The CAIR should allow companies flexible options to meet the reduction targets while providing those companies the opportunity for meeting further environmental programs, reducing compliance costs and providing for their own and their customers competitiveness. Such flexibility could include increasing the energy efficiency of their existing EGUs, converting existing EGUs or investing in newer technologies to allow for newer, more diversified and more efficient processes for electric generation. [[(p.5)]] We recommend the CAIR include a compliance schedule that allows room for alternative/smart investment, rather than forcing uniform timing based on how fast existing NOx and SO2 controls can be installed. The CAIR should allow sources, including opt-ins, with options such as new multi-pollutant controls that include mercury, efficiency improvements for existing generation, and investment in new efficient generation. The timing for such alternatives is not as defined as the schedule to install a narrowly focused $_{NOx\ or\ SO2}$ control device. In fact, EPA should consider providing in the CAIR an extension of time for such more diverse and smart investment. [[(p.5)]] The final CAIR must support a reliable and cost efficient electric power generation system, including all fuel types, and options for on-site power generation such as CHP. Coal and natural gas must be maintained and expanded as viable energy sources to provide fuel diversity and economic competitiveness for the United States. In addition,

to prevent natural gas from becoming increasingly more expensive and less readily available for homeowners, manufacturers and electric generators, the CAIR should promote the use of natural gas for power generation in new technology that uses the resource efficiently, such as CHP. The more predictable and efficient use of natural gas will reduce the natural gas pricing volatility seen in recent years. We recommend the rule be modified accordingly to be consistent with this economic and energy imperative. [[(p.5)]]

Response:
The CAIR allows States to achieve the mandated emission reductions however they choose. They are free to build-in incentives for certain types of energy investments as they see fit. The regionwide cap and trade approach, the option provided by EPA for States to achieve these reductions, inherently rewards "smart investment" that promotes clean, efficient generation: the more electricity a facility can generate for each unit of fuel, the fewer (valuable) allowances it will have to retire.

The CAIR does not require uniform control installations at specific deadlines. The States are free to develop whatever control strategies they feel will achieve the mandated emission reductions. For States that adopt the regionwide cap and trade program, the caps inherently allow sources to decide when and if they will install emission controls. Some sources may elect to purchase allowances early in the implementation. This feature, in combination with the mechanisms provided for early reductions, allow sources with a great deal of flexibility as to their compliance strategy and long-term investment.

Comment:
Section 185 of the Clean Air Act provides for assessing an emissions fee on major VOC sources located in 'Severe' and 'Extreme' nonattainment areas that do not attain the ozone standard on schedule. CAA §182(f) extends this requirement to NOx sources as well. We request, in accordance with comments filed by the utility industry, that this requirement not apply to sources subject to the IAQR, including opt-in sources. [[(1241, p.17)]]

Response:
The commenter suggests that, under CAA §182(f), EPA should exempt the utility industry from the fee structure under section 185. However, the commenter does not demonstrate that the criteria for granting an exemption would apply to the utility industry, nor the range of sources that could potentially opt into the CAIR cap and trade programs. In fact, the air quality benefits are greater with the emission reductions of CAIR.

The final CAIR includes provisions that would establish CAIR permits, but States would retain their authority to issue permits to sources in order to address persistent nonattainment issues in their jurisdiction.

XIV STATUTORY AND EXECUTIVE ORDER REVIEWS

XIV.A Compliance with E.O. 12866: Regulatory Planning and Review concerning economic impact and benefit analyses

Ecological and Qualitative Benefits of CAIR Analysis

EPA presented data and information regarding the expected ecological benefits of the emission reductions of $_{NOx\ and\ SO2}$ expected under the Interstate Air Quality Rule (now known as the Clean Air Interstate Rule). These benefits include potential visibility improvements, reductions in acid deposition (acid rain) to acid-sensitive lakes, streams, and forests, and reductions in the amount of nitrogen and sulfur deposited in sensitive estuaries and coastal waters. The benefits also included estimates of the extent of acidification reductions in acid-sensitive lakes and streams under the rule. The EPA was only able to include a limited set of visibility benefits in southern U.S. parks in the primary monetary benefit estimates for this rule. To the extent possible, the EPA quantified acidification and nitrogen and sulfur deposition reductions. The potential ecological benefits of the rule are discussed extensively qualitatively in the Regulatory Impact Analysis for the Final Clean Air Interstate Rule (March 2005 referred to as CAIR RIA elsewhere in this section). Commenters provided comments on EPA's presentation and analysis of these ecological benefits.

XIV.A.1 Comment:
Commenter summarizes the ecological benefits to acidic lakes and streams, acid-sensitive forests and nitrogen-sensitive estuaries and coastal waters of reducing $_{NOx\ and\ SO2}$ emissions. Commenter also identifies qualitative benefits of reduced erosion and weathering on buildings and monuments as a result of reduced acid deposition.

Response:
EPA recognizes the large scope of ecological benefits that the proposed emission reductions will achieve. The benefits are discussed extensively in the RIA. While with the exception of limited visibility improvements these benefits are not quantifiable in economic monetary terms at this point, EPA agrees that ecological and welfare benefits are important benefits of the Clean Air Interstate Rule.

XIV.A.2 Comment:
Commenter wants additional information regarding the assumptions and modeling EPA conducted to predict future numbers of chronically acidic lakes in the Adirondack Mountains.

Response:
EPA used a model called the Model of Acidification of Groundwater in Catchments (MAGIC) to predict the level of acidification in lakes and streams in several acid-sensitive regions of the U.S. The model was applied regionally by EPA, in accordance with previous applications in the literature. The model simulates soil chemistry and water chemistry to predict average long-term trends in acidification for the population of lakes or streams being modeled. MAGIC is

parameterized using data collected in the 1980's in the National Surface Water Survey (NSWS) for a subpopulation of lakes that are more acid-sensitive than the general NSWS population. Changes in emissions were used to estimate changes in regional deposition which were then applied to the model lakes. Acid neutralizing capacity (ANC) was used as the sole indicator of the level of acidification, where ANC less than 0 is considered chronically acidic, ANC between 0 and 50 is considered episodically acidic, and ANC greater than 50 is considered not acidic. EPA's modeling indicates that chronic acidity would be eliminated from Adirondack lakes by 2030 under the Clean Air Interstate Rule; however, some lakes will remain subject to episodic acidification. See Chapter 5 of the CAIR RIA for more details.

XIV.A.3 Comment:
Commenter summarizes results from the literature, as well as, EPA modeling both from the Clean Air Interstate Rule and Clear Skies.

Response:
EPA appreciates the information and discussion provided and agrees that the ecological effects of the Clean Air Interstate Rule on acid-sensitive streams are an important part of the benefits of the rule.

XIV.A.4 Comment:
Commenter reiterated the link between $_{NOx\ and\ SO2}$ emissions and acid deposition in the Northeast. They also reported on modeling results of their own that indicate the Clean Air Interstate Rule would not allow lakes in the Northeast to recover completely by 2050.

Response:
EPA recognizes that there is information in the scientific literature indicating that additional emission reductions, or faster emission reductions, would lead to faster recovery of acidified ecosystems. Chapter 5 of the CAIR RIA discusses the acidification modeling for lakes in the Northeast conducted by the EPA for this rule. As this modeling indicates, the CAIR will result in significant improvement in acidification in the Adirondacks and Northeastern lakes in addition to helping states attain ambient air quality standards for fine particles and ozone.

XIV. A.5 Comment:
Commenter identifies the ecological benefits to acidic lakes in Adirondack Park as a topic of special interest.

Response:
EPA appreciates the importance of the ecology of the Adirondacks, as well as, its sensitivity to acid deposition and agrees that it is an important part of the Clean Air Interstate Rule benefits.

XIV.A.6 Comment:
Of utmost importance to the water quality in the Chesapeake Bay are the emissions of SO_2. Recently, the EPA's Chesapeake Bay Program determined that nitrogen loads to the Bay

need to be reduced by approximately 50 percent in order to remove the Bay from EPA's List of Impaired Waters and to restore the Bay to a healthy ecosystem. It is estimated that approximately 32 percent of the nitrogen loading to the Bay comes from atmospheric deposition, with power plants contributing more than a third of that atmospheric loading of nitrogen. During the summer 2003, the Chesapeake Bay - suffered from one of the largest ever-recorded 'dead zones' - an area of low or no dissolved oxygen (DO) in the water. This dead zone stretched approximately 150 miles from Baltimore to the York River, making nearly 40 percent of the Bay's waters uninhabitable for fish, crabs, oysters and other life in the Bay. These low DO levels are caused, in part, by excess nitrogen and phosphorus. Clearly, we need to act now to reduce nutrients from all sources, in order to restore the health of the Chesapeake Bay.

Atmospheric loading of nitrogen to the Bay is a problem that cannot be solved by the Chesapeake Bay signatories alone. The airshed for $_{SO2}$ deposition in the Chesapeake Bay watershed is approximately 400,000 square miles, extending west to Indiana and Kentucky and south to South Carolina. Hence, the Chesapeake Bay will be affected by federal legislation that addresses this air pollutant. We recommend that EPA adopt the caps and time frames proposed by the Ozone Transport Commission for NOx and SO2. Their proposal calls for more stringent caps to be achieved by 2012, 3 years earlier than the time frame proposed in the IAQR. These more aggressive reductions are needed if we are to successfully remove the Chesapeake Bay, a national treasure, from the list of impaired waters.

Response:
In the CAIR RIA, the EPA reports information from an analysis conducted by the Chesapeake Bay Program of potential nitrogen deposition reductions resulting from the CAIR proposal. In this analysis, the Chesapeake Bay Program states that atmospheric deposition of nitrogen accounts for a significant portion of the nitrogen loads to the Chesapeake with 28 percent of the nitrogen loads from the watershed coming from air deposition. Based upon the CAIR proposal nitrogen deposition rates published in the January 2004 proposal, the Chesapeake Bay Program finds that CAIR will likely reduce the nitrogen loads to the Bay by 10 million pounds per year by 2010. Nitrogen deposition reductions for the final CAIR are anticipated to be comparable to the proposed rule in this region. These substantial nitrogen load reductions more than fulfill the EPA's commitment to reduce atmospheric deposition delivered to the Chesapeake Bay by 8 million pounds annually. See Chapter 5 of the CAIR RIA for more details.

General Comments - Commenter supports conclusions of CAIR Analysis

XIV.A.7 Comment:
Several commenters summarize the suite of health and environmental benefits that will result from the Final Clean Air Interstate Rule.

Response:
We appreciate the commenters' support for the conclusions of the CAIR analysis.

A cap-and-trade program should be included in the rule-making

XIV.A.8 Comment:
One commenter suggests that the analysis of this rulemaking clearly demonstrates the substantial net economic benefits to be achieved from implementing the proposed NOx and SO2 cap-and-trade programs.

Response:
This rule-making includes a model multi-State cap and trade programs for $_{NOx\ and\ SO2}$ that States may choose to adopt to meet the required emissions reductions in a flexible and cost-effective manner. The recommended cap-and-trade programs are described in more detail in the final notice for this rulemaking and in the CAIR RIA.

The analyses conducted for this rulemaking do assume that States will join an $_{NOx\ and\ SO2}$ cap-and-trade program to meet the required reductions of CAIR. Further these analyses do reflect that a cap-and-trade program provides cost savings relative to a command and control regulatory approach.

CAIR will produce significant human health and environmental benefits

XIV.A. 9 Comment:
Several commenters comment that the costs to human health and the environment should be examined.

Response:
The CAIR RIA presents an analysis of the benefits to human health and the environment and the costs of the rule. The EPA in the CAIR RIA concludes that the CAIR will result in substantial benefits to both human health and the environment. The health benefits resulting from the CAIR are substantial both in incidence and dollar value. In 2015, we estimate that there will be approximately 17,000 fewer fatalities annually associated with $PM_{2.5}$, and the rule will result in 8,700 fewer cases of chronic bronchitis, 22,000 fewer non-fatal heart attacks, 10,500 fewer hospitalizations (for respiratory and cardiovascular disease combined); 13,000 less emergency room visits for asthma, and result in significant reductions in days of restricted activity due to respiratory illness (with an estimate of 9.9 million fewer cases) annually. We also estimate substantial health improvements for children from reduced upper and lower respiratory illness, acute bronchitis, and asthma attacks. Ozone health related benefits are expected to occur during the summer ozone season (usually ranging from May to September in the Eastern U.S.). Based upon modeling for 2015, ozone-related health benefits are expected to include 2,800 fewer hospital admissions for respiratory illnesses, 280 emergency room admissions for asthma, 690,000 fewer days with restricted activity levels, and 510,000 fewer days where children are absent from school due to illnesses annually. The estimated dollar value of these health benefits is $99.3 billion annually in 2015 (assumes 3 percent discount rate). Estimated annual visibility benefits in

Southeastern Class I areas brought about by the CAIR are estimated to be $1.1 billion in 2010 and $1.8 billion in 2015. The benefits for the rule total $101 billion annually in 2015. All estimates reflect 1999 dollars.

Inclusion of Kansas in the CAIR Rule

XIV. A.10 Comment:
The proposed rule will require substantial reductions in nitrogen oxide (NOx) and sulfur dioxide (SO_2) emissions from electric utilities east of a line determined by Environmental Protection Agency (EPA) modeling. Kansas is included in this group. Meeting these requirements could cost the commenter hundreds of millions of dollars - a burden that would have a material impact on this commenter's customers and shareholders.

Response:
Due to new information considered by EPA in the final rule, Kansas is no longer deemed a significant contributor State and is not included in the final CAIR region.

Calculation of Health Benefits
There is insufficient evidence that sulfates and nitrates cause the health effects of concern

XIV.A.11 Comment:
Several commenters commented that ambient $PM_{2.5}$ is comprised of many compounds with varying potential impacts to health and that EPA has not taken into consideration the effects of the different components of PM on human health in estimating the health benefits of IAQR. Instead, EPA relies on studies that have established a relationship between total ambient $PM_{2.5}$ concentrations and adverse impacts on human health, although these studies did not differentiate between the components of $PM_{2.5}$ that comprised the ambient concentrations (including organic and inorganic $PM_{2.5}$). Health effect and epidemiological studies such as the Aerosol Research and Inhalation Study (ARIES) have reported that ambient $PM_{2.5}$ is comprised of many compounds with varying potential impacts to health. ARIES results indicate that carbonaceous compounds in $PM_{2.5}$ are most strongly associated with health impacts and have not found health effects to be associated with sulfates. There is also a growing body of toxicological evidence that sulfates and nitrates do not have a causal association with the health effects of concern. A recent review of this information concluded that the currently available toxicological database does not support a role for secondary inorganic aerosols, such as sulfates and nitrates, in the adverse health outcomes noted in epidemiological studies. The commenters state that, at levels in the ambient air in the United States, sulfates and nitrates do not cause health effects**.** Further refuting EPA's assumption that chemical composition is unimportant is the fact that EPA has explicitly recognized that the physical and chemical composition of particulate matter is likely to influence its role in the production of health effects.

Response:

As discussed in the preamble to the final rule (Section III.A.1.b.ii), EPA believes that comments relating to the evidence supporting or not supporting health effects of all or portions of pollutants regulated by the $_{PM2.5}$ NAAQS are not germane to this rulemaking. Nevertheless, in the preamble we discuss briefly EPA's current response regarding the contributions of different components of $_{PM2.5}$ to health effects. In evaluating the latest research findings, EPA's PM criteria document[116] concludes that many different chemical components of fine particles and a variety of different types of source categories are all linked to premature mortality and other serious health effects, either independently or in combinations, but that it is not possible to reach clear conclusions about differential effects of PM components. EPA and other federal agencies continue to promote and support the epidemiological and toxicological studies needed to better understand the effects of different chemical components and different size particles on health effects. In the meantime, EPA believes that, given the substantial evidence of significant health effects of fine particles, it is important to move forward expeditiously to address both transported and local sources of all the major components of fine particles in an effort to implement and attain the $_{PM2.5}$ standards.

New information the health effects of particulate matter should be incorporated into EPA's benefits analyses.

XIV.A.12 Comment:
One commenter indicated that the estimates of the health benefits of the IAQR need to be updated based on the most recent science related to fine particulate matter ($PM_{2.5}$), including the recent reanalyses of particulate matter health studies. They said that incorporation of new information regarding the $PM_{2.5}$ impacts could show that potential health benefits of reducing fine particles are considerably lower than currently projected and that the Data Quality guidelines must fully reflect this analysis.

Response:
EPA bases its benefits analyses on the most recent science on the health effects of particulate matter with input and technical advice from the National Academies of Sciences (NAS) and the Health Effects Subgroup of the Science Advisory Council. EPA is consistently working to update its benefits analyses with new studies and new data. The commenters refer to the reanalyses of epidemiologic studies. As discussed in more detail below XIV.A.14, EPA's benefits analysis has incorporated updated impact functions to reflect updated time-series studies of hospital admissions to correct for errors in application of the generalized additive model (GAM) functions in S-plus.

The GAM reanalysis issue does not affect a number of the key studies used in the benefits assessment, notably for the assessment of benefits associated with reduction in long-term exposure to fine particles. The NAS agreed with EPA's decision to use cohort studies for estimating premature mortality benefits and concluded that the Agency's selection of the American Cancer Society (ACS) study for the evaluation of PM-related mortality was reasonable. However, they

[116]USEPA, National Center for Environmental Assessment, *Air Quality Criteria for Particulate Matter*, October 2004. http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=87903

recommended that EPA evaluate new cohort studies, and, in response, EPA has reviewed new cohort studies, including reanlayses of the ACS study data.

The 2002 reanalysis of the ACS data incorporates several enhancements that strengthen conclusions regarding the association between long term exposure to $_{PM2.5}$ and mortality and increases our ability to examine the potential for effects modification by a range of possible risk factors including educational status, age, smoking status. These enhancements include: (a) addition of 8 years of follow-up data with an increase in number of deaths, (b) inclusion of range of dietary covariates in modeling, (c) improvements in treatment of occupational exposure and (d) refinements in methods used to address potential spatial autocorrelation in ecologic variables. The benefits analysis also includes an all cause mortality effect estimate based on the reanalysis of the ACS study data, as well as a breakout for two major cause of death categories – cardiopulmonary and lung cancer.

In addition, in response to recommendations from the SAB Health Effects Subgroup, EPA has added infant mortality into the primary estimate due to studies that have strengthened the evidence for a relationship between PM exposure and respiratory inflammation and infection in children leading to death. EPA has also included asthma exacerbations for children in the primary estimate, expanded the age groups evaluated for morbidity effects beyond the narrow band of the studies to the broader (total) age group, included ne endpoints where data supported them, and updated populations and baseline incidence data.

The PM NAAQS should be reviewed

XIV.A.13 Comment:
Several commenters also commented that the PM NAAQS should also be reviewed based on sound, peer-reviewed science. This review must take into account problems with the data and models relevant to PM standards, inconsistent patterns of associations between PM and health problems, indoor exposures to PM, and toxicologic analyses of PM health effects.

Response:
The Clean Air Act requires that the NAAQS be reviewed periodically, and a review of the PM NAAQS is well underway, and will be completed with a final decision on whether to retain or revise the PM NAAQS by September, 2006. In 2004, the PM Criteria Document was completed (EPA, 2004). The PM Criteria Document provides key scientific support for the review of the PM NAAQS. This is an assessment and integration of evidence from across the various scientific disciplines that has undergone extensive review by the Clean Air Scientific Advisory Committee and the public. The issues raised by the commenters are discussed in detail in chapters 5, 7, 8 and 9 of the PM Criteria Document, leading to a conclusion that: "A growing body of evidence both from epidemiologic and toxicologic studies also supports the general conclusion that $_{PM2.5}$ (or one or more $_{PM2.5}$ components), acting alone and/or in combination with gaseous co-pollutants, are likely causally related to cardiovascular and respiratory mortality and morbidity." (EPA, 2004, p. 9-79).

EPA Should Update Its Benefits Analysis If It Has Not Used a Corrected Model

XIV.A.14 Comment:
One commenter commented that in 2002, researchers at Johns Hopkins University announced that the models they developed and used (as well as many others) had a program default problem that resulted in overestimating the effects of human exposure to particulate matter. In May 2003, the Health Effects Institute issued a report confirming that there appeared to be a smaller, yet continuing association between air pollution and health. In its report HEI concluded that the effect of the software error could cut the predicted mortality almost in half, and increased hospitalizations by 10 percent. The Agency should revise its analysis taking into account the new information and provide an updated benefit cost analysis along with the draft regulatory language that the Agency plans to publish in the near future.

Response:
Following the identification of the problems with the General Additive Models (GAM) by researchers at John's Hopkins, a number of time-series studies were reanalyzed using alternative methods, typically GAM with more stringent convergence criteria and an alternative model such as generalized linear models (GLM) with natural smoothing splines, and the results of the reanalyses have been compiled and reviewed in a recent HEI publication (HEI, 2003a). In the IAQR proposal, EPA's benefits analysis has incorporated the updated impact functions to reflect updated time-series studies of hospital admissions to correct for errors in application of the generalized additive model (GAM) functions in the S-plus statistical software.

In most, but not all, of the reanalyzed studies, it was found that risk estimates were reduced and confidence intervals increased with the use of GAM with more stringent convergence criteria or GLM analyses; however, the reanalyses generally did not substantially change the findings of the original studies, and the changes in risk estimates with alternative analysis methods were much smaller than the variation in effects across studies. The HEI review committee concluded the following: (1) Although the number of studies showing an association of PM with mortality was slightly smaller, the PM association persisted in the majority of studies. (2) In some of the large number of studies in which the PM association persisted, the estimates of PM effect were substantially smaller. (3) In the few studies in which investigators performed further sensitivity analyses, some showed marked sensitivity of the PM effect estimate to the degree of smoothing and/or the specification of weather (HEI, 2003b, p. 269)

Examination of the original studies used in our benefits analysis found that the health endpoints that are potentially affected by the GAM issues include reduced hospital admissions and reduced lower respiratory symptoms. For the IAQR, we have incorporated anumber of studies that have been updated to correct for the GAM issue, including Ito et al.(2003) for respiratory-related hospital admissions (COPD and pneumonia), Shepard et al.(2003) for respiratory-related hospital admissions (asthma), Moolgavkar (2003) for cardiovascular-related hospital admissions (ICD codes 390-429), and Ito et al. (2003) for cardiovascular-related hospital admissions (ischemic heart

disease, dysrhythmia, and heart failure). Several additional hospital admissions-related studies have not yet been formally updated to correct for the GAM issue. These include the lower respiratory symptoms study and hospital admissions for respiratory and cardiovascular causes in populations aged 20 to 64. However, as discussed above, available evidence suggests that the errors introduced into effect estimates due to the GAM issue should not significantly affect incidence results. It is important to reiterate that the estimates derived from the long-term exposure studies, which account for a major share of the economic benefits described in this chapter, are not affected by the GAM issue. Similarly, the time-series studies employing GLMs or other parametric methods, as well as case-crossover studies, are not affected.

Impacts to recreational areas

XIV.A.15 Comment:
The outdoor recreation industry should be considered in the costs and benefits analysis.

Response:
While EPA is not directly able to monetize benefits to the recreation industry other than visibility benefits in Class I areas, the following categories of unquantified benefits are expected to result from the rule: increased recreational visibility in non-Class I areas and in the CAIR region other than the southeast, reduced impacts of nitrogen deposition on recreation in estuarine and forest ecosystems, reduced impacts of acidic deposition to recreation in terrestrial ecosystems and reduced damage to ecosystem functions. See the CAIR RIA for more details.

The rule does not go far enough.

XIV. A.16 Comment:
Several commenters indicated that EPA needs to better portray the balance of the direct potential economic benefit to society of the emission controls investments (in terms of jobs and other direct and secondary social and economic multipliers) vs. the added cost of control on power production. This comparison needs to extend to the much greater potential marginal public health benefit and other secondary social/environmental effects noted elsewhere in the docket. EPA has shown no sensitivity analysis of the potential social and economic benefit foregone by not proposing a much higher system emission control level. A straightforward interpretation of 'highly cost effective', from a public health perspective, would be that all marginal emissions control cost below a cost per ton equivalent to the direct public health benefits derived should be automatically defined as highly cost effective. Only the marginal emissions control cost above this average control 'need' based on the direct, quantified public health cost of the system emissions would be considered in regard to 'highly cost effective'. EPA's evaluation suggests under the perspective that all controls under a $10,000/ton average cost would be installed as a base level, and the marginal cost of a deeper effort would be assessed in terms of additional highly cost effective control opportunity as a means to address the non-quantified public health and environmental impact.

Response:
The benefit-cost analysis shows that substantial net economic benefits to society are likely to be achieved as a result of the reduction in emissions occurring as a result of this rule. The results detailed below show that this rule would be highly beneficial to society, with annual net benefits in 2010 of approximately $71.4 + B or 60.4 + B billion, ($73.3 + B or 62.6 + B billion benefits compared to social cost of approximately $1.91 or $2.14 billion) and net benefits in 2015 of $98.5 + B or $83.2 + B billion ($101 + B or $86.3 + B benefits compared to social costs of $2.56 or $3.07 billion). The alternative estimates provided relate to different discount rates with the higher net benefit estimates reflecting a 3 percent discount rate and the lower estimates a 7 percent discount rate. All amounts are reflected in 1999 dollars. This rule will result in benefits in addition to the enumerated human health and welfare benefits resulting from reductions in ambient levels of PM and ozone that we are unable to quantify or monetize currently. B represents those benefits we are currently unable to quantify and monetize. Significant categories of benefits we could not monetize include visibility benefits outside the southeastern US parks, ozone premature mortality benefits, acidification reduction benefits to forests and lakes in the northeast, reduced materials damage and soiling expenditures and eutrophication reductions in estuaries and waterbodies in the region. See the CAIR RIA for more details.

XIV.A. 17 Comment:
Several commenters stated that the EPA's proposed IAQR cap on sulfur compared to the reductions required by full enforcement of the Clean Air Act demonstrates that failure to simply enforce current law will lead to approximately 100,000 unnecessary premature deaths in the U.S. through the year 2020.

Response:
The EPA is enforcing the Act and believes the emissions reductions we describe for CAIR in the preamble and CAIR RIA are very beneficial to society. See the preamble and CAIR RIA for more details as to justification for the caps chosen and the significant potential benefits of the rule to society.

XIV.A.18 Comment:
A comment received states that dollars spent on compliance with clean air mandates are recycled in the economy, generating jobs in construction and materials fabrication, in addition to jobs in air pollution control technology companies. This industry is unusual in that it currently generates a modest trade surplus and is providing technological leadership that can continue to be deployed in the fast-growing overseas markets for U.S. air pollution control technology. For our part, members of the Institute continue to invest in research and development to improve removal efficiencies while lowering costs and simplifying operation. The air pollution control technology industry is innovative and highly competitive, and improvements in cost effectiveness are what give one business or technology a competitive advantage over another. Thus, resolving the admittedly tough clean air issues we face in a way that protects public health and the environment has an important side-benefit: it would also promote the air pollution control industry, which creates jobs as

compliance dollars are recycled in the economy.

Response:
In the CAIR RIA, the EPA analyzed the potential economic impacts of the rulemaking for the electric generating industry. In a supplemental analysis, the EPA evaluated the possible other sector impacts of the CAIR on the general economy and the labor market including the pollution control sector and employment in this sector. It is important to note that the supplemental analyses of other sector impacts do not consider potentially beneficial aspects of the rule including labor market productivity gains that may result from the health benefits associated with the rule. See the CAIR RIA for more details.

XIV.A.19 Comment:
Several commenters suggested that by addressing SO_2 and mercury in the same rule making, the true costs and benefits of the reductions can be evaluated since both pollutants are likely to be controlled by the same technology (scrubbers). A cost-benefit analysis that does not include both pollutants will result in an underestimation of the benefit of controls. See 69 FR 4646. Without considering the additional benefit of mercury control, EPA's cost-benefit analysis projects a benefit of approximately $84 billion against control costs of only $4 billion. See 69 FR 4647. EPA's analysis also shows that the cost-effectiveness of this proposal increases as more reductions are achieved (18:1 in 2010 and 21:1 in 2015).

EPA's cost-benefit analysis is incomplete. If EPA's proposal is going to continue to show that numerous areas will remain out of attainment after full implementation of the proposal, EPA must fully evaluate the relative costs and benefits of local or regional reduction programs against the costs and benefits of a more aggressive federal program that recognizes the importance of reducing transported pollutants. EPA claims that the IAQR is 'highly cost effective,' and is using that loosely defined term to establish a threshold to demonstrate that the IAQR is beneficial but not too expensive. As noted above, the cost effectiveness of the IAQR is projected to increase as the level of control is increased. EPA needs to perform a sensitivity analysis that will show the level of control where cost-effectiveness is maximized. The Department notes that much of the cost-effectiveness of the IAQR comes in the area of health care expenses, so that for every dollar in increased expense (presumably paid by electricity consumers), many health care dollars will be saved (a disproportionate amount of which are paid by the States). In addition, as noted above, the cost-benefit of IAQR or any other proposal needs to be evaluated against the cost-benefit of local or regional programs that would otherwise be needed in order to meet attainment goals.

Response:
The Clean Air Interstate Rule addresses the role that transported $_{NOx\ and\ SO2}$ emissions from upwind states play in contributing to unhealthy levels of $_{PM2.5}$ and ozone in downwind states. See the CAIR preamble and RIA for more details. The EPA conducted extensive analyses to determine highly-cost effective control levels, and the optimal criteria for significant contribution determinations. The CAIR will result in significant air quality improvements in reductions in the

unhealthy levels of $_{PM2.5}$ and ozone for many areas of the CAIR region. With regards to potential mercury controls, the Clean Air Mercury Rule will address this issue.

XIV.A.20 Comment:
Several commenters stated that the EPA did not evaluate any alternative emission scenarios to its proposal in the IAQR. Such an evaluation is an important piece of any significant rulemaking, and EPA has included such analysis in many of its recent rulemakings, including the NOx SIP Call and its recent nonroad heavy-duty diesel engine proposal EPA's failure to do so here contributes to the arbitrary nature of EPAs proposed IAQR control levels.

Response:
The Clean Air Interstate Rule addresses the role that transported $_{NOx\ and\ SO2}$ emissions from upwind states play in contributing to unhealthy levels of $_{PM2.5}$ and ozone in downwind states. See the CAIR preamble and RIA for more details. The EPA conducted extensive analyses to determine highly-cost effective control levels, and the optimal criteria for significant contribution determinations. The CAIR will result in significant air quality improvements, reductions in the unhealthy levels of $_{PM2.5}$ and for many areas of the CAIR region, and is highly beneficial to society.

XIV.A.21 Comment:
A number of commenters remarked that the benefits of implementing the CAIR or the OTC position to individual states within the CAIR region and society as a whole are enormous. EPA states 'this rule would be highly beneficial to society, with annual net benefits in 2010 of approximately $55 billion ($58 billion benefits compared to social cost of approximately $3 billion) and net benefits in 2015 of $80 billion ($84 billion benefits compared to social costs of $4 billion)' (69 FR 4644). Any rational economic entity should be eager to achieve these benefits to society as quickly as possible.

A strengthened CAIR with the OTCs cap levels and timing will result in net benefits of $74 billion in 2010 rising to $132 billion in 2020. The benefits of implementing a rule consistent with the OTC position are even greater. The net benefits from meeting the caps in the OTC position are estimated at $74 billion in 2010 ($80 billion benefits compared to social cost of $6 billion and 11,000 avoided premature deaths) and $132 billion in 2020 ($140 billion benefits compared to social cost of $8 billion and 18,000 avoided premature deaths). These huge returns from the investment in pollution controls come primarily from reductions in premature mortality due to lower $PM_{2.5}$ concentrations in the ambient air.

With a benefit-cost ratio ranging from 14 to 21:1, implementation of the CAIR or any of the proposed multi-pollutant legislative proposals (OTC, Clear Skies, Jeffords, Carper) are obviously positive steps. From a cost-benefit perspective, the commenter believes that a strengthened rule is clearly called for.

Response:

The Clean Air Interstate Rule addresses the role that transported $_{NOx\ and\ SO2}$ emissions from upwind states play in contributing to unhealthy levels of $_{PM2.5}$ and ozone in downwind states. See the CAIR preamble and RIA for more details. The EPA conducted extensive analyses to determine highly-cost effective control levels, and the optimal criteria for significant contribution determinations. The CAIR will result in significant air quality improvements, reductions in the unhealthy levels of $_{PM2.5}$ and ozone for many areas of the CAIR region, and is highly beneficial to society.

Cost Effectiveness Rationale

XIV.A.22 Comment:
Several commenters felt a word of caution is in order when relying upon the cost effectiveness argument. The traditional measure of the success of a state's SIP is the attainment of the NAAQS. Over reliance on cost effectiveness changes that measure. It may eliminate it, altogether. Cost effectiveness is a moving target. It changes every year. It does not include a health benefits test. It does not include a NAAQS attainment test. It simply says that if the cost of control falls below some newly defined dollars per ton figure, the controls must be implemented. This implies that a state would never be done with its obligations under Section 110. Continued progress in reducing emissions is a practice that we all wish to maintain. However, we believe that there are more appropriate mechanisms for accomplishing this within existing State and Federal regulatory programs.

Response:
The EPA assessed the contribution of individuals states within the CAIR region to downwind concentrations of $PM_{2.5}$ and ozone. The EPA also considered those potential controls that are highly cost effective. Using these criteria, the EPA crafted a rule that will significantly improve ambient air quality in the region and is highly beneficial to society from a net benefits (comparison of the benefits of the rule to the costs) standpoint. See the CAIR preamble and RIA for further details.

Miscellaneous comments
XIV.A.23 Comment:
Nationally, small sulfur and nitrogen particles from coal-fired power plants cause 30,000 premature deaths annually, over 1800 in North Carolina alone. The administration's Interstate Air Quality Rule by taking longer and reducing the pollution less, would cause about 100,000 to die several years before their time over the next decade or so as compared to the existing Clean Air Act requirements. The commenter discusses the North Carolina Clean Smokestacks Act of 2002. Under strong public and media pressure generated largely by citizen environmental groups including Appalachian Voices, North Carolina power and other industry representatives, citizen advocates, and state government officials came together to pass perhaps the strongest smokestack pollution control regulations in the country.

Response:

The EPA recognizes that individual states such as North Carolina are enacting legislation to reduce NOx and SO2 emissions from power plants. This legislation recognizes the significant health and welfare benefits that result from reduction of emission levels from the electric power industry.

XIV.A.24 Comment:
This commenter suggests that in light of the huge monetary expenditures that attainment of the fine particulate matter National Ambient Air Quality Standards will require, the EPA focus its attainment strategies for this standard on efforts that provide the greatest assurance that commensurate public health benefits will result.

Response:
The EPA agrees that the CAIR will provide very substantial health benefits to society. See the CAIR preamble and RI A for more details.

XIV.A.25 Comment:
In calculating the health benefits of this rule, the USEPA has itself included the beneficial effects in attainment areas in its estimates. It should not deny to a state that more comprehensive and equitable approach for evaluating the relative costs and benefits. The present rule continues the health and economic inequities that presently exist as a result of Ozone Transport Region states doing more, while others do less.

Response:
The EPA utilized a very consistent approach to evaluate the contribution of individual states to downwind nonattainment of the $PM_{2.5}$ and ozone standard. The rule will result in significant ambient air quality improvements for the region and is highly beneficial to society. See the CAIR RIA and preamble for more information.

XIV.A.26 Comment:
The commenter contends that the cost-benefit analysis conjures up every possible benefit of reducing air pollution but neglects to analyze the additional costs of higher electricity prices on society. The human health and welfare benefit analysis is severely compromised because it does not consider the adverse effects of increased electricity prices. EPA estimates annual social costs of $3 billion in 2010 but does not estimate how that cost will affect electrical prices and the resulting effect on low-income nutrition. This raises significant environmental justice issues that should be addressed.

Response:
The CAIR RIA includes an extensive analysis of the benefits and costs of the rule. The impact of higher electricity prices are evaluated. It is estimated that CAIR may result in electricity prices to consumers in the CAIR region increasing approximately 2.0 to 2.7 percent. While the costs of the CAIR are relatively modest, the expected health and welfare benefits outweigh the costs significantly. See the CAIR RIA and preamble for more details. Individuals in the CAIR region,

including low income individuals will on average experience increased health benefits as a result of the CAIR.

XIV.A.27 Comment:
We appreciate the opportunity to provide comments on the proposed CAIR. Since this, in combination with the proposed Mercury rules, will likely be the largest single investment in air pollution control companies will make in the history of the Clean Air Act, the governing regulations must include an approach that will provide for cost-effective reductions and achieve the environmental goals while still providing affordable energy products to U.S. consumers and industry.

Response:
EPA evaluated the potential benefits and costs of this rule including impacts on energy supply. The EPA found the rule to be highly beneficial to society. See the CAIR RIA and preamble for more information.

XIV.A.28 Comment:
EPA should conduct an economic impact analysis of the proposed rule on the agricultural sector. In particular, EPA should identify the potential impact of increased fertilizer prices resulting from increased demand for NH3 and urea for control of NOx emissions and the potential impact of increased natural gas prices on fertilizer costs.

Response:
The EPA conducted a cost benefit analysis of the CAIR. While the EPA did not estimate impacts to the agricultural sector specifically, the EPA's analysis shows that the benefits of the rule significantly exceed the costs. While the EPA did not estimate the potential for increases in fertilizer prices due to potential natural gas prices, the EPA did estimate the likely natural gas price increases resulting from the rule to be approximately 1.6 percent. Given the size of this price increase, it is unlikely that fertilizer prices will be significantly impacted by the rule. In addition to impacts on fertilizer prices and possible passive fertilization changes, the rule may have positive impacts on agricultural product yields due to reduce ozone. Ozone results in lower crop yields for some agricultural product.

XIV. B. Compliance with Regulatory Flexibility Act Concerning Small Entity Impacts

XIV.B.1 Comment:
The commenter commented that EPA should consider the potential costs and impacts on small entity utility units, small businesses, and local communities from the proposed rule, and mitigate those impacts when possible, and that EPA should encourage States to use their allowance allocation schemes to reduce the disproportionate impacts on small electric systems and units.

Response:
In the RIA, EPA performed analyses of the economic impacts of CAIR on small entities and State and municipality-owned units. EPA does not find that CAIR has significant economic impact on either small entities or State and municipality-owned entities. EPA analysis projects that approximately 445 MW of total small entity capacity, or 1.0 percent of total small entity capacity in the CAIR region, is projected to be uneconomic to maintain under CAIR relative to the base case. In EPA's analysis of government-owned entities, this number is about 340 MW of municipality-owned capacity (about 0.4 percent of all subdivision, state, and municipality capacity in the CAIR region). In practice, units projected to be uneconomic to maintain may be "mothballed," retired, or kept in service to ensure transmission reliability in certain parts of the grid. Our IPM modeling is unable to distinguish between these potential outcomes. None of the small entity or government units projected to be uneconomic to maintain in these two analyses are located in Michigan.

Two other points should be considered when evaluating the impact of CAIR, specifically, and cap-and-trade programs more generally, on small entities. First, under CAIR, the cap-and-trade program is designed such that States determine how NO_X allowances are to be allocated across units. EPA notes in the RIA that a State that wishes to mitigate the impact of the rule on small entities might choose to allocate NO_X allowances in a manner that is favorable to small entities. Under the FIP, EPA could also require reductions and allocate NO_X allowances in a manner that would limit impacts on small entities. Finally, the use of cap-and-trade in general will limit impacts on small entities relative to a less flexible command-and-control program.

XIV.C Unfunded Mandates Act

XIV.C.1 Comment:
A commenter notes that EPA has proposed to establish an unfunded mandate for States that are included in the CAIR but have no nonattainment areas. This commenter also comments that under CAIR, the State of Iowa may be required to undertake significant work effort with no additional funding under section 105, while areas in nonattainment will receive additional funding while work to address their nonattainment issues are being at least partially completed by upwind states. The commenter suggests that EPA should restructure their Section 105 grant allocations to reflect the increased demand that this rule will put on State and local agencies meeting all of the NAAQS.

Response:
EPA has concluded that CAIR does not constitute an unfunded mandate. The obligation for a State to revise its SIP that arises out of Section 110(a) of the CAA is not legally enforceable by a court of law and at most is a condition for continued receipt of highway funds. Therefore, it is possible to view an action requiring such a submittal as not creating any enforceable duty within the meaning of Section 421(5)(9a)(I) of UMRA (2 U.S.C. 658 (a)(I)). Even if it did, the duty could be viewed as falling within the exception for a condition of federal assistance under Section 421(5)(a)(i)(I) of UMRA (2 U.S.C. 658(5)(a)(i)(I)). While not required for CAIR, EPA analyzed the economic impacts of CAIR on government entities for informational purposes and in anticipation of the proposed FIP.

This commenter is receiving federal 105 grant funds annually to address PM and ozone nonattainment issues in the State. This commenter could use those funds plus the State matching funds to cover CAIR SIP development and implementation. Other States that include nonattainment areas are similarly funded and are using those funds to address their PM and ozone program development and implementation issues.

XIV.C.2 Comment:
The commenter noted that the rule "poses a considerable threat to the other small fossil fuel-fired electric generating stations with less than 250 MW capacity that are not adequately presented in the analysis that EPA uses to support this rulemaking." The commenter recommends changes to the rule to protect small generators, and to allow for additional time to comment on this matter. The commenter also notes that generators under 250 MW will face pressure to shutdown if CAIR is implemented as EPA proposes, and that this would disrupt the national distribution of electricity.

The commenter also proposes an approach in which the rule is implemented in phases starting with the largest generating stations where emissions controls are most cost-effective.
APPA also writes that trading may increase the opportunity for marginal units to purhcase allowances rather than retrofit, but there are significant costs associated with monitoring, etc.

APPA believes that the final rule should allow States to make these determinations where the viability of a smaller utility is a concern.

Response:
CAIR would not establish specific requirements applicable to small entities. Instead, it would require States to develop, adopt, and submit SIP revisions that would achieve the necessary $_{NOx\ and\ SO2}$ reductions, leaving to States the task of determining how and by which entities these reductions will be obtained. Therefore, EPA has concluded that the requirements of SBREFA do not strictly apply to the CAIR rulemaking, However, EPA has conducted an analysis of the impacts of CAIR on small entities. This analysis is included in Chapter 8 of the Regulatory Impact Analysis.

EPA's analysis concludes that small entities would not be disproportionately affected under CAIR. First, only about 445 MW of total small entity capacity, or 1.0 percent of total small entity capacity in the CAIR region, is projected to be uneconomic to maintain under CAIR relative to the base case. To put these numbers in context, of all affected capacity under CAIR, about 5.3 GW (1.7 percent) of coal-fired capacity is projected to be uneconomic to maintain relative to the Base Case. This comparison suggests that small entities should not be disproportionately affected by CAIR. In practice, units projected to be uneconomic to maintain may be "mothballed," retired, or kept in service to ensure transmission reliability in certain parts of the grid. Our IPM modeling is unable to distinguish between these potential outcomes. While the commenter specifies that EGUs less than 250 MW in size will face pressure to shut down under CAIR, no supporting data or analysis is provided.

The two-phase design of the cap-and-trade program is intended to reduce the cost of CAIR to affected entities by allowing for ample time and flexibility to meet the emissions control requirements. Implementing the program in phases according to EGU size, however, would reduce some of the gains to be had by implementing a cap-and-trade program, which in theory minimizes compliance costs by equating marginal control costs across sources that would otherwise face very different marginal costs of control.

Additionally, EPA has cooperated with the National Association of Regulatory Utility Commissioners (NARUC) to develop a menu of policy options and financial incentives for encouraging improved environmental performance for generation. A survey of a number of States was conducted as part of this effort, and policies such as pre-approval statutes for compliance plans, state income tax credits, accelerated depreciation, and special treatment of allowance transactions were cited as examples of such policies. Such policies will ease some of the financial pressures of CAIR by providing greater regulatory certainty and lowering the effective costs of controls.

Two other points should be considered when evaluating the impact of CAIR, specifically, and cap-and-trade programs more generally, on small entities. First, under CAIR, the cap-and-trade program is designed such that States determine how $_{SO2}$ allowances are to be allocated across units. EPA notes in the RIA that a State that wishes to mitigate the impact of the rule on small

entities might choose to allocate $_{SO2}$ allowances in a manner that is favorable to small entities. Finally, the use of cap-and-trade in general will limit impacts on small entities relative to a less flexible command-and-control program.

XIV.D Compliance with Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

XIV.D.1 Comment:
The Northeast Environmental Justice Center and West Harlem Environmental Action want to ensure that there is clean air for all people.

Response:
In accordance with Executive Order 12898, the Agency has considered whether this rule may have disproportionate negative impacts on minority or low income populations. Because the Agency expects this rule to reduce air pollution and exposures generally, negative impacts to these sub-populations that appreciably exceed similar impacts to the general population are not expected. The EPA conducted the CAIR RIA, that is available in the docket to this rulemaking. The document is entitled "Regulatory Impact Analysis for the Final Clean Air Interstate Rule (March 2005)" Our benefit-cost analysis concludes that substantial net economic benefits to society are likely to be achieved as a result of the emissions reductions associated with this rulemaking. The results detailed in section X of the notice show that this rule will be highly beneficial to society, with annual net benefits by 2010 of approximately $71.4 +B or $60.4 + B billion, ($73.3 + B or $62.2 + B billion annual benefits compared to annual social cost of approximately $1.91 or $2.14 billion) and net annual benefits by 2015 of $98.5 or 83.2 billion ($101 + B or $86.3 + B billion in benefits compared to annual social costs of $2.56 or $3.07 billion). The alternative estimates provided relate to different discount rates with the higher net benefit estimates reflecting a 3 percent discount rate and the lower estimates a 7 percent discount rate. B reflects unquantified and unmonetized benefits of the rule. All estimates are stated in 1999 dollars. See the CAIR RIA for more details.

XIV.E. Compliance with Executive Order 13211: Actions that Significantly Affect Energy Supply, Distribution, or Use

XIV.E.1 Comment:
The impact of this rulemaking on the economy and the degree to which it impacts our sustainable energy future will be significant. We urge EPA to consider the relationship of this effort to this nation's energy objectives and policies on carbon intensity.
Response:
EPA has designed CAIR to reduce emissions while maintaining energy diversity and economic growth. For additional analysis on the broader macroeconomic impacts of CAIR, see Appendix E of the Final CAIR Regulatory Impact Analysis.

XIV.E.2 Comment:
Policies adopted in this rulemaking are likely to have a significant impact on national energy policy and the cost and availability of electricity (and natural gas) to U.S. manufacturers and consumers. Elements of this rulemaking are contrary to the stated national energy policy that promotes fuel diversity and energy national security.
Response:
The Clean Air Interstate Rule fulfills the commitments made in the National Energy Policy, which calls for environmental improvement and emissions reductions from the power sector while recognizing the need to maintain energy diversity and reliability as well as economic growth. CAIR is not projected to significantly impact fuel diversity or fuel prices. In fact, CAIR will maintain fuel diversity without greatly increasing electricity prices. For more detail regarding the impacts of CAIR, see the final CAIR Regulator Impact Analysis.

XIV.E.3 Comment:
EPA is encouraged to consider the impact of the proposed rule on the availability and diversity of fuels essential to providing a reliable long-term energy supply at the lowest cost to customers. In 2001, President Bush's efforts to establish a national energy policy recognized the need to balance energy, the economy and the environment. Acknowledging the significant impact regulations can have on the supply, distribution and use of energy, Executive Order 13211 was issued, requiring that agencies prepare a Statement of Energy Effects when undertaking certain agency actions that details any adverse effects on energy supply, distribution, or use (including a shortfall in supply, price increases, and increased use of foreign supplies) should the proposal be implemented. EPA's analysis under Executive Order 13211 concluded that this proposed rule may have a significant adverse effect on the supply, distribution, or use of energy. If States choose to obtain the emission reductions required by this rule by regulating EGUs, EPA projects that approximately 3100 megawatts of coal-fired generation may be retired earlier than the generation would have been retired absent today's proposed rule-making. The EPA projects that the average annual electricity price will increase by about 2 percent in 2010, and about 3 percent in 2015. Importantly, EPA relies upon a cap and trade program to 'ease the impact on energy production.'

Adopting a cap and trade program that penalizes new coal units, however, would likely increase

pressure on natural gas prices. Demand for electricity has continued to grow and the demand is expected to continue to grow. According to the Energy Information Administration, U.S. natural gas consumption rose 11 percent from 1992 to 2002; electric utility demand for natural gas accounted for 93.6 percent of the entire U.S. net increase. Natural gas prices have increased due to both increased demand and flat production. Utilization of an output based conversion factor that encourages gas-fired combined cycle generation in favor of coal-fired generation will exert further upward pressure on demand and price of natural gas as companies seek viable ways to meet the electricity demands of their customers. Implementation of a cap and trade system with conversion factors for each fuel type would alleviate some of these pressures by allowing companies to reduce their emissions where they are most economic while not unduly affecting the decisions on the type of generation.

Response:

The Clean Air Interstate Rule fulfills the commitments made in the National Energy Policy, which calls for environmental improvement and emissions reductions from the power sector while recognizing the need to maintain energy diversity and reliability as well as economic growth. The cap and trade approach is the most cost-effective way to reduce emissions over a broad geographic area because it provides flexibility to sources to find the cheapest way to reduce emissions. Looking at the existing Title IV SO_2 trading program, emissions and acid rain have been greatly reduced at a cost well below what EPA originally projected without significant impacts to fuel markets. CAIR is not projected to significantly impact fuel diversity or fuel prices either. In fact, CAIR will maintain fuel diversity without greatly increasing electricity prices. In addition, the most recent analysis of CAIR indicates that there will be additional coal-fired capacity built to meet electricity demand. For more detail regarding the impacts of CAIR, see the final CAIR Regulator Impact Analysis.

XIV.E.4 Comment:

The final IAQR must support the continued and increased use of all coal types for electric power generation. Coal is the most abundant and inexpensive domestic energy-providing natural resource in the United States. Coal-fired generation provides approximately 37 percent of Texas' electricity. Coal must be maintained and expanded as a viable energy source, or natural gas will increasingly become more expensive and potentially less readily available for homeowners, industrial facilities and electric generators. Accordingly, the final rule must be consistent with this economic and energy imperative.

The final IAQR must not aggravate the already precarious natural gas supply and price situation. Sustained natural gas prices are a significant economic challenge to business, especially small businesses. These high natural gas prices are undermining U.S. economic recovery and pushing jobs offshore in gas-dependent industries and are increasing the cost of electricity in several regions of the U.S. During the late 1990's, the historic surplus of natural gas disappeared due to a growing economy, governmental access restrictions to large gas deposits onshore and offshore and clean air regulations encouraging electric generators to use natural gas instead of coal. By 2000, spot market prices soared and the average annual price for gas more than doubled. The industrial sector, unable to pass through costs, was hit hard.

U.S. natural gas production is not keeping pace with the demands of a growing population and a slowly recovering economy. This crisis, brought on partly by national policies encouraging the use of natural gas while discouraging its domestic production, makes clear the need for the United States to maintain a diverse fuel supply and provide adequate domestic production of energy.

Response:

The Clean Air Interstate Rule fulfills the commitments made in the National Energy Policy, which calls for environmental improvement and emissions reductions from the power sector while recognizing the need to maintain energy diversity and reliability as well as economic growth. The cap and trade approach is the most cost-effective way to reduce emissions over a broad geographic area because it provides flexibility to sources to find the cheapest way to reduce emissions. Looking at the existing Title IV SO_2 trading program, emissions and acid rain have been greatly reduced at a cost well below what EPA originally projected without significant impacts to fuel markets. CAIR is not projected to significantly impact fuel diversity or fuel prices either. In fact, CAIR will maintain fuel diversity without greatly increasing electricity prices. In addition, the most recent analysis of CAIR indicates that there will be additional coal-fired capacity built to meet electricity demand. For more detail regarding the impacts of CAIR, see the final CAIR Regulator Impact Analysis.

XIV.E.5 Comment:

The EPA acknowledges in the proposed IAQR that this rule will force a significant number of electricity generators to prematurely retire. These forced shutdowns will come primarily if not exclusively from the ranks of the Small Generators. The IAQR did not adequately consider the disproportionate effect of the loss of Small Generators and the consolidation of our electric generating capacity in fewer and larger generating stations.

Small Generators provide many key benefits to the regional power supply grid that will likely disappear should the IAQR fail to provide needed relief. Small Generators that are geographically dispersed provide reactive power (MVAR), which supplies critical voltage support across the lines where real power (MW) is transferred. Local generators also serve a critical role in the diversification of generating capacity, thus increasing the reliability of electricity supply. Small EGU capacity helps protect the economy by providing important peak production capacity thus softening those price spikes.

Response:

The Clean Air Interstate Rule fulfills the commitments made in the National Energy Policy, which calls for environmental improvement and emissions reductions from the power sector while recognizing the need to maintain energy diversity and reliability as well as economic growth. The cap and trade approach is the most cost-effective way to reduce emissions over a broad geographic area because it provides flexibility to sources to find the cheapest way to reduce emissions. Looking at the existing Title IV SO_2 trading program, emissions and acid rain have been greatly reduced at a cost well below what EPA originally projected without significant impacts to fuel markets. CAIR is not projected to significantly impact fuel diversity or fuel prices either. In fact, CAIR will maintain fuel diversity without greatly increasing electricity prices. In addition, the

most recent analysis of CAIR indicates that there will be additional coal-fired capacity built to meet electricity demand. For more detail regarding the impacts of CAIR, see the final CAIR Regulator Impact Analysis.

XIV.E.6 Comment:
In the context of the transport rule, EPA is proposing a rule that will cost consumers of TVA electricity billions of dollars for additional controls on a utility system that is already well-controlled and becoming better controlled. It is important that EPA does this in as cost-effective manner as possible. The public's ability to continue to bear such large costs is limited.

Response:
The Clean Air Interstate Rule fulfills the commitments made in the National Energy Policy, which calls for environmental improvement and emissions reductions from the power sector while recognizing the need to maintain energy diversity and reliability as well as economic growth. The cap and trade approach is the most cost-effective way to reduce emissions over a broad geographic area because it provides flexibility to sources to find the cheapest way to reduce emissions. Looking at the existing Title IV SO_2 trading program, emissions and acid rain have been greatly reduced at a cost well below what EPA originally projected without significant impacts to fuel markets. CAIR is not projected to significantly impact fuel diversity or fuel prices either. In fact, CAIR will maintain fuel diversity without greatly increasing electricity prices. In addition, the most recent analysis of CAIR indicates that there will be additional coal-fired capacity built to meet electricity demand. For more detail regarding the impacts of CAIR, see the final CAIR Regulator Impact Analysis.

XIV.E.6 Comment:
The commenter asserts the proposed rule will have a significant impact on its ability to provide reliable and affordably priced electricity to its customers. The EPA estimate of a 3 percent increase in national electricity prices would have a significant negative impact on the ability of manufacturing and heavy industry to compete in a global marketplace. For many of these businesses, electricity is a significant portion of the cost to manufacture a product. To the extent that additional manufacturing and industrial employment will be lost due to higher electric prices, this rulemaking will have a negative impact on both human health and the environment. The company believes the human and environmental costs attached to this rulemaking are both real and significant and that this issue has not been fully addressed. The company believes EPA should revise the cost-benefit study based on electric price increases that are specific to each industrial area, so as to evaluate these impacts.
Response:
The Clean Air Interstate Rule fulfills the commitments made in the National Energy Policy, which calls for environmental improvement and emissions reductions from the power sector while recognizing the need to maintain energy diversity and reliability as well as economic growth. The cap and trade approach is the most cost-effective way to reduce emissions over a broad geographic area because it provides flexibility to sources to find the cheapest way to reduce emissions. Looking at the existing Title IV SO_2 trading program, emissions and acid rain have been greatly

reduced at a cost well below what EPA originally projected without significant impacts to fuel markets. CAIR is not projected to significantly impact fuel diversity or fuel prices either. In fact, CAIR will maintain fuel diversity without greatly increasing electricity prices. In addition, the most recent analysis of CAIR indicates that there will be additional coal-fired capacity built to meet electricity demand. EPA has also conducted macroeconomic analysis that shows that impacts to the entire U.S. economy are extremely small relative to GDP and more specifically, that the impacts to the manufacturing sector are such that we do not anticipate the industry to be adversely affected by CAIR. For more detail regarding the impacts of CAIR, see the final CAIR Regulator Impact Analysis.

XIV.E.7 Comment:
With natural gas supplies being questionable and natural gas prices at high levels, it is imperative that the final rule does not inhibit or prevent the continued or increased utilization of coal or coal types for electric power generation. Texas has a large reserve of lignite that is an asset to the state, and the nation and this asset must be preserved.
Response:
The Clean Air Interstate Rule fulfills the commitments made in the National Energy Policy, which calls for environmental improvement and emissions reductions from the power sector while recognizing the need to maintain energy diversity and reliability as well as economic growth. The cap and trade approach is the most cost-effective way to reduce emissions over a broad geographic area because it provides flexibility to sources to find the cheapest way to reduce emissions. Looking at the existing Title IV SO_2 trading program, emissions and acid rain have been greatly reduced at a cost well below what EPA originally projected without significant impacts to fuel markets. CAIR is not projected to significantly impact fuel diversity or fuel prices either. In fact, CAIR will maintain fuel diversity without greatly increasing electricity prices. In addition, the most recent analysis of CAIR indicates that there will be additional coal-fired capacity built to meet electricity demand. For more detail regarding the impacts of CAIR, see the final CAIR Regulator Impact Analysis.

XIV.E.8 Comment:
This commenter is concerned that portions of the proposed rule will potentially impact the ability of power suppliers to provide low-cost and/or reliable electricity.
Response:
The Clean Air Interstate Rule fulfills the commitments made in the National Energy Policy, which calls for environmental improvement and emissions reductions from the power sector while recognizing the need to maintain energy diversity and reliability as well as economic growth. The cap and trade approach is the most cost-effective way to reduce emissions over a broad geographic area because it provides flexibility to sources to find the cheapest way to reduce emissions. Looking at the existing Title IV SO_2 trading program, emissions and acid rain have been greatly reduced at a cost well below what EPA originally projected without significant impacts to fuel markets. CAIR is not projected to significantly impact fuel diversity or fuel prices either. In fact, CAIR will maintain fuel diversity without greatly increasing electricity prices. In addition, the

most recent analysis of CAIR indicates that there will be additional coal-fired capacity built to meet electricity demand. For more detail regarding the impacts of CAIR, see the final CAIR Regulator Impact Analysis.

XIV.E.9 Comment:
The American Council for an Energy-Efficient Economy recommends that EPA both allow and actively encourage states and other parties to use energy efficiency, at the end use and in combined heat and power technology, to help meet the goals of the proposed rule. Energy efficiency can add substantial net economic benefits, and is consistent with the rule's intent to increase states' flexibility in meeting its emission reduction targets. Efficiency measures have been explicitly encouraged in previous EPA rules and policies, including the Title IV Acid Rain program as mandated by the Clean Air Act Amendment of 1990, and the NOx SIP Call of 1998. We urge EPA to provide further guidance and support for state inclusion of energy efficiency measures in their SIPs under the current proposed rule.

[[A review of the historical role of energy efficiency in U.S. Clean Air Policy is provided in the comment along with a list of references.]]
Response:
The Clean Air Interstate Rule fulfills the commitments made in the National Energy Policy, which calls for environmental improvement and emissions reductions from the power sector while recognizing the need to maintain energy diversity and reliability as well as economic growth. The cap and trade approach is the most cost-effective way to reduce emissions over a broad geographic area because it provides flexibility to sources to find the cheapest way to reduce emissions. In addition, cap and trade promotes energy efficiency because of the additional cost of emitting pollution. The power sector will look to meet the emission reductions by operating units in the most effective way, which will lead to efficiency improvements. Looking at the existing Title IV SO_2 trading program, emissions and acid rain have been greatly reduced at a cost well below what EPA originally projected without significant impacts to fuel markets. CAIR is not projected to significantly impact fuel diversity or fuel prices either. In fact, CAIR will maintain fuel diversity without greatly increasing electricity prices. In addition, the most recent analysis of CAIR indicates that there will be additional coal-fired capacity built to meet electricity demand. For more detail regarding the impacts of CAIR, see the final CAIR Regulator Impact Analysis.

XIV.E.10 Comment:
To be successful, the IAQR must also be consistent with maintaining a viable and affordable fuel mix for running the entire economy, including the manufacturing sector. This country cannot afford rules that add uncertainty to investment decisions, constrain productivity or conflict with sound economic and energy policies.

The IAQR must support reliable and affordable electric generation: The final IAQR must be consistent with the need for reliable and affordable electric power, including affordable use of all coal types and options for efficient on-site power generation such as combined heat and power (CHP). Energy prices have been identified by the NAM as one of the significant competitive

disadvantages facing U.S. manufactures in the world marketplace. During the late 1990s, the historic surplus of natural gas disappeared due to a growing economy, governmental access restrictions to large gas deposits onshore and offshore and clean air regulations that encouraged electric generators to build almost all new capacity to use natural gas. By 2000, spot market prices soared and the average annual prices for gas have continued to be more than double the average natural gas prices of the 1990's.

The manufacturing sector, unable to pass through costs, has been hit hard. U.S. natural gas production is not keeping pace with the demands of a growing population and a slowly recovering economy. Due to the current supply/demand imbalance, domestic natural gas prices are substantially higher than the equivalent prices paid by most foreign manufactures. These high natural gas prices are undermining U.S. economic recovery and pushing jobs offshore in gas-dependent industries and are increasing the cost of electricity in several regions of the U.S.

In addition, electricity prices being paid by U.S. manufacturers are continuing to rise due not only to high natural gas prices, but also the ever-increasing burden of CAA regulations on the power generation sector. During the past dozen years, CAA regulations have played a major role in pushing electric generators to build natural gas units instead of new coal units. Yet, coal is the most abundant and inexpensive domestic energy-providing natural resource in the United States. Coal-fired generation still provides approximately 52 percent of the nation’s electricity, with no other energy source able to replace it in the near-term.

Accordingly, coal must be maintained and expanded as a viable and affordable energy source if we are to keep natural gas from becoming increasingly more expensive and potentially less readily available for homeowners, manufacturers and electric generators. The final IAQR must not aggravate the already precarious natural gas supply and price situation by allowing the market to select coal-fired generation for new electricity capacity, as well as avoiding any wholesale switching from existing coal-fired generating capacity to natural gas. The United States must maintain a diverse fuel supply that includes affordable coal options if the economy is to continue to rebound and prosperity is to continue.

This commenter believes that a diverse fuel supply is imperative to the health of our country. Cheap, affordable electricity that is created in an environmentally friendly manner forms the cornerstone for our country’s economy and creates a healthy society. Lignite coal is a vital part of this diverse fuel supply.

Coal and the low-cost electricity it provides are vital to the reliability of the U.S. electric supply system, and to the economic vitality of the U.S. economy. Coal production and related electric generation account for some hundreds of billions of dollars of U.S. gross domestic output, over a hundred billion dollars of annual household income, and million jobs.

The commenter is committed to the long-term goal of utilizing U.S. coal resources on a zero- or near-zero emissions basis. Through projects such as FutureGen , a cooperative government-

industry effort to produce a new generation of environmentally-benign electric generation technologies, the U.S. will position itself to expand its utilization of its domestic energy resources while reducing our dependence on imported energy.

Response:
The Clean Air Interstate Rule fulfills the commitments made in the National Energy Policy, which calls for environmental improvement and emissions reductions from the power sector while recognizing the need to maintain energy diversity and reliability as well as economic growth. The cap and trade approach is the most cost-effective way to reduce emissions over a broad geographic area because it provides flexibility to sources to find the cheapest way to reduce emissions. Looking at the existing Title IV SO_2 trading program, emissions and acid rain have been greatly reduced at a cost well below what EPA originally projected without significant impacts to fuel markets. CAIR is not projected to significantly impact fuel diversity or fuel prices either. In fact, CAIR will maintain fuel diversity without greatly increasing electricity prices. In addition, the most recent analysis of CAIR indicates that there will be additional coal-fired capacity built to meet electricity demand and nationwide coal production for electricity generation will increase by roughly 25 percent from today's levels. For more detail regarding the impacts of CAIR, see the final CAIR Regulator Impact Analysis.

XV. OTHER COMMENTS.

XV.A. Public comment period

XV.A.1.
Comment:
On January 30,2004, EPA published a proposed rulemaking on reducing interstatetransport of fine particulate matter and ozone(Interstate Air Quality Rule). 69 Fed. Reg. 4566.The comment period on this proposal ends on March 30,2004. We request a 60-day extensionto the comment period and request that EPA immediately place the data upon which the proposalis based in the public docket.New Hampshire wishes to have the opportunity to fully participate in the rulemakingprocess for this complex proposal, which comprises more than three hundred pages in theFederal Register. However, the emissions data relied upon by EPA for the air quality modeling has not been made available for review. Without this data, it is impossible for the state to fully evaluate the proposal or to provide informed comment.Therefore, wc respectfully request that EPA extend the comment period for at least 60days after all data and information supporting the proposal is placed into the public docket.

Response: See response below.

XV.A.2.
Comment:
The process EPA is pursuing to move this rulemaking forward does not allow for timely sharing of data that has gone into the development of the proposal nor thoughtful consideration and incorporation of comments provided by the states that have extensive experience in implementing programs for this sector: the states that will ultimately be left with the responsibility of seeking additional reductions to achieve air quality that meets the health based federal air standards. [[(p.8)]]

This rule is extremely important, and we do not wish to delay a final promulgation of a strong rule that appropriately addresses interstate transport of pollutants. At the same time, we want to avoid review and comment on a proposed rule that is significantly clarified and perhaps even significantly modified a few weeks later. Toward this end, we requested an extension of this comment period to encompass the actual release of rule language and a reasonable period thereafter. It appears that that request is not being granted, so we are providing these comments now. [[(p.8)]]

Response: See response below.

XV.A.3.
Comment:
Tennessee requests that the comment period be extended for the following reasons:

a. Due to apparent discrepancies in the emissions inventory, comment should be extended until after EPA has re-proposed this rule based upon modeling conducted using a sound emissions inventory.

b. Alternatively, the comment period should be extended for an additional 60 days due to the complexity and sheer volume of the information EPA has relied upon as evidenced by the supporting materials contained in the docket. [[(p.1)]]

Response: See response below.

XV.A.4.
Comment:
It is difficult, if not impossible to provide meaningful, substantive comment without the complete rule package and supporting information and data. The MPCA requests that the public comment period for this rule be extended, at a minimum, to 90 days after the publication of the supplemental notice of proposed rulemaking, or to 90 days after all the critical data and information used to develop and support the rule is made available for review, whichever is later. The current method of providing disjointed public comment periods on specific subsections of the complete rulemaking package and without making all supporting data and information available does not allow for a comprehensive review of the proposal. It also does not allow parties to analyze the costs, reductions and expected benefits of the proposal in their states to be able to comment on whether the proper balance of cost and environmental benefit is achieved in the final rule. [[(p.2)]]

Response: See response below.

XV.A.5.
Comment:
The comment period for any relevant portion of the Interstate Air Quality Rule (IAQR) be extended until 60 days after the availability of additional modeling with corrected emissions inventories. At the minimum, the comment period for the IAQR proposal be extended until the end of the comment period for any supplemental proposals. [[(p.2)]]

Response: See response below.

XV.A.6.
Comment:
In order to allow for adequate time to review the proposal, we request a 30-day extension of the comment period. We presume that EPA is making every effort to provide these emissions data in a timely manner; and if there are further delays, we expect EPA would take into consideration those delays in setting the extended date for comments. [[(p.1)]]

XV.A.7.
Comment:

Due to the significant discrepancies of the emissions inventory, comment should be extended until after EPA has re-proposed this rule based upon modeling conducted using a sound emissions inventory. [[(p.2)]]

Alternatively, the comment period should be extended for an additional 60 days due to the complexity and sheer volume of the information EPA has relied upon as evidenced by the supporting materials contained in the docket. [[(p.2)]]

Response: See response below.

XV.A.8.
Comment:
We are extremely concerned about the appropriateness of a 60-day comment period when EPA has not provided the states with the technical analyses necessary for us to adequately assess the rule in a timely manner. On February 12,2004 a NESCAUM state requested the emission files used in EPA's IAQR modeling (e.g., the emissions for the 2015 future base case and IAQR cases). These were not made available until March 5,2004. It would have been useful if EPA had also provided any detailed emission summaries and modeled concentration results. Also missing were individual modeling result analyses and detailed graphic plots that are typically generated as an order of business. Currently, only the meteorology and biogenic emissions are posted to EPA's regional modeling center website, and a very general (non-detailed) analysis summary was posted on the EPA IAQR website. Neither gives us enough detail to perform any kind of meaningful analysis. [[(0941, p.2)]]

The purported March 30,2004 close of comments on this notice of proposed rulemaking should not foreclose comments on any issues that are related to the forthcoming proposed regulatory text (which, we understand, will be released as a supplemental notice of proposed rulemaking), even if set forth only in this notice of proposed rulemaking. Similarly. Any comments submitted today, if related to the supplemental notice of proposed rulemaking, should be deemed to be comments on that rulemaking as well. [[(0941, p.3)]]

Response:
EPA provided a 60-day comment period ending on March 30, 2004 after publication of the NPR. Due to the limitations of the e-docket system, EPA was unable to make the emissions data for the air quality modeling, in which these commenters expressed interest, available directly through the e-docket system. On March 3, EPA included in the e-docket a description of the emission data and instructions on how to download the data electronically from a publicly available internet file transfer protocol (FTP) site. An electronic copy of the data was also available on a disk drive in the Air Docket in Washington, DC. EPA also made the data available through other means since the beginning of the comment period. In the preamble for the rulemaking proposal, EPA included phone numbers and addresses for the people responsible for the various aspects of the proposal so that, if necessary, the public could contact EPA about particular issues. After publication of the proposal, we received several requests for these emission data. We promptly fulfilled all of the

requests either by mailing the data to the requestor or, for later requests, by providing access to the data from an FTP site. In addition, around the time of proposal, the underlying unit-level electric generating unit emissions data for the air quality modeling were placed in the docket and posted on EPA's Integrated Planning Model web site, which is a link from the Interstate Air Quality Rule web site. The Air Quality Modeling Technical Support

Document for the Proposed Interstate Air Quality Rule (Modeling TSD), which was **available in** the docket when the proposal was published, provides emissions summaries and totals by State, by emission sector and pollutant type for each scenario that we modeled.

Because we made the emissions data available to all requesters since the comment period opened in January, there was adequate opportunity for evaluation of the data. Therefore, EPA decided it was not necessary to extend the comment period on the proposed rule. In addition, we provideda new comment period for issues that were addressed in a supplemental proposal for CAIR. This provided an opportunity for comment on emissions inventories for air quality modeling as they relate to the supplemental proposal, including updated information. See also other responses in this section of the RTC as well as Section I. of the CAIR NFR preamble regarding the adequacy of the comment period generally.

XV.A.10.
Comment:
DES can only make preliminary comments since EPA has decided not to grant the extension of the comment period requested by New Hampshire. In order for DES to make final comments on this proposed rule DES will need at least 60 days after the proposed regulatory language and all data and information supporting the proposed IAQR are published in the Federal Register and placed into the public docket. [[(p.1)]]

EPA should have published an Advanced Notice of Public Rulemaking (ANPR) in January 2004 instead of the proposed rule since specific regulatory language and necessary supporting documentation was not ready for public review at that time. Issuing a notice of supplemental rulemaking (SNPR at a later date will only further complicate this rulemaking process especially for a proposal as complicated as the IAQR. EPA's current method of seeking comments on conceptual frameworks with a mix-and-match of possible options creates confusion and deprives the states and the public of adequate review and comment opportunities. We believe that EPA should have issued this proposal as an ANPR. [[(p.1)]]

Response: See response below.

XV.A.11.
Comment:
EPA Should Re-Open the Comment Period on All Issues When Regulatory Language is Proposed: The IAQR proposal contains only a preamble discussion, rather than proposed regulations.

However, EPA indicates that it will be issuing a supplemental notice of proposed rulemaking that will contain regulatory language in addition to the proposed cap-and-trade program. Southern urges EPA to allow additional comment on all issues, not only trading program issues, when the SNPR is published. [[Docket number 1071, p. 20]]

XV.A.12.
Comment:
EPA Must Reopen the Comment Period on All Issues When It Proposes Regulatory Language:

The IAQR proposal contains no proposed regulatory text. Because the wording of regulatory text is the 'law' that will actually govern, that text is critical to understanding the true intent and interpretation of the preamble that has been released. The regulatory text may or may not be written in a way that properly reflects the legal, technical, and policy positions taken in the preamble. Thus, EPA must propose that text and allow comment on it.

When it does propose that text, the text will embody proposed decisions on all issues raised in the preamble. As a result, comments on the text must be allowed to address all issues raised in the preamble. This is true even if the comment period for the preamble has already ended. (If EPA does not like this result, it should propose regulatory language with the preamble.)

In summary, EPA must propose the regulatory text for the IAQR and allow comment on it. At that time, comment will be appropriate on all issues raised in the preamble, even if (as will be the case here) the comment period on the preamble has ended. [[p. 61]]

Response: See response below

XV.A.13.
Comment:
We are disappointed that EPA did not honor STAPPA/ALAPCO's request to provide an overall comment period that encompassed both the January 30th proposal and the forthcoming Supplemental Notice of Proposed Rulemaking (SNPR). It would simply make good sense for EPA to provide a comment period that allows commenters to consider and comment on the January 30th proposal and the SNPR (which will include the regulatory text to actually implement the rule) as a complete package. While we are submitting this letter to comply with the March 30th deadline, we reserve the right to modify or expand upon these in our future response to the SNPR. [[(pp.1-2)]]

Response: See response below.

XV.A.14.
Comment:

We hope that there will be ample opportunity for review and comment on the proposed regulatory language for the IAQR as well as any new details of the proposed program contained in the supplemental notice of proposed rulemaking when it is unveiled sometime in April. [[(p.7)]]

Response: See response below.

XV.A.15.
Comment:
SUPPLEMENTAL NOTICE OF PROPOSED RULEMAKING: Some of the details in the Interstate Air Quality Rule will not be available until after the public comment period closes, when EPA issues its supplemental notice of proposed rulemaking. The IAQR proposal contains no proposed regulatory text. Because the wording of regulatory text is the 'law' that will actually govern, that text is critical to understanding the true intent and interpretation of the preamble that

has been released. The regulatory text may or may not be written in a way that properly reflects the legal, technical, and policy positions taken in the preamble. Thus, EPA must propose that text and allow comment on it.

When it does propose text, that language will embody proposed decisions on all issues raised in the preamble. As a result, comments on that text must be able to address all issues raised in the preamble. This is true even if the comment period for the preamble has already ended. Hence, EEI requests that EPA consider reopening the public comment period for the preamble language concurrent with the public comment period for the SNPR. [[p. 30]]

Response: See response below.

XV.A.16.
Comment:
We recommend that, when the regulatory text is proposed, EPA must allow for comment on all issues that pertain to the IAQR. [[(0696, p.7)]]

Response: See response below.

XV.A.17.
Comment:
As previously noted, many of the IAQR details are not yet available - most notably the proposed regulatory text, which will not be available until after this public comment period closes and EPA issues its supplemental notice. As a result, we urge EPA to re-open all comments relative to the IAQR proposal upon issuance of the supplemental notice, because regulatory language is ultimately what dictates rule implementation and compliance. [[p.11]]

Response: See response below.

XV.A.18..
Comment:
Since EPA has only published the preamble to the IAQR and the text of the rule may provide clarity to its implementation issues, EPA should allow comment on all issues raised in the preamble. [[(p.4)]]

Response: See response below.

XV.A.19.
Comment:
We reserve the right to present additional comments on issues addressed below and on other issues raised in the Supplemental Notice of Proposed Rulemaking, which EPA indicates will include regulatory text related to this proposal and a proposed trading program. [[(1172, p.1)]]

Response: See response below.

XV.A.20.
Comment:
EPA Must Reopen the Comment Period On All Issues When It Proposes the Regulatory Text of the IAQR. [[(p.5)]]

EPA must allow comment when it proposes the regulatory text that corresponds to this preamble. At that time, comment will be appropriate on all issues raised in the preamble, even if the comment period on the preamble has ended and even if that text embodies decisions made by EPA in the interim, i.e., the time between proposal of such regulatory text and the proposal of this preamble. [[(pp.5-6)]]

Response:
EPA provided draft regulatory text in the SNPR and took comment on the text at that time. While EPA did not explicitly reopen comment on issues raised in the NPR EPA reviewed and has responded to all such comments in the preamble to the NFR or this RTC. See also other responses in this section of the RTC as well as Section I. of the CAIR NFR preamble regarding the adequacy of the comment period generally and response in RTC Section XV.B. regarding providing regulatory text.

XV.A.21.
Comment:
The Department believes that EPA should have extended the public comment period for the IAQR so that the Supplemental Notice of Proposed Rulemaking (SNPR) for the Cap and Trade Program could be considered at the same time. We believe it is necessary to review the IAQR and the SNPR together in order to make a valid assessment of the program. [[(p.1)]]

Response: See response below.

XV.A.22.
Comment:
EPA has included key components of its model cap and trade program reserving the details for inclusion in the Supplemental Notice of Proposed Rulemaking (SNPR). Given that details will only be available after publication of the SNPR, EPA must reopen the comment period on all IAQR issues during its public comment period. [[p.4]]

Response: See response below.

XV.A.23.
Comment:
Given that a review of the entire proposed program, including the yet-to-be-released model cap-and-trade program, is necessary to effectively assess and provide meaningful comment on the program contemplated, TLC requests that EPA provide the opportunity to comment on all aspects of the program after any supplemental proposals are issued. EPA has indicated that the May 2004 supplemental proposals will include a model trading program for states. Accordingly, the TLC requests that EPA reopen the public comment period when EPA publishes the model trading program. [[(1037, p.13)]]

Response: See response below.

XV.A.24.
Comment:
EPA should extend the public comment period for the IAQR through the end of comment period established for the Supplemental Notice of Proposed Rulemaking (SNPR).

Although key considerations of the model cap and trade program are included, EPA has committed to provide a detailed description of the proposed model cap and trade program in the SNPR due out in May 2004. Many of the issues in this proposal will be interrelated to issues in the SNPR. Therefore it is only appropriate that EPA extend the public comment period for the IAQR through the end of comment period established for the SNPR. [[p.11]]

Response: See response below.

XV.A.25.
Comment:
MDU requests additional comment period for Ozone regulation, if additional states are modeled to show significant impact. [[p. 1]]

Montana-Dakota Utilities Co. is concerned that the modeling for upwind impacts in ozone nonattainment areas has not been completed for many upwind states, including North and South

Dakota. Montana-Dakota Utilities Co. feels it is wholly inappropriate that EPA would publish a rule for which the impact analysis is not completed. Montana-Dakota Utilities Co. requests that an additional comment period be opened, if upon completion of ozone impact modeling, additional states are shown to have an significant impact to nonattainment areas and are thus subject to proposed regulation. [[pp. 1-2]]

MDU requests extension to comment period.: EPA has indicated that it expects to publish, in April or May 2004, a detailed description of the proposed model cap and trade program in a Supplemental Notice of Proposed Rulemaking (SNPR) to the IAQR. While some discussion of the model cap and trade program is included in the January 30, 2004, proposed rule, Montana-Dakota Utilities Co. feels that, because the cap-and-trade program is such a major portion of the rule, the public comment period for the IAQR be extended through the public comment period that will be subsequently published with the SNPR. [[p. 4]]

Response: See response below.

XV.A.26.
Comment:
EPA Must Reopen the Public Comment Period on All Issues When Regulatory Language is Proposed in the SNPR (69 FR 4566) - The proposed IAQR indicates that EPA intends to propose the model cap and trade program rules in a future SNPR rulemaking action. Due to the importance of the content of the more detailed information that will be included in the SNPR, and its impact on the actual implementation of the IAQR, it is important that commentors are able to re-evaluate the combined initial and supplemental rules, and be allowed to comment on both proposals during the SNPR comment period. We therefore request that EPA accept comments during the SNPR comment period that are related to the IAQR proposal that we are commenting on today. [[p.4]]

Response:
EPA provided draft model trading rule text in the SNPR and took comment on the text at that time. While EPA did not explicitly reopen comment on issues raised in the NPR EPA reviewed and has responded to all such comments in the preamble to the NFR or this RTC. See also other responses in this section of the RTC as well as Section I. of the CAIR NFR preamble regarding the adequacy of the comment period generally and response above as well as response in RTC Section XV.B. regarding providing regulatory text.

XV.A.27.
Comment:
We are writing to request an extension of the comment period on the Interstate Air Quality Rule (IAQR) proposed on January 30, 2004. Specifically, we request that the comment period remain open until 45 days following publication of the Supplemental Notice of Proposed Rulemaking (SNPR) in the Federal Register, which we understand is expected sometime in late April. [[(p.1)]]

We understand that the forthcoming SNPR will contain additional information on how the agency

intends to implement the IAQR. It is essential that EPA provide for a comment period that allows commenters to consider and comment on the January 30th proposal and the SNPR as a complete package. Accordingly, we recommend that the comment period on the IAQR remain open until 45 days following publication of the SNPR in the Federal Register. [[(p.1)]]

STAPPA and ALAPCO believe strongly that a transport rule should be issued expeditiously. Our request for a single comment period should not delay publication of the final rule since we are not requesting that the final comment deadline be extended, but rather that the agency keep open the comment period on the January 30th proposal while comments on the SNPR are accepted, to allow commenters time to analyze and comment on the rule as a whole, in one coherent document, rather than submit seriatim comments. [[(p.1)]]

The proposed IAQR is linked to EPA's mercury proposal, also published on January 30, 2004 (Proposed Rule to Control Emissions of Hazardous Air Pollutants from Utilities (Utility Mercury Rule) (69 Federal Register 4652, Docket ID No. OAR 2002-0056)). EPA published a supplemental notice regarding the Utility Mercury Rule on March 16, 2004 and will be holding a hearing on March 31, 2004. Given the new information on the mercury rulemaking and its linkage to the IAQR, commenters should be given additional time to consider this information in formulating their comments. [[(p.1)]]

EPA has yet to post the technical information necessary to evaluate the proposal on EPA's web site. In addition, EPA requested that commenters provide any cost or control information available on non-EGU sources, and we would like to provide detailed cost and effectiveness information on local controls; additional time is needed to compile this information. [[(p.1)]]

Response:
See response below as well as response above regarding availability of technical data.

XV.A.28.
Comment:
The Ozone Transport Commission (OTC) suggests and respectfully requests that the Environmental Protection Agency (EPA) extend the comment period on the above referenced matter. We recommend the comment period remain open until 45 days following publication of the Supplemental Notice of Rulemaking in the federal register, which we understand is expected sometime in April. [[(p.1)]]

Commenting on this rule as part of a multi-pollutant proposal means we are now committed to evaluate and consider what the appropriate mercury control and reductions are in light of IAQR provisions, and vice-versa. As the mercury supplemental rule comment period has been extended until April 30, 2004, it makes sense to extend the IAQR comment period, and to keep these comment periods tracking together as much as possible. Our mercury comments would ideally be integrated into our evaluation of the effectiveness of the IAQR and OTC's proposed alternative.

Separating the comment periods means we will need to address much of the basis for our comments separately and redundantly. [[(pp.1-2)]]

We believe advancement of the IAQR would be best served by a continuation of the comment period to give EPA the time it needs to post all relevant information, and to give us the time we need to provide one comprehensive, meaningful response. [[(p.2)]]

Please know we believe this rule to be extremely important. We are appreciative of EPA's efforts on it. We do not wish to delay a final promulgation of a strong rule that appropriately addresses interstate transport of pollutants, and at the same time we want to avoid review and comment on a proposed rule that is significantly clarified and perhaps even significantly modified a few weeks later. [[(p.2)]]

Response: See response below.

XV.A.29.
Comment:
The comment period for both the IAQR and the Mercury proposals should be formally extended to allow additional review and comment on a) the vet to be released IAQR trading: program language; and b) the interaction between the IAQR and the proposed Mercury rules. [[(p.1)]]

Since the above set of proposed rules will simultaneously address several pollutants, EPA should allow additional time for potentially affected parties to review and comment on the complete set of rules. The IAQR, including the yet to be proposed supplemental language addressing the trading program for the IAQR, and the Mercury proposal, should be addressed as a complete package and must be coordinated to provide for efficient use of resources for both the review and implementation of the emission control program. Since this will likely be he largest single investment in air pollution control companies will make, the governing regulations must include an approach that will provide for cost effective reductions and achieve the environmental goals while still providing affordable energy products to US consumers and industry. [[(pp.1-2)]]

Response:
These comments focused primarily on the need to expand the comment period on CAIR due to parallel proceedings on the mercury rule. Although EPA has coordinated the development of these two rulemakings, legally decisions in CAIR were not dependent on decisions on mercury. As reflected in letters to several of these commenters, EPA concluded that issues that these commenters raised regarding the mercury proposal did not provide a meaningful basis for extending the comment period on CAIR. See also other responses in this section of the RTC as well as Section I. of the CAIR NFR preamble regarding the adequacy of the comment period generally.

XV.A.30

Comment:
The Department requests that the comment period be extended. We base this request on the volume and complexity of the technical information that EPA used as supporting documentation for rule development. [[(p.1)]]

Response: See response below.

XV.A.31.
Notes:
Also see related docket numbers 0625 (Extension Request Letter), 0740 (STAPPA/ALAPCO's Multi-Pollutant Strategy for Power Plants), 0741(ICAC Comment Letter), 1107 (hearing testimony), 1218 (hearing testimony), 1231 (hearing testimony)
Comment:
We are disappointed that EPA did not honor our request to provide an overall comment period that encompassed both the January 30th proposal and the forthcoming Supplemental Notice of Proposed Rulemaking (SNPR). We reiterate our view that it makes more sense for EPA to provide a comment period that allows commenters to consider and comment on the January 30th proposal and the SNPR as a complete package. We present these views in order to file comments by the March 30th deadline, but we reserve the right to modify or expand upon them in our comments on the SNPR. [[(p.1)]]

Response: See response below.

XV.A.32.
Comment:
The ODEQ supports the addition of more time to comment relative to these issues. The timing for the submittal of comments coincided with the requirement for the next submittal of the ozone Early Action Compact requirements for the Tulsa area including modeling necessary to demonstrate attainment. Agencies with limited modeling staffs

and budgets have to choose between analyzing the information needed for Early Action Compacts and analyzing information relative to the IAQR. Additional time to analyze the technical issues is needed. [[(p.1)]]

Response: See response below.

XV.A.33.
Comment:
EPA states that updates made between the proposed rule and the final rule to components of ozone and PM modeling platform will be made public in a Notice of Data Availability.' 69 FR 4587. EPA should state what it means by 'components' and provide the rationale for the changes. [[(p.12)]]

EPA has not yet provided sufficient information for the Department to adequately assess and meaningfully comment on the modeling data and analyses that underpin the IAQR Preamble. [[(p.12)]]

Response: See response below.

XV.A.34.
Comment:
Many IAQR issues are inter-related to issues to be addressed in a Supplemental Notice rule on trading which is not yet available for public review. Therefore, Hoosier Energy encourages EPA to accept comment on all IAQR issues during the Supplemental Notice proposed rule comment period. [[p.3]]

Response: See response below.

XV.A.35.
Comment:
MOG and individual MOG members reserve the right to submit more detailed comments on EPA's proposed cap-and-trade program after EPA publishes its supplemental notice of proposed rulemaking. [[p. 30]]

Response: See response below.

XV.A.36.
Comment:
In addition, our organization is deeply concerned about the process that EPA has gone through to receive comments on these rules. The hearings on Mercury and the $PM_{2.5}$ Transport rules should have been completely separate processes. Hundreds of concerned citizens, organizations, and even a few Senators and congressmen have urged EPA to hold more hearings in our region and across the country to take comments from the public. EPA is giving the short stick to each of these issues and to all the people who care about these harmful pollutants and appears to be consolidating the process for its own ease, not for the good of the people. We would also like to once again go on record to request an extension in the comment period on both of these rules. [[p.2]]

Response: See response below.

XV.A.37.
Comment:
I would prefer additional comment time for the Preamble and better access to technical support materials. However, I acknowledge the importance of steady progress in developing a timely and viable regional strategy. [[(0960, p.1)]]

Response: See response below.

XV.A.38.
Comment:
Finally, we request the comment period be extended until 60 days following publication of the Supplemental Notice of Proposed Rulemaking in the Federal Register. [[(p.2)]]

Response:
While EPA did not formally extend the comment period on the NPR or explicitly reopen comment on issues raised in the NPR in connection with the SNPR EPA reviewed and has responded to all comments received in the preamble to the NFR or this RTC, even if they were not received within the comment period. See also other responses in this section of the RTC as well as Section I. of the CAIR NFR preamble regarding the adequacy of the comment period generally and response in RTC Section XV.B. regarding providing regulatory text.

XV.A.39.
Comment:
Extension of the Public Comment Period:

As proposed in the January 30, 2004 Federal Register, the Rule To Reduce Interstate Transport of Fine Particulate Matter and Ozone (Interstate Air Quality Rule); proposed rule, omits critical information, data, details and proposed rule language necessary to develop and provide substantive comments during the provided public comment period. In full knowledge of this the EPA has publicly announced its intention to publish a supplemental notice of proposed rule making including, but not limited to the following issues:

a. Specific model cap and trade rules for NOx and SO2

b. Results from refined air quality modeling

c. Potential changes to states included as subject to provisions of the proposed rule

d. Details concerning requirements for states opting to regulate sources other than electrical generating units

e. Rules for integration with Title IV of the Clean Air Act

f. Rules for transitioning eastern U.S. emission sources included in the NOx SIP Call to the IAQR

g. Specific details for determining NOx allowances

h. Rules for determining compliance with the cap and trade program

i. Updated economic analyses

For these reasons, in combination with the vast amount of supporting information in need of thorough review, an extension of the public comment period for this rule is formally requested. It is requested that the public comment period for this rule be extended, at a minimum, to 90 days after the publication of the supplemental notice of proposed rulemaking to allow regulatory agencies, affected stakeholders and private citizens an adequate opportunity to fully and comprehensively review the complete rulemaking package. The current method of providing disjointed public comment periods on specific subsections of the complete rulemaking package does not allow for a comprehensive review of the proposal. [[pp. 1-2]]

EPA should extend the public comment period to allow adequate review of the entire Interstate Air Quality Rule. It is suggested that the public comment period be extended for both the proposed rule and the upcoming supplemental notice of proposed rulemaking to 90 days following publication of the supplemental notice of proposed rulemaking. [[(p.10)]]

Response:
See response above regarding availability of technical data. Issues regarding transition from NOx SIP Call to CAIR are addressed in the preamble to the NFR. See also other responses in this section of the RTC as well as Section I. of the CAIR NFR preamble regarding the adequacy of the comment period generally.

XV.A.40.
Comment:
I am also here to ask that EPA provide a proper opportunity for the public to comment on this rulemaking. Three and a half weeks - the length of time time between the publishing of these proposed rules in the Federal Register and these hearings - is not sufficient time for the public - those who must live with the health consequences of these proposed rules- to read the rules and prepare well-informed comments, and is contrary to the spirit of meaningful public participation in EPA rulemaking. Similarly, holding 3 hearings across the entire nation, and failing to hold a hearing further to the Northeast such as in New York and New England comes across as a deliberate attempt to ignore or silence the voices of those states and communities in the Northeast who receive the lion's share of upwind pollution form the utilities that will be regulated by these rules. [[p.1]]

Response:
EPA believes that the timing and location of the hearings provided ample opportunity for comment and fully complied with EPA's statutory obligations. See also other responses in this section of the RTC as well as Section I. of the CAIR NFR preamble regarding the adequacy of the comment period generally.

XV.A.41.
Comment:
The Minnesota Pollution Control Agency (MPCA) is reviewing both of the U.S. Environmental Protection Agency's (EPA) recent rule proposals [[CAIR and Mercury]] to control emissions from power plants. The MPCA welcomes the development of these standards because they will address very important human health and environmental impacts from power plants' air emissions. However, because they rely on very complex policy and technical considerations that require substantial and thoughtful review by states, EPA should extend the deadline for submittal of substantive comments. [[(p.1)]]

In order to allow my staff to appropriately weigh impacts to Minnesota's environment, our utility industry and the MPCA's resources, I recommend that the public comment period close no sooner than 60 days after EPA publishes its last rule proposal, and no sooner than May 30. [[(p.2)]]

Response: See response above re the mercury rule. . See also other responses in this section of the RTC as well as Section I. of the CAIR NFR preamble regarding the adequacy of the comment period generally.

XV.A.42.
Comment:
On March 30,2004 DEP submitted detailed comments on EPA's earlier proposed rulemaking, published in the Federal Register on January 30,2004 (69 FR 4566), entitled Rule To Reduce Interstate Transport of Fine Particulate Matter and Ozone (Interstate Air Quality Rule). I am very concerned that many of our comments on the Interstate Air Quality Rule have not been addressed in the current proposal, now renamed the Clean Air Interstate Rule. We do not believe that this rule will lead to ozone attainment in Massachusetts and other Northeast states in a reasonable timeframe. [[(1808, p.2)]]

Response:
EPA has responded to all comments received in the NFR preamble or this RTC. The issue regarding achieving attainment is addressed in Section VI.F. of this RTC.

XV.A.43.
Comment:
The Northeast States for Coordinated Air Use Management (NESCAUM) are writing to express our serious concerns regarding the manner in which the U.S. Environmental Protection Agency (EPA) is conducting its public process with respect to the Clean Air Interstate Rule (Transport Rule). We also request an extension of the deadline for submitting comments into the docket for the June 10, 2004 Supplemental Notice of Proposed Rulemaking (69 FR 32684) (SNPR), as well as a meeting with you prior to that deadline to discuss our concerns. We believe that EPA's current rulemaking approach is not serving the public well, and significantly impedes opportunity for an informed and meaningful public review and comment process. [[(1674, p.1)]]

EPA published its first draft of the Transport Rule in the Federal Register on January 30, 2004 with a 60-day comment period. Rather than releasing a regulatory proposal, EPA released preamble language, with a range of broad program elements and options on which to comment. Because the NESCAUM states have successfully developed and implemented regional cap-and-trade programs, we understand that clearly structured and detailed program components are needed in order to evaluate the effectiveness and adequacy of any such proposals. Given that the January proposal lacked clear structure and detailed program elements, we could not fully assess the program at that time. On May 18, 2004, EPA provided access to a pre-publication version of the SNPR on the Transport Rule that for the first time provided draft regulatory language. On June 10, 2004, the SNPR – consisting of 37 pages of preamble and 50 pages of regulatory text – was published in the Federal Register with a 45-day comment period. This latest step in the rulemaking process further undermines the public review process in the following ways. [[(1674, p.1)]]

First, EPA chose to hold a public hearing on the proposal on June 3, 2004, one week prior to the proposals eventual publication in the Federal Register, and only 16 days after an unofficial version was made publicly available. This clearly did not provide adequate time for review and assessment of the contents of the document, evidenced by the fact that only 11 people testified at the public hearing. With a longer lead time, many of the NESCAUM states and other interested groups would have likely participated in the public hearing process. [[(1674, pp.1-2)]]

Second, EPA's release of a series of piecemeal regulatory proposals over time, making it difficult for interested persons to comprehend the whole, greatly hinders the ability of EPA to solicit and receive public input. EPA has acknowledged, for instance, that the SNPR does not reflect public input received during the comment period for the January 2004 proposal. Therefore, potential improvements or clarifications to the proposed program based on public comments were not incorporated. This has exacerbated confusion for reviewers of the SNPR. It has created more work by essentially requiring the public to reiterate comments on the unchanged program elements of concern that were rearticulated in the SNPR, and unfairly requires the public to scrutinize the various publications for distinctions that may or may not have significant ramifications on public health and welfare and compliance with existing regulatory programs. Third, EPA is not making crucial data publicly available in a timely and appropriate fashion. By the June 3rd public hearing, EPA had not made available many of the technical support documents that are critical to properly assessing the proposal. This still holds true: as of the date of this letter, while technical support documents that contain data summaries are available, much of the data underlying EPA's technical analysis is still not available in any type of organized format that allows for in-depth review of EPA's results. Staff from the NESCAUM states requested data for both the January and the June proposals (e.g., pre-gridded unmerged emission files), in order to analyze and comment on EPA's modeling results. In the case of the January data files, access was not granted until after the close of the comment period. For the SNPR data files, as of this writing, state staff has not been granted access to these files. It is critical that such data be made available at the start of the comment period rather than near its end or after the comment period closes in order to provide the public opportunity for a meaningful review of the data. [[(1674, p.2)]]

Fourth, EPA's general characterization of the SNPR as primarily clarifying and correcting a few program elements with very few substantive changes from the January proposal is a vast understatement at best, and misleading at worst. In the SNPR, EPA indicates that the proposal 'fills in certain gaps in the January 2004 proposal and revises it or its supporting information in specific ways' (69 FR 32686). Our assessment is that, at minimum, EPA is proposing new and significant regulatory revisions to the Acid Rain Program, the NOx SIP Call Program, emissions reporting requirements (through changes to the Consolidated Emissions Reporting Rule or CERR), and the Regional Haze Program's Best Available Retrofit Technology (BART) Rule. We question the appropriateness of EPA proposing new substantive changes that were not included in the January Federal Register notice. [[(1674, p.2)]]

We further question the appropriateness of EPA proposing significant changes to other regulatory programs within the context of the Transport Rule. For example, in the SNPR, EPA indicates that it 'proposes several revisions of the Acid Rain Program regulations& These proposed revisions would facilitate the interaction for the Acid Rain Program with the proposed CAIR trading program. However, because these proposed modifications also would benefit the implementation of the proposed Acid Rain Program, EPA is proposing to adopt them regardless of whether other rules proposed in the CAIR are adopted.' (69 FR 32698). Similar substantial changes are found throughout the SNPR. Notwithstanding our views on these suggested changes – and we plan to comment on the substance in forthcoming submissions to the docket – we believe EPA should not propose significant changes to separate and distinct regulatory programs only within the context of the Transport Rule. Such proposed changes should occur within a Federal Register Notice that specifically explains the proposed changes in detail and delineates the impacts of the proposed changes on the specific regulatory program under discussion. (1674, pp.2-3)

In the SNPR, EPA solicits comments on over 50 separate, substantive issues or program options. Thoroughly responding to the array of issues EPA has presented is extremely difficult, given the 45- day review and comment period. While we recognize the need to get these long awaited rules promulgated in a timely manner, there is a need to ensure an adequate public review and input commensurate with the importance of this critical air pollution mitigation program. Finally, in many instances, EPA 'invites comment' on program concepts that are either not specifically proposed, or for which there is no apparent underlying technical support. While this is certainly one way to raise new concepts, it places commenters in a difficult position because little or no context or technical basis is provided upon which to comment. Such concepts should be initially proposed early in the process, i.e., through an Advance Notice of Public Rulemaking (ANPR), so that by the time EPA issues a Notice of Proposed Rulemaking (NPR) there is specific, precise, and detailed regulatory language on which the public can comment. Taken together, we believe that EPA's public process is no longer as transparent or as responsive as it once was and needs to be. Further, it denies EPA useful input from the interested public that it purports to solicit. It is particularly troubling to observe similar dynamics – piecemeal proposals, lack of access to data, short timeframes for review, new and substantive changes proposed without apparent underlying technical support – with other EPA proposals, including draft rules to implement the 8-hour ozone standard, New Source Review, and the air toxics program. Given the significance of the Transport

Rule and its long-term impacts on public health and the environment, we – the state agencies who bear the primary responsibility to protect the public and the environment against the adverse impacts of air pollution – believe that additional time for publicreview and comment is reasonable and necessary. We urge you to extend the deadline for the comment period on the SNPR for at least an additional 60 days from the time that all data referred to in the Technical Support Documents are publicly available. We further urge you to re-examine and modify your procedures for issuing proposed rules and soliciting public comment, as well as to create better mechanisms for making technical support data publicly available in a timely manner. We appreciate your approach to environmental stewardship through the 'Enlibra Principles,' which emphasize the importance of partnership, collaborative processes and stakeholder input. It is in that spirit that we raise these concerns and ask for the opportunity to meet with you to discuss in greater detail these issues and possible solutions. [[(1674, p.3)]]

EPA performed a completely new cost analysis from the January NPR, and in the 45-day comment period allotted, have not provided states with enough time to fully analyze the differences and how those differences might manifest in policy decisions about the transport rule as a whole. [[(1735, p.13)]]

Response:
See Section I of the NFR preamble regarding the time between release of the SNPR and the public hearing and availability of technical documents. See Section I of the NFR preamble regarding general notice and comment issues.

XV.A.44.
Comment:
EPA's segmented approach to rulemaking and short comment period for the SNPR, along with the tardy, sporadic and disjointed release of support documentation results in difficulty for states and interested parties to review the complete proposal and compile comprehensive comments. DAQ notes the EPA's failure to review and consider comments received from the proposed Interstate Air Quality Rule (IAQR,January 30,2004) before issuance of the June 10,2004 Supplemental Proposal. At a minimum, if EPA chooses to propose a rule in separate steps, as in the case of the proposed IAQR and CAIR, the agency should review and accommodate commenters' suggestions between separate proposals. This approach provides for a better understood and less-contested final rule. Because the proposed CAIR does not benefit from review and consideration of comments received from the proposed IAQR, upon issuance of further relevant data, information, proposal or final rule, West Virginia reserves the right to revise our comments of March 30,2004 regarding the proposed IAQR, and to amend today's comments regarding the proposed CAIR. Due to the segmented presentation of proposals and lack of comment review, EPA has inadvertently increased the likelihood of subsequent legal challenges. [[(p.3)]]

DAQ agrees with model rules based upon the NOx SIP Call rules and accompanying structure. This approach should make it easier for affected states to develop NOx and SO2 rules under a final CAIR rule. [[(p.5)]]

Response:
See Section I of the NFR preamble regarding the time between release of the SNPR and the public hearing and availability of technical documents. See Section I of the NFR preamble regarding general notice and comment issues.

XV.A.45.
Comment:
EPA's approach to this rulemaking and its self-imposed schedule has left little room for thoughtful consideration of comments provided to date, and uncertainty as to how or if EPA will incorporate our states' input. It is our understanding that EPA intends to have a final rule in effect by the end of the year - meaning that a final rule will be published in early Fall. We also understand that there will be no model rule, similar to that developed for the NOx SIP Call, clearly delineating the requirements and provisions of the proposed trading program. There are many unanswered questions remaining in this proposal in addition to unmet needs. A thoughtful and deliberative process would have allowed for a more logical progression in the development of this program. There also appear to be substantial changes from the proposed rule which warrant separate consideration and additional comment periods under the Administrative Procedures Act. For example the proposed changes to the determination of significant contribution (32702) are without precedent. We feel that there are substantial changes proposed in the supplement that require more time for consideration - and may, in fact, warrant an additional proposal to satisfy procedural obligations. [[(p.3)]]

Response:
See Section I of the NFR preamble as well as other responses in this section of the RTC.

XV.A.46.
Comment:
Because we are all trying to achieve the greatest environmental benefit with limited resources, good planning and process are critical elements to achieving results in a timely fashion. Unfortunately, the public process procedures employed by EPA during the IAQR/lnterstate Transport Rule rulemaking have been poorly conceived and I implemented. EPA's piecemeal and opaque process gives short shrift to the ability of states, who have primary authority for implementation and enforcement of Clean Air Act programs, to complete a thoughtful review and offer constructive comments. It is troubling enough that the IAQR/Interstate Transport Rule was released in two parts over a several month interval, but EPA also publicly stated that many of the comments on the first proposal (IAQR) were not even looked at and therefore would not be addressed in the Interstate Transport Rule proposal. Therefore, comments must be submitted twice, which is inefficient and counterproductive. If EPA had reason to release more than one proposal, all comments on the first proposal (in this case, the IAQR) should have been evaluated and any appropriate changes incorporated before releasing the second proposal (in this case, the Interstate Transport Rule). Also, the June 3,2004 public hearing on the Interstate Transport Rule was held prior to the Interstate Transport Rule being published in the Federal Register (June 10,2004) and prior to the release of all of the Technical Support Documents referenced in the

Interstate Transport Rule. EPA has simply not provided enough time and details for adequate review and comment of the lengthy and complex Interstate Transport Rule. Therefore, significantly impacted states such as Connecticut cannot be assured that the necessary environmental results will be achieved through this rule. [[(pp.4-5)]]

Response:
See Section I of the NFR preamble as well as other responses in this section of the RTC.

XV.A.47.
Comment:
On August 27, 2004, Xcel Energy Inc. submitted comments on a Notice of Data Availability (NODA) related to the above-captioned docket and the Clean Air Interstate Rule (CAIR). After close of the comment period, new and critical information has become available which demonstrates a significant overestimation of the impact of Minnesota emissions. In light of this new information, Xcel Energy submits the following supplemental comments and asks that they be included in the administrative record. [[p.1]]

In light of the continuing problems related to EPA's inventory and modeling, Xcel Energy remains concerned that any decision regarding the applicability of CAIR to Minnesota or West Texas may be based on flawed information and/or analysis. Given these circumstances, we are particularly concerned that the final model runs using the CMAQ model have not been made available to the public or subjected to public comment. Xcel Energy therefore requests that EPA make available to the public the final CMAQ model runs and provide the public with the opportunity to review and comment on the model's inputs, settings and outputs before promulgating CAIR in final form. [[p.2]]

Response: See response below.

XV.A.48.
Comment:
EPA has expressed that no other state had as extensive as comments as Wisconsin to the NODA. But, it is more likely, as expressed by the STAPPA/ALAPCO comments, that the states did not have time to evaluate the data and formulate detailed responses. It does not seem that a review effort addressing the entire inventory can be accomplished within several days. So we see the only practical approach that provides documented answers as using the LADCO inventory when it is available. [[p.1]]

XV.A.49.
Comment:
We have several concerns with the NODA, but our primary ones are these: the lack of time to review the information and the lack of context for the information in the NODA.
EPA did not notify STAPPA and ALAPCO in a timely way of the CAIR Notice of Data Availability and has provided insufficient time to review the information in the NODA. The

NODA states that documents were placed on the CAIR docket on or about July 27, 2004. STAPPA and ALAPCO's Criteria Pollutants Committee held a call on July 28, 2004 during which one of the scheduled agenda items was when the NODA would be available. When EPA staff taking part in the call were specifically asked when the NODA would be released, they responded that they did not know. However, just two days later, on July 30, 2004, the NODA was filed for publication in the Federal Register. STAPPA and ALAPCO are extremely disappointed that we were not apprised of this imminent action and, moreover, are very troubled that EPA is providing only 21 days to review and comment on the voluminous and complex material placed on the docket. [[p. 1]]

Response: See response below.

XV.A.50.
Comment:
This notice of data availability (NODA) places a number of new technical documents, some with major revisions, into the rule docket and allows only 21 days for public review and comment. Therefore, DES requests that EPA extend the comment period for the proposed Clean Air Interstate Rule (CAIR) for at least an additional 60 days in order to provide a more meaningful review and comment of the rule. [[(p.1)]]

As in several cases before for this rulemaking, EPA has not provided full release of information and technical analyses; therefore DES can only make preliminary comments at this time. In order for DES to make final comments on this proposed rule, DES Will need at least 60 days after full modeling analyses, detailed inventories, and other technical documents are placed into the public docket. DES would also appreciate prompt notification of new materials being placed into the Docket so that we can use the full period to perform our review. [[(p.1)]]

A vast amount of information has been released in this NODA, some new, some old. Many of the new issues raised in this NODA are significant in themselves, warranting detailed review and testing, and should have their own review and comment periods. With thousands of pages of information and over a gigabyte of modeling files made available in the NODA and only 21 days to review it and provide comment, a complete review of the data is impossible. Complicating the review process is an unfortunate trend that major changes to the rule and information (already provided in the Docket) are being buried in the details of the rule and being included without highlight. This leaves the reviewer with little choice but to go through all materials, line-by-line, searching for changes. [[(p.1)]]

Response: See response below.

XV.A.51.
Comment:
EPA established a deadline for submitting comments about this NODA on or before August 27,2004. [[(p.1)]]

The NODA was published in the Federal Register on August 6, 2004. This limitation allowed only twenty-one (21) days to review and comment on the NODA and the data made mailable, which is not enough time to review the information carefully to formulate useful and applicable comments, if necessary. We request that EPA consider the length of its comment periods in the future to provide an adequate mount of time for a thorough review of its documents. [[(p.1)]]

Response: See response below.

XV.A.52.
Comment:
OTC is concerned that EPA continues to release information and rush comments on this rule, and has yet made no changes in response to the substantial comments and suggestions made to date by

OTC and other organizations. Furthermore, it appears that new information is not being made available to us in a timely way to result in a meaningful exchange of information and ideas. [[(p.1)]]

While we understand that the comment period on this data closes at the time of submission of this letter, we will continue to review this and any subsequent data made available and would like to continue to work with EPA to improve our understanding of the implications of the new platform and subsequent modeling runs. [[(p.2)]]

Response: See response below.

XV.A.53.
Comment:
The level of data and summary information made available by EPA does not allow a comprehensive evaluation of the inventory data, emission controls and assumptions, and the resulting emission reductions and air quality impact. And to effectively evaluate the data that is available will take considerable more time than allowed by EPA in the NODA comment period.

But most importantly, due to different versions and the segmented release of information throughout the multiple CAIR comment periods it is very difficult to ascertain what data and analysis actually has been used in developing the CAIR program. [[(1867, p.1)]]

The lack of comprehensive packaged information raises general concern and reservation as to the consistency in approach to developing the CAIR program and EPA's ability to quantify and substantiate the likely air quality impact. This is also problematic for the state in translating the impact of the CAIR program into attainment demonstrations for SIP approval. [[(1867, p.1)]]

In order to critically and fully evaluate the CAIR program EPA needs to provide one comprehensive package containing detailed (unit-by-unit or category specific) and summary

information of the following: basecase activity and growth rates, existing and future controls, basecase and controlled emissions for 2001, 2010, and 2015, and all detailed modeling assumptions and files in accessible format. [[(1867, p.1)]]

Response: See response below.

XV.A.54.
Comment:
The New York State Department of Environmental Conservation (Department) is very concerned that EPA has provided inadequate time for review and comment on this NODA. [[(p.1)]]

The enclosed comments are limited in scope due to the lack of time and background information provided with the NODA. Please note that a lack of comment on a particular document does not constitute agreement with the contents of that document, but is more likely due to the lack of appropriate review time provided for this NODA by the EPA. [[(p.1)]]

Response: See response below.

XV.A.55.
Comment:
In the NODA, EPA provides 21 days for the public to review numerous technical documents that it has placed in the docket. MA DEP believes that EPA has provided inadequate time for review and comment on the hundreds of pages of technical data that have been made available. [[(p.1)]]

In the Federal Register notice, EPA indicates that these documents were available 'on or about July 27, 2004,' (69 FR 47828). However, on July 28, 2004, EPA staff indicated to state representatives on a conference call of State and Territorial Air Pollution Prevention Administrators (STAPPA) that they did not know when or if EPA planned to issue a NODA. States were not given notice of the NODA documents until publication of the August 6th Federal Register. [[(p.1)]]

The August 27, 2004 deadline for comments does not give us the time needed to review and assess the implications of these multiple changes in the underlying technical analyses that EPA is relying on to support its policy decisions. EPA's failure to provide full explanation for many of the technical changes and to discuss the policy implications of such changes has made it more difficult to attempt to review and assess the NODA. [[(p.1)]]

MADEP is extremely concerned that EPA appears to be proceeding toward finalization of this rule without giving states and other interested parties adequate opportunity for review and comment. We strongly urge you to delay final implementation in order to issue for review, with a longer comment period, a revised proposed rule that would incorporate all of the NODA technical changes, include updated modeling results, and provide EPA's responses to comments received on technical and policy issues raised in the prior Federal Register notices related to the proposed

Interstate Air Quality Rule (69 FR 4566) and the proposed Clean Air Interstate Rule (69 FR 32684). [[(p.2)]]

Response: See response below.

XV.A.56.
Comment:
As discussed in our July 7, 2004 letter to you, the NESCAUM states are extremely concerned about the public process EPA has employed in developing the Transport Rule. The manner in which EPA has issued this NODA has only amplified our concerns. First, EPA has clearly provided inadequate time for review and comment. The technical documents covered in the NODA represent hundreds of pages, thousands of data points, and span a broad range of highly technical subject areas. In the Federal Register notice, EPA indicated that these documents were available 'on or about July 27, 2004,' (69 FR 47828), but on July 28, 2004, EPA staff indicated to state representatives on a conference call of State and Territorial Air Pollution Prevention Administrators (STAPPA) that they did not know when or if EPA planned to issue a NODA. The NESCAUM states were not aware of the availability of the NODA documents until publication of the August 6th Federal Register notice, and have had less than 15 business days to review the materials.

The documents reflect substantial changes in a number of critical assumptions and approaches. These changes may or may not have merit in our view, but without adequate time for review, we cannot comment as to whether we agree with these changes, nor have we been able to assess the new data for purposes of quality assurance or quality control. Given the minimal time that EPA has provided for review and the large volume of technical documentation encompassed by the NODA, no party could reasonably be expected to adequately review and thoroughly comment on the NODA documents.

Second, EPA has released these documents with little to no context in which to analyze or quality assure these data in the short timeframe provided. There is little publicly available documentation that fully describes which things have changed, how they have changed, why technical changes were made, why new or different data were used, and the implications of all of those changes. While cover memoranda provide the gist of some of the changes, proper analysis requires careful inspection of related technical documents. For example, EPA has modified heat input data, and these modifications, in turn, have impacted states emissions budgets. In the timeframe provided, we cannot adequately assess whether the documented methodology was properly employed, whether that methodology was the most appropriate to employ, and what policy implications arise from such technical changes. EPA should provide clear documentation that provides context, including adequate explanation, rationale, and the policy implications, and it should re-open this docket for reasonable public review and comment.

Third, EPA has not provided any updated modeling in this NODA. Based on conversations with EPA staff, we understand that the Agency may not publicly release its updated ambient air quality modeling results or Integrated Planning Model (IPM) results until the Transport Rule is finalized.

Given the complexity of this rule, the vast number of technical amendments EPA has made to the modeling inputs since they were publicly released, and the significant policy consequences of the modified modeling results including whether a given state will be subject to the rule adequate notice and comment dictates that EPA release its updated modeling and assumptions, and provide sufficient time for public review and comment prior the finalizing the Transport Rule. [[pp. 1-2]]

The finalization of a sound and effective Transport Rule is very important to the NESCAUM states. The public health protection of our citizens relies on the success of this rule. While we want a rule promulgated in a timely manner, we are also extremely concerned about the apparent haste and insufficient opportunity for public input with which EPA is proceeding toward finalization. Experience has shown that appropriate time invested up front to ensure full public review and comment reduces post-adoption delays, e.g., the need to subsequently modify the rule and/or respond to litigation.

As you know, the states are responsible for implementing a substantial number of the Clean Air Act's provisions, and in this capacity we must have an enduring partnership with EPA. The Enlibra principles are built upon the same tenets of transparency, collaboration, and partnership. Today, through such processes as that EPA has employed with its NODA, the effectiveness of that statutory partnership is at risk. We urge you to renew conversations and interactions with the states such that EPA's proposals and processes will result in constructive and effective regulatory outcomes. [[pp. 2-3]]

Response: See response below.

XV.A.57.
Comment:
For states and the public to conduct a thorough evaluation of the content and ramifications of this additional information and provide meaningful comments, EPA needs to provide all pertinent data and documentation and adequate time to review such data and documentation. The information referenced in the NODA consists of hundreds of pages of highly technical text and data. The twenty-one days allowed for review and comment is insufficient for a comprehensive analysis of the additional material referenced in the NODA. EPA should provide at least sixty days to review and comment on such extensive documentation.

In addition to the inadequate time allowed for analysis of NODA documents, EPA has not explained the context of the information contained in the NODA. Therefore, the public cannot quickly and easily determine what such information means in terms of changes to the Interstate Transport Rule and the subsequent implications of those changes. EPA should provide a transparent public process that fully explains the changes being made and the reasoning behind such changes.

As a result of EPA's intent to use a different model and updated base year emissions in the final Interstate Transport Rule than EPA used in the proposed Interstate Transport Rule, the states

covered under the Interstate Transport Rule and the associated state NOx and SO2 budgets may change. However, EPA has not completed the modeling to support the possible changes as of yet. EPA staff has stated that it is not known at this time if the new modeling data will be released prior to the Interstate Transport Rule being finalized, and it is too soon to tell if there will be substantive changes to the final Interstate Transport Rule as a result of the new modeling. This is another example of unacceptable public process as such a practice most certainly does not provide time for adequate public review and comment. EPA should release the new modeling data prior to the release of the final Interstate Transport Rule, and should provide adequate time for the public to review and comment on the new data prior to finalization of the Interstate Transport Rule. [[pp. 1-2]]

Response:
EPA recognizes the challenges faced by commenters in this rulemaking, however, we believe that the comment period provide for the NODA was adequate. While EPA did not formally extend the comment period on the NODA EPA reviewed and has responded to all comments received in the preamble to the NFR or this RTC, even if they were not received within the comment period. See also other responses in this section of the RTC as well as Section I. of the CAIR NFR preamble regarding the adequacy of the comment period generally.

XV.A.58.
Comment:
Cinergy urges EPA to request comment in the SNPR on an alternative approach to integrate the IAQR NOx trading program with the NOx SIP Call program, including an ERC program, to transition to one program in 2015. Doing so will achieve important air quality benefits while maximizing efficient reductions. [[p. 58]]

Response:
As discussed in the preamble, EPA intends to integrate the NOx SIP Call and CAIR trading programs.

XV.B. Availability of Regulatory text

XV.B.1.
Comment:
In this delicate balance I urge EPA to expand the scope of the package to include key elements missing from the current package. That will probably establish the need for an additional Supplement (SNPR), beyond the imminent Trading Program SNPR, to address major missing elements such as treatment of major non-EGU NOx and SO2 sources in order to build a truly comprehensive program. [[(0960, p.1)]]

While EPA has assured States and other stakeholders that we will be able to comment on the structure of EPA's proposed interstate trading program for NOx and SO2 emission allowances associated with the proposed program, it is not clear from the Preamble that EPA will hear comment again on the full breadth of this regional emission control program. In order to provide more informed comment, we hope that EPA will shortly supplement this package with more complete and understandable documentation beyond just a draft regulatory text and the definition of a single trading program option. [[(0961, p.2)]]

See response below.

XV.B.2.
Comment:
EPA's January 30th proposal does not include any regulatory text. In the absence of such text, we are unable to review how EPA intends to translate the general concepts in the proposal into regulatory language or to provide detailed comments on the proposal and its impacts. [[(p.1)]]

We urge that EPA include in the SNPR complete regulatory text for the entire rulemaking package to allow for meaningful, detailed analysis of the IAQR. [[(p.1)]]

See response below.

XV.B.3.
Comment:
EPA has not yet published any actual rule text for this rulemaking. When that text is made

available, it is likely that it will cast new light on all issues discussed in the preamble. Therefore, State reserves its right to revisit the issues in the preamble upon publication of the rule text and any other supplemental notices. [[(p.4)]]

See response below.

XV.B.4.
Comment:
The CenSARA states note that only the preamble to the rule is contained in the January 30,2004 Interstate Air Quality Rule proposal. It is our understanding that the proposed language for the cap and trade rule will be published in a supplemental proposal. We find it difficult to comment on many of the provisions in the current proposal without the availability of the cap and trade rule language, which will clarify how EPA intends to implement those provisions. [[(p.2)]]

See response below.

XV.B.5.
Comment:
The Rule To Reduce Interstate Transport of Fine Particulate Matter and Ozone as proposed in the January 30, 2004 Federal Register, omits critical information, details and proposed rule language necessary to develop and provide substantive comments during the provided public comment period. In addition, much of the data and supporting information used in the development of the rule has not been readily or easily available. EPA has also announced its intention to publish a supplemental notice of proposed rule making to include more details of how this rule is to be implemented. [[(p.2)]]

XV.B.6.
Comment:
The comments we are submitting are general in nature due to the fact that the proposal contained no regulatory text. Without the regulatory text we are unable to determine how EPA intends to follow through with the general concepts outlined in the proposal. [[(p.1)]]

See response below.

XV.B.7.
Comment:
DES can only make preliminary comments since EPA has released the proposed IAQR as a preamble with no regulatory text on which to comment. [[(p.1)]]

See response below.

XV.B.8.
Comment:
The published ‘rule’ is really a preamble, giving us a sense of the goals and intention of the rule, but none of the actual rule language. [[(p.8)]]

OTC is very concerned that the recent pattern of EPA rulemaking (8-hour implementation, for

example) is to provide very general principles for public comment at first, followed by increasingly more specifics with less and less time to review, with very little time between the close of one comment period and the opening of the next. More importantly, there is seemingly no change in the rule as it is refined reflecting any comments received in the earlier comment period. We suspect that is happening here as well. [[(p.8)]]

OTC considers this rule to be of paramount importance. We are putting substantial effort into analyzing and putting forward credible alternatives to EPA's rule. It is critical that these efforts have a positive influence on the rulemaking and the final rule. [[(p.8)]]

See response below.

XV.B.9.
Comment:
EPA indicates in the proposed IAQR that it is planning on issuing a SNPR in which it intends to propose model-trading programs for jurisdictions that desire to enact cap and trade programs for NOx and SO2. PSEG looks forward to being able to review EPA's proposed regulatory language. The drafting of model regulations is crucial as to whether the IAQR will be successful, and PSEG reserves its right to comment on the SNPR, both as to anticipated proposed rule language, as well as any clarification or detail as to the IAQR as currently proposed. [[(p.6)]]

See response below.

XV.B.10.
Comment:
CEG is somewhat concerned about the fact that we are commenting on a proposed rule without any regulatory language and that some of the details of the IAQR will not be available until after the public comment period closes, when EPA issues its supplemental notice. The actual language of the rule is important in fully understanding the requirements and implications of the proposed emission reduction programs. [[(p.7)]]

See response below.

XV.B.11.
Comment:
Vermont objects to the procedures which EPA has used to propose and take comment on the IAQR. The proposal contains the kind of information and discussion that generally appears in a Preamble to what, in the past, has been the actual text of proposed rules. In this case (and in other recent proposals from EPA), instead of actual regulatory language which can be examined for its intent and meaning, the proposal contains essentially a set of choices, sometimes identifying which choice is EPA's preferred one and sometimes not. The proposal contains no specific language to clearly identify what implementation and enforcement of the rule will entail. While this approach allows for a great deal of comment and information input to EPA from which to craft a rule

proposal, it does not provide adequate notice and opportunity to comment. It is cumbersome and shortens the time available to understand the final proposal (unless a subsequent proposal does contain regulatory language and allows the full time period for comment as a proposed rule). The IAQR proposal also does not present the full design of the model cap and trade program upon which much of the success of this rulemaking would depend, indicating it will be a part of a subsequent SNPR. For these reasons, Vermont reserves the right to amend and add to its comments on any subsequent elucidation of the IAQR proposed. [[(0714, pp.12-13)]]

See response below.

XV.B.12.
Comment:
The January 30, 2004, proposal is not a complete regulatory package, as it does not include any regulatory text; therefore, it is difficult to comment fully on the proposal and its impacts. [[(p.2)]]

See response below.

XV.B.13.
Comment:
Since no rule language is proposed for the model trading programs, it is nearly impossible to comment on the ramifications of this proposal with respect to source impacts, overall emission reductions, and other important details. [[(p.1)]]

See response below.

XV.B.14.
Comment:
The published rule is really a preamble, giving us a sense of the goals and intention of the rule, but none of the actual rule language. OTC has already provided oral and written testimony on these generalized concepts at the public hearing held last month. It makes sense that we submit one set of comprehensive comments to address the full rule, rather than another set of generalized comments now and a duplicative set on more detailed and perhaps significantly modified versions of the same or related subjects a month or two from now. Our suggested extension does not extend the overall comment period on the rule, and thus should not hold up promulgation of a final rule, but it would ensure we provide one consistent set of comments on the rule as a whole. [[(p.1)]]

See response below.

XV.B.15.
Comment:
We are deeply concerned that EPA has released the proposed IAQR as a preamble, with no regulatory text on which to comment. We believe that EPA's current trend - seeking comments on conceptual frameworks with a mix-and-match of possible options - creates confusion and deprives

the public of adequate review and comment opportunities. EPA should have issued this preamble as an 'Advanced Notice of Proposed Rulemaking,' and reserved the Notice of Proposed Rulemaking for specific regulatory language. [[(0941, p.2)]]

We object to the piecemeal manner in which EPA has proposed both the 8-hour ozone implementation rule and the IAQR. Absent regulatory language for this rule and the 8-hour implementation rule, it is impossible to know how the final IAQR will interact with ozone attainment SIPs. We expect EPA to provide an opportunity for public comment on the regulatory language of both rules; particularly with respect to their interaction with 8-hour attainment SIPs as well as PM-fine attainment SIPs. [[(0941, p.13)]]

See response below.

XV.B.16.
Comment:
A thorough technical analysis is not possible without additional regulatory text and information from EPA. The TCEQ urges EPA to expeditiously propose rule language and provide any additional information necessary to fully assess the program established by the rules. For example, EPA's notice does not provide specific regulatory text, fine grid modeling allowing an assessment of upwind impacts on Texas, or a final determination of whether Texas is an upwind state for ozone. EPA makes the general statement that a subsequent rulemaking will address, 'several additional issues,' with no explanation of what those may be. [[(p.2)]]

See response below.

XV.B.17.
Comment:
We strongly urge EPA to propose regulatory text for comment prior to issuing a final rule. These regulations are critical to public health, the environment and the economy and should be adopted in a transparent public process. [[(1171, p.2)]]

See response below.

XV.B.18.
Comment:
Of course, EPA has not yet published any actual rule text for this rulemaking. When that text is made available, it is likely that it will cast new light on all issues discussed in the preamble. Therefore, North Carolina reserves its right to revisit the issues in the preamble upon publication of the rule text and any other supplemental notices. [[(0727, p.3)]]

See response below.

XV.B.19.

Comment:
A serious shortcoming of the IAQR Preamble is that it does not include draft regulatory language. As EPA concedes, the 'proposed rule' is actually just a preamble. See 69 FR 4570 ('In, this preamble, ...'). Although EPA does provide some background information and a narrative description of the general features of the contemplated emissions cap and trade program for NOx as well as some description of how EPA intends to redirect use of the Title IV allowance trading system, the IAQR Preamble is devoid of any proposed regulatory text. It is presently impossible for the Department to provide meaningful and knowledgeable comments on the IAQR in the absence of an opportunity to review the actual proposed regulatory text. For example, without knowing the precise language that is being proposed, it is impossible for the Department to make any truly informed comments on the complex interplays between different provisions of the IAQR or between the provisions of the IAQR and other established regulations. The Department reserves the right to address or readdress, at the time the supplemental notice of proposed rulemaking is issued, any matter explicitly or implicitly raised by the IAQR Preamble. [[(p.2)]]

See response below.

XV.B.20.
Comment:
The Coalition is concerned about the fact that EPA has only included in its published proposal a portion of the IAQR program it intends to propose. A crucial yet still underdeveloped element of the proposed rule is a workable emissions trading program. [[(1037, p.13)]]

See response below.

XV.B.21.
Comment:
Necessity of Regulatory Language for Comment: EPA refers to the IAQR as a 'Proposed Rule.' However, EPA has not included any regulatory language with this proposed rule. EPA has only included a Preamble describing concepts for a future regulatory program. NUSCo is concerned that EPA is asking for comment on specific issues that are not sufficiently detailed in proposed regulatory text. Stakeholders may find items contained in this Preamble to be entirely acceptable and appropriate on a conceptual basis. However, when translated into regulatory language, the details may render the concept unacceptable or inappropriate. In addition, it leaves open many questions that regulatory text would likely answer. We request an opportunity to comment on a specific proposal once published. [[pp. 1-2]]

See response below.

XV.B.22.
Comment:
EPA's IAQR proposal contains no proposed regulatory text. Since the wording of the regulatory text is the actual law that will govern, it is critical to understanding the true intent and

interpretation of the preamble that has been proposed by EPA (and that is the subject of these comments). Such text may or may not be written in a way that properly reflects the positions taken by EPA in this preamble. Moreover, the English language is inherently ambiguous and must, therefore, be carefully reviewed to determine the true intent and application of any specific rule in a certain context. [[(p.5)]]

See response below.

XV.B.23.
Comment:
The IAQR proposal does riot contain regulatory text. We believe EPA must allow comment on the entire proposal package, including all the elements of this preamble, when EPA issues proposed regulatory text for the IAQR, and we urge EPA to do so. [[(1099, p.13)]]

See response below.

XV.B.24.
Comment:
Opportunity to Comment Once Regulatory Text is Proposed: Since the actual proposed regulatory wording of the IAQR has yet to be published, EPA must allow for additional comments on issues raised in the preamble at the time the text is published. The actual language of the rule is extremely important to understanding the actual intent and application of the program described by the preamble. [[p. 5]]

See response below.

XV.B.25.
Comment:
EPA has not included the regulatory language for this proposal:

EPA needs to publish the regulatory language that implements the intention of this proposal. All necessary comments cannot be made until the full regulatory text is known. The comment period should be reopened and responders given ample time (at least 30 days) to digest this language and compare it to EPA’s statements in the preamble. [[p. 8]]

See response below.

XV.B.26.
Comment:

The IAQR proposal contains no regulatory text. That language will be part of a Supplemental Notice of Proposed Rulemaking (SNPR) to be issued at some future date. The wording of the regulatory text will define the actual program. [[(0696, p.7)]]

See response below.

XV.B.27.
Comment:
I would not that the devil is in the details and those details will be extremely important. The proposal provides only the very basic foundation of the regulation, with a supplemental proposal to be issued by EPA that contains additional details on some very basic aspects of implementation and compliance. Some of the details will not be available until after the public comment period closes. As a consequence, MidAmerican's position regarding the proposed rule may change dramatically, depending on the content and the outcome of the supplemental proposal. [[(1235, p.5)]]

See response below.

XV.B.28.
Comment:
EPA is pursuing an inappropriate administrative process in this regulatory development. This proposal should be designated an advance notice of proposed rule making (ANOPR):

EPA has recently developed an inappropriate and likely illegal approach to regulatory development. Concepts that during the 1990's would have been introduced as an advanced notice of proposed rulemaking (ANOPR), are now sometimes issued as proposed regulations. This has occurred with the IAQR. The result is that affected parties are not being provided an opportunity to comment on the specific regulatory language that might drive significant financial investments in capital equipment. While we appreciate the chance to comment on what is essentially an ANOPR, it is essential that we have another chance to comment on something more than what appears to be only conceptual text before any regulations are finalized. [[p. 2]]

DPL appreciates this opportunity to comment on what DPL considers to be an advance notice of proposed rulemaking. If EPA decides to take further IAQR action, we request an opportunity to comment on the specific regulatory language of the integrated mercury, ozone, and $PM_{2.5}$ proposed regulations. [[p. 5]]

Response: See response below. Also, we note that mercury is being addressed in a separate rulemaking.

XV.B.29.
Comment:

The EPA Must Reopen the Comment Period on All Issues of the IAQR When Regulatory Language is Issued. [[(p.2)]]

No regulatory text is included in the proposed IAQR for which these comments are submitted. The yet to be proposed specific regulatory language implementing the concepts contained in the IAQR preamble will govern the details of compliance with the rule and consequently the specific impacts on the regulated entities. Absent the specific regulatory language, affected parties have no ability to analyze the specific impact of these rules or any certainty that the technical and policy positions contained in the proposed rule (preamble) are faithfully reflected in the regulatory language. The EPA must allow for meaningful review and comment on the regulatory text when it is proposed. [[(p.2)]]

See response below.

XV.B.30.
Comment:
I am deeply troubled by the EPA's refusal once again to publish the text of a proposed regulation that would spell out the specifics of its proposal. Providing only a narrative description, without the text of the regulation, leaves the public with an unclear and incomplete picture of what the EPA has in mind. Withholding the regulatory text suggests that the EPA has no interest in giving the public a meaningful chance to review and comment upon the EPA's proposal. [[(0927, p.2)]]

See response below.

XV.B.31.
Comment:
The IAQR proposal contains no proposed regulatory text. This makes it difficult for APPA to file comments on this proposed rule. Because the wording of regulatory text is the 'law' that will actually govern, that text is critical to understanding the true intent and interpretation of the preamble that has been released. The regulatory text may or may not be written in a way that properly reflects the legal, technical, and policy positions taken in the preamble. APPA urges the EPA to allow comment on it these issues as they will be affected by the proposed model rule. [[(p.10)]]

See response below.

XV.B.32.
Comment:
I am deeply troubled by the EPA's refusal once again to publish the text of a proposed regulation that would spell out the specifics of its proposal. Providing only a narrative description, without

the text of the regulation, leaves the public with an unclear and incomplete picture of what the EPA has in mind. Withholding the regulatory text suggests that the EPA has no interest in giving the public a meaningful chance to review and comment upon the EPA's proposal. [[(p.3)]]

Response:
While EPA is not required to make regulatory text available for comment, draft regulatory text was made available for comment in the supplemental notice of proposed rulemaking.

XVI. Proposed Regulatory Text

XVI.A. Part 51

Currently there are no public comments in the outline heading**.**

XVI.B. Part 72

XVI.B.1 Comment:
Commenter supports all of the proposed revisions to the Acid Rain regulations.

Response:
EPA acknowledges the support.

XVI.B.2 Comment:
Commenter expresses concern with proposed modifications to the definition of cogeneration units.

Response:
See preamble Section IX.B.

ATTACHMENT TO XI.A.14.

MEMORANDUM

Date: **March 4, 2005**

To: **Allen Basala, U.S. EPA, OAQPS**

From: **Frank Divita, E.H. Pechan & Associates**

Subject: **Estimate Reasonable Further Progress (RFP) Requirements**
EPA Contract No. 68-D-00-283, WA No. 4-66

A. INTRODUCTION

The purpose of this memorandum is to describe the methodology used by Pechan to estimate the reasonable further progress (RFP) requirements for certain Subpart 2 8-hour ozone nonattainment areas under one of two legal interpretations proposed for the Phase 2 Implementation Rule for the 8-hour Ozone National Ambient Air Quality Standard. That rule is not yet finalized This analysis was performed in support of EPA's technical analysis of the costs of the final rule.

The designated 8-hour ozone nonattainment areas included in this assessment are those subpart 2 areas that are classified as moderate, are located outside the states of Arizona, California, Colorado, and Nevada, and are estimated to exceed the 8-hr standard under base case conditions in 2010. Under the alternative assessed here -- the more stringent of two proposed alternatives -- each subpart 2 8-hour nonattainment area classified as moderate would have to achieve 15 percent reduction in volatile organic compound (VOC) emissions, regardless of whether the area had already fulfilled a 15 percent requirement under the 1-hour ozone national ambient air quality standard.

Important caveat: These estimates were conducted solely for analytical purposes associated with national EPA rulemaking Actual requirements for RFP for individual nonattainment areas will be determined through analyses by states, and reviewed by EPA, through the state implementation plan process under the Clean Air Act, consistent with the yet-to-be-promulgated phase 2 ozone implementation rule. The statutory interpretation of RFP requirements, and methodology for determining RFP, will be determined by that rule. The methodology and data used in this analysis may differ from those used in the SIP process. Therefore, the RFP estimates below may vary from actual future RFP reduction requirements to be determined through the SIP process.

The estimation methods described below are based on concepts in EPA's early-1990's guidance on calculating 15 percent VOC rate-of-progress targets from a 1990 base year for purposes of implementing the 1-hour ozone standard. For purposes of this analysis of potential RFP

requirements for 8-hour nonattainment areas, 2002 is considered as the base year, with the 15 percent reduction to be achieved by 2008. Table I shows the VOC progress requirements to meet a 15 percent reduction from 2002 emission levels by 2008. The 15 percent reduction calculation allows 100 percent credits for VOC reductions obtained from 2002 to 2008 through implementation of other
emission reduction programs. The one exception is that mobile source reductions are discounted by 13 percent (i.e., only 87 percent of mobile source reductions are creditable toward the RFP progress requirements). The reason this discount is applied is because there are certain reductions in motor vehicle emissions that will occur in the future but are the result of actions taken prior to the enactment of the 1990 Clean Air Act Amendments.

B. CALCULATION METHODOLOGY

The first step needed to determine if additional RFP emission reductions are required is to compare VOC emission estimates of 2002 with 2008. Under this assessment of the more stringent RFP option, the emission reductions are to be achieved 6 years from the date of designations. In addition, if there were VOC emission reductions during these periods due to federal emission reduction regulations and local air pollution control programs, these reductions could count toward the 15 percent VOC RFP requirement. For this analysis, EPA provided 2001, 2007 and 2010 emission inventories by nonattainment area and sector (stationary non-point, non-road, mobile, point and electricity generating units). 2002 emissions, by nonattainment area and sector, were estimated by the linear interpolation of the 2001 and 2007 inventories. Similarly, 2008 emissions were interpolated from the 2007 and 2010 projected inventories

The RFP requirement for each nonattainment area is calculated by subtracting 85 percent of 2002 emissions (i.e. reduction by 15 percent) from the 2008 emissions, assuming that mobile source emission changes are discounted by 13 percent. If this value is greater than zero, the amount represents the estimated reductions in VOC for the area to fulfill the requirements of the more stringent RFP option. If that value is less than or equal to zero, no further reduction in VOC emissions are needed to fulfill the RFP requirements of the more stringent RFP option as interpreted in this assessment.

C. SAMPLE CALCULATION

Below is a sample calculation for Chicago-Gary-Lake County, IL-IN nonattainment area:

2001 emissions totals = 136,743 tons
2007 emissions totals = 103,531 tons
2010 emissions totals = 124,683 tons

Interpolation of 2001 & 2007 yields 2002 emissions= 131,208 tons
Interpolation of 2007& 2010 yields 2008 emissions = 110,581 tons

After discounting of mobile emissions by 13 percent, 2002 emission = 128,060 tons.

Additional VOC tons required to reduce = (2008 Emissions) - (85 percent of 2002 Emissions)
= (110,581) - (0.85 x 128,060) = 1,731 tons

Table I. Reasonable Further Progress Requirements for VOC in Eastern Subpart 2 8-Hour Non-Attainment Areas Classified as Moderate and Projected to Exceed the 8-hour Ozone Standard in 2010

Nonattainment Area	85 percent of the 2002 VOC emissions inventory*	2008 interpolated VOC emissions inventory	(2008 interpolated inventory) minus (85 percent of the appropriate 2002 inventory)	Estimated additional VOC emission reductions under our interpolation of the more stringent RFP option
Baltimore	67,909	67,364	-545	0
Chicago	108,851	110,581	1,731	1,731
Cleveland	123,182	126,231	3,049	3,049
Dallas	147,074	151,636	4,561	4,561
Houston	162,265	158,795	-3,470	0
Milwaukee	71,563	72,365	803	803
New York City	515,668	508,386	-7,282	0
Philadelphia	246,730	244,256	-2,474	0
Providence	44,974	53,183	8,209	8,209
Sheboygan	6,348	6,750	402	402
Washington DC	122,383	120,818	-1,564	0

*Adjusted 2002 VOC emissions inventory after 13 percent mobile emissions discounting

ATTACHMENT TO XI.A.14.

Analysis of Potential Impacts of ROP on Ozone in Five Cities to Support Response to Comments

Background:

In the Response to Comments (RTC) document for the CAIR final rule, EPA addresses the comment that locally mandated Part D emission controls must be included in the base case analysis for nonattainment areas that EPA plans to designate for $PM_{2.5}$ and ozone. The comment concludes that it is not reasonable for EPA to assume that these local control programs will not significantly impact the attainment status of many of the areas that the EPA analysis predicts future nonattainment. Within the RTC document, EPA concluded that five nonattainment areas with significance linkages to upwind States may be required to achieve additional rate of progress (ROP) reductions in VOC by 2008 that are not accounted for in the CAIR 2010 base case modeling scenarios. However, EPA does not believe that VOC reductions of this magnitude would be enough to bring these areas into attainment in 2010. This document presents the analysis that supports the above assertion.

Subpart 2 Nonattainment Areas with additional needed controls from ROP	Base Case 2010 VOC Emissions (tons)	Estimated Additional VOC Reductions to Meet a Stringent 15% RFP Requirement (tons)	Estimated Additional VOC Reductions Observed in 2010 as a % of 2010 Base Case Emissions
Chicago	124683	1731	1.4%
Cleveland	143384	3049	2.1%
Milwaukee	78997	803	1.0%
Providence	57929	8209	14.0%
Sheboygan	7576	402	5.3%

Table 1.1 shows the initial ROP analysis for the five areas determined to potentially need additional reductions in VOC emissions to achieve a 15 percent reduction. (Dallas may also need additional VOC controls, but since no States are covered in CAIR due to a linkage with Denton or Tarrant counties, this area was not considered in this analysis.)

Table 1.1. Emissions information for the subpart 2 nonattainment areas that are expected to need additional controls from rate of progress requirements.

EPA has not done any 2010 CAMx modeling that includes the additional VOC reductions shown in the far right column of Table 1.1. However, we have completed a series of sensitivity analyses using the same ozone modeling platform used in modeling ozone for CAIR (i.e., the 2010 base case) looking at the impacts of NOx and VOC controls in residual nonattainment areas. This modeling platform is described in the CAIR Notice of Final Rulemaking Air Quality Modeling

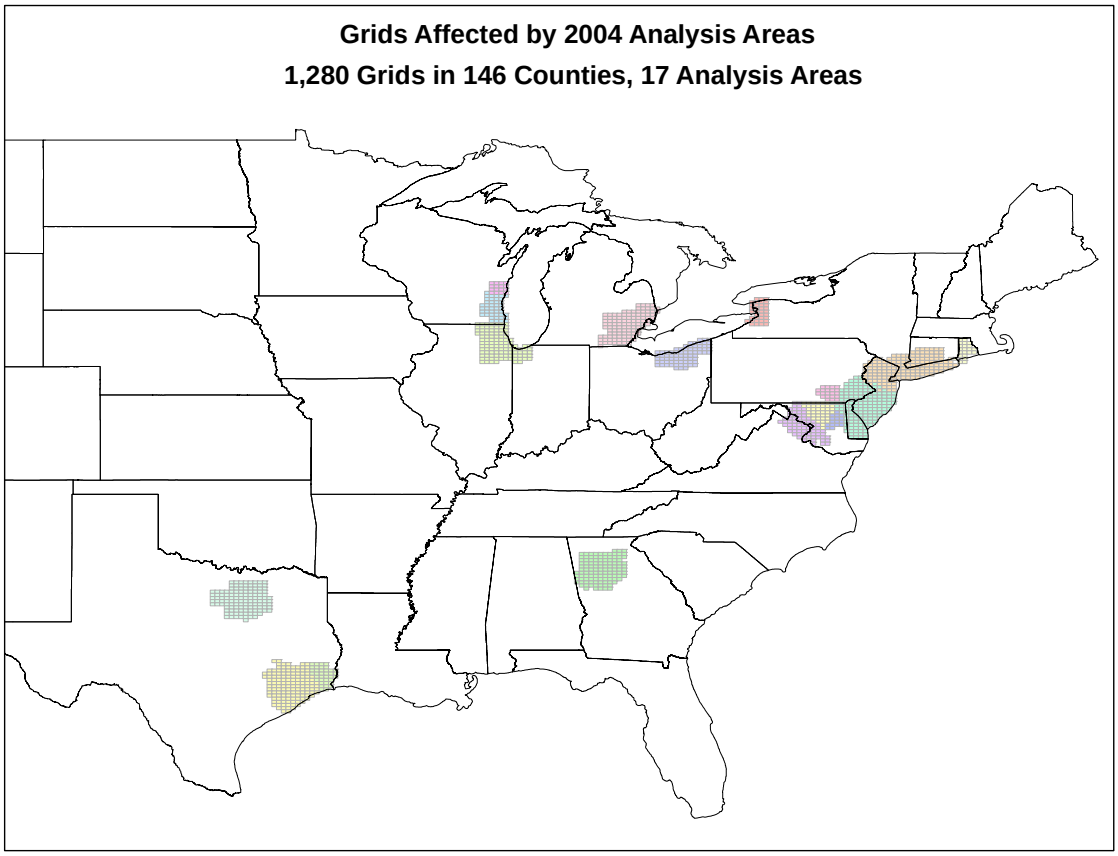

Figure 1.1. Map of areas in which anthropogenic emissions were reduced in the 10 percent and 25 percent sensitivity modeling.

Technical Support Document. A number of sensitivity runs were completed considering NOx-only reductions and combined NOx/VOC reductions at 10 and 25 percent. Only manmade emissions within the 2010 projected nonattainment areas were reduced. A plot of these areas is shown in Figure 1.1. No modeling runs were completed for VOC only runs, but as a first approximation it is possible to compare the model response from the NOx only runs against the NOx/VOC runs to get an estimate of the signal from VOC only controls.

Results:

Table 1.2 shows the sensitivity modeling results over the five nonattainment areas of interest. For each nonattainment area, there is a single county that has the controlling site (i.e., has the highest ozone projections for the area). The Chicago and Milwaukee nonattainment areas share the same controlling site, Kenosha Co., WI. From the information in tables 1.1 and 1.2 it is

possible to combine the percentage level of needed VOC controls with the estimated effect of those controls to develop an rough estimate of the 2010 design value projections for these five areas had the ROP controls been included in the base case.

For example, Providence RI was estimated to need an additional 14 percent VOC control due to the ROP requirements. The projected design value in this area in 2010 without these controls is 86.4 ppb. Based on the sensitivity modeling, we see that 10-25 percent additional VOC control (in all nonattainment areas, not just Providence) will lower the future design value by 0.5 to 0.9 ppb. Even at a 25 percent level, the additional VOC reductions then would not be enough to reach attainment (86.4 - 0.9 = 85.5). This conclusion also holds for the other four areas where the unaccounted ROP VOC reductions are even smaller and the excess above the 85 ppb attainment threshold is larger.

Nonattainment area	County Name	2010 Base Case projection (ppb)	type of emissions control	10 percent reduction simulations	25 percent reduction simulations
Chicago	Kenosha WI	91.3	NOx only	91.3	90.5
			NOx + VOC	90.7	89.3
			VOC only	90.7	90.1
Cleveland	Geauga OH	87.1	NOx only	86.0	84.0
			NOx + VOC	85.8	83.4
			VOC only	86.9	86.5
Milwaukee	Kenosha WI	91.3	NOx only	91.3	90.5
			NOx + VOC	90.7	89.3
			VOC only	90.7	90.1
Providence	Kent RI	86.4	NOx only	85.4	83.1
			NOx + VOC	84.9	82.2
			VOC only	85.9	85.5

Sheboygan	Sheboygan WI	88.3	NOx only	87.2	85.3
			NOx + VOC	87.1	85.0
			VOC only	88.2	88.0

Table 1.2. Summary of 2010 base case and sensitivity modeling for the five cities of interest. All units are ppb. The "VOC only" runs were not modeled but were estimated based on the other two sets of runs.

Based on this sensitivity modeling we do not believe VOC reductions of the magnitude estimated to be needed for ROP purposes would alter the receptors in residual nonattainment in 2010. As noted in the response to comments, even if our conclusion was incorrect, and all five cities did attain as a result of 8-hour ROP reductions, this would not alter our conclusions about the States subject to CAIR. All upwind States are linked to other nonattainment receptors as well as those five cities shown in Table 1.1. For these reasons, we believe that the impact of subpart 2 requirements for 8-hour ozone areas is adequately captured in our CAIR base case and that our findings are valid concerning both: a) the receptors remaining in nonattainment in 2010 and b) the covered States that result from those receptors.

Attachments to Response to Comment III.C.17

A -- -- PM annual means data
B ---- changes in PM annual means
C -- -- PM design value increases
D -- -- ozone historical data ("CAIR data")
E -- -- ozone DV increase counts ("CAIR statistics")

ATTACHMENT A to III.C.17

$PM_{2.5}$ Annual Means Data from EPA's Air Quality Subsystem

Source: http://www.epa.gov/ttn/airs/airsaqs/index.htm

site	poc	status	DV	mean_2001	mean_2002	mean_2003
010030010	1	A	11	10.57931836	10.3706666	12.16752874
010270001	1	A	13.1	12.8168206	13.18301724	13.36892145
010331002	1	A	12.8	12.81733225	12.80825335	12.88574074
010491003	1	a	14.7	14.70643939	14.38703356	14.97567688
010530002	1	A	12.4	12.45813321	11.87444444	12.7192399
010550010	1	a	14.8	15.33522465	14.79425649	14.25582011
010690002	1	a	13.6	14.00165374	13.02791271	13.79516649
010730023	1	NA	18	19.08724502	17.46125969	17.38310788
010732003	1	NA	16.7	17.93138384	16.59326026	15.63273868
010731005	1	A	14.7	14.97083333	15.02172043	14.1047043
010732006	1	A	14.7	15.60431034	14.42169911	14.11961809
010735003	1	A	13.8	14.66668582	13.325901	13.5266713
010735002	1	A	13.7	14.31451613	13.34794587	13.46517241
010731009	1	A	12.6	13.34030172	12.32822859	12.20830645
010890014	1	A	14.1	14.60332684	13.80068008	13.77255376
010970002	1	A	12.6	12.72788932	12.10515599	12.81824413
010972005	1	A	11.8	12.34834584	10.56758537	12.59943373
010970003	1	a	12		11.862	12.07695813
011010007	1	A	14.2	14.24647657	14.3390937	14.02103263
011030011	1	A	13.7	14.48131818	13.07155085	13.68177419
011130001	1	NA	15.3	15.55798823	15.08383333	15.36103448
011170006	1	a	14.4	14.69510753	13.63347496	14.88855839
011190002	1	A	12	12.10897252	11.74980327	12.09813218
011210002	1	A	14.7	14.64878549	14.11352043	15.44918981
011250004	1	a	11.6		10.41666667	12.70308355
011250003	1	a	11.5	11.5125		
011270002	1	a	12.8		11.82115385	13.84124001
020200018	1	A	6	6.07647386	5.980860215	5.941780881
020200044	1	a	6.6	6.170853726	6.932663358	
020900010	2	a	11.9	13.02837558	12.92962644	9.753020833
021100004	2	a	6.8	5.614166667	6.243672003	8.611111111
021100026	1	a	4.8	4.772463054		
021100027	1	a	3.1		3.14932266	
021300008	1	a	4.7	4.743333333		
021700008	1	A	6.4	6.259979475	5.570983397	7.259895833
021700004	1	a	3.6	3.63001091	3.477133257	
022900003	1	a	2	1.635714286	2.452905983	2.028846154

040031005	1	a	7	7.148148148	7.351222944	6.471169872
040051008	1	a	6.7	7.107661401	7.18452381	5.693253968
040070008	1	a	9.3	8.827567918	10.22646739	8.863359987
040139997	1	A	10.7	9.202964223	11.63306745	11.27375
040139990	1	A	9.8	9.367162272	10.36395545	9.631268473
040139992	1	a	11.5	10.91519753	12.0181746	
040130019	1	a	11.4	10.85267836	12.57184287	10.68134141
040190011	1	A	6.8	7.606586134	6.35789068	6.454450642
040191028	1	A	6.7	6.802796443	6.616081029	6.535311622
040210001	1	A	8.2	7.727708333	8.457628205	8.419281136
040213002	1	A	6.3	6.261071429	6.393521505	6.295865262
040217001	1	a	7.7		7.727272727	
040230004	1	A	11.7	11.02366071	12.18333333	11.81125
050010011	1	A	11.9	12.1135137	11.6220756	11.97997253
050030005	1	A	11.8	13.48826007	10.63296152	11.30103626
050310001	1	A	12	12.69625	11.16110577	12.05304392
050350004	1	A	12.7	14.05989292	12.06875158	12.11168939
050450002	1	A	12.6	12.74075893	11.95817308	13.02665293
050510003	1	a	11.7		11.73423002	
050510002	1	a	11	13.13417223	9.944988617	9.95
050690006	1	a	12.9	14.09920361	12.0691611	12.3940702
050890001	1	a	9	9.107083333	8.93293966	9.094514991
050910004	1	a	12.3	13.27001155	12.60149425	11.10814815
050930007	1	A	12	12.57479167	11.9207153	11.64312511
051070001	1	A	12.1	12.711211	11.33730209	12.23730159
051130002	1	A	11	12.16185744	10.58400123	10.28903153
051150003	1	A	12.1	12.40189153	11.88898776	11.89719662
051191004	1	A	14.1	15.90775502	13.0566954	13.38100369
051190007	1	A	13.6	14.71940444	13.23600751	12.8718514
051191008	1	a	14.1	15.33052736	12.77452088	
051191005	1	a	12.8		12.82592175	
051310008	1	A	12.3	13.70409332	11.74890759	11.55568204
051390006	1	a	12.7	13.84135165	12.06956304	12.04970813
051430003	1	a	11.2	11.5601024	10.75825597	
051430004	1	a	10.5		10.48014368	
051450001	1	A	11.9	12.92645503	11.62794016	11.18711293
060010007	1	A	11.6	11.92925473	13.84099102	9.012728758
060011001	1	A	11.1	12.20807292	12.4623814	8.652061794
060070002	1	A	12.9	13.01428571	15.13125	10.50729167
060090001	1	A	8.9	8.053221289	9.902380952	8.638541667
060111002	1	A	9.7	9.575046348	11.56217949	7.949673579
060130002	1	A	10.9	10.24195402	12.67802313	9.663104251
060170011	1	A	7.6	8.15189951	7.641319444	7.153125

060170012	1	a	2.4	3.766397849	1	
060190008	1	NA	19.7	19.80811685	21.548643	17.78425247
060195025	1	NA	19.2	18.59983333	21.2528125	17.81802083
060195001	1	NA	17.6	18.02950549	16.1953125	18.48968254
060231002	1	A	8.5	9.392307692	7.932475962	8.158479853
060251003	1	A	9.1	8.924051375	9.295287698	9.215814655
060250005	1	a	14.4	14.94491387	15.07436166	13.11456281
060250003	1	a	10.6	11.06235551	10.19332161	10.43211164
060271003	1	A	6.2	5.536063218	8.229599105	4.920124759
060290010	1	NA	21.8	21.82623219	24.07894223	19.62577381
060290016	1	NA	20.7	20.84112388	23.53080255	17.81862366
060290014	1	NA	20.3	21.16621141	22.68760687	17.10709598
060290015	1	A	6.9	6.535416667	8.193643162	5.907679487
060290011	1	A	6.7	6.078743386	7.865524741	6.209617361
060310004	1	NA	19	19.1796131	21.45278633	16.23255337
060333001	1	A	5	4.239241071	6.3859375	4.440208333
060371002	1	NA	23.6	24.77561395	23.96612903	22.12952593
060371601	1	NA	23.3	25.19436907	24.02923835	20.55047779
060371301	1	NA	22.7	24.45934524	23.31370968	20.25625795
060371103	1	NA	22	22.81486926	21.97697269	21.3269003
060370002	1	NA	20.6	21.67709588	20.69134348	19.31028269
060372005	1	NA	19.9	20.85359656	20.2567297	18.64137931
060374002	1	NA	19.6	21.18096901	19.51014042	18.02411901
060371201	1	NA	17.9	18.3619727	18.87013249	16.49408621
060374004	1	na	20.6		20.63908356	
060379002	1	a	10.5	10.45948276		
060379033	1	a	9.5	8.833333333	10.35863913	9.386994809
060450006	1	A	8.1	7.983125	9.0746875	7.35125
060472510	1	NA	17	16.75294872	18.73821993	15.655
060490001	1	a	6.7	7.584592491	5	7.5
060510001	1	a	8.9	10.2962963		7.596014493
060531003	1	A	8.4	8.631365614	9.139138655	7.294375
060571001	1	A	8.1	9.362988506	7.563024099	7.269043887
060570005	1	a	5.8	5.673214286	6.344135032	5.357142857
060590001	1	NA	19.3	21.97753201	18.62268478	17.32443572
060592022	1	A	14.8	15.83684753	15.48962458	13.09177814
060610006	1	A	11.7	11.89821429	13.23154762	9.891666667
060631009	1	na	15.1	15.61676471	16.35959596	13.28456012
060631006	1	a	9.8	11.46886021	10.91399711	6.990517241
060658001	1	NA	27.8	30.9518583	27.49406966	24.81417988
060651003	1	NA	25.9	28.15293887	27.07441138	22.61896452
060652002	1	A	11.8	12.15600369	11.93410099	11.43263865
060655001	1	A	9.9	10.72145594	10.01200222	8.957051474

060670010	1	A	12.5	11.63349264	14.29672035	11.61473661
060670006	1	a	11.5	10.05860682	12.10213195	12.27327231
060674001	1	a	10.3	8.641402715	11.31847199	10.81501994
060710025	1	NA	25.2	26.47200825	25.39921429	23.79584552
060719004	1	NA	24.7	26.05854911	25.83318966	22.17321561
060712002	1	NA	23.8	25.04456349	24.3002381	22.13764493
060710306	1	A	12.5	11.51989247	13.86867816	11.97999681
060718001	1	A	11.1	11.21627976	11.4671875	10.61641941
060731002	1	NA	15.9	17.49478408	15.98908621	14.1906929
060731007	1	NA	15.9	16.61517403	15.54030029	15.47063505
060730003	1	NA	15.7	17.67472011	15.39101207	13.89523072
060730001	1	A	14.6	15.45547573	13.93704344	14.44160714
060730006	1	A	12.8	13.503633	13.00971787	11.93440579
060750005	1	A	11.6	11.49972333	13.05476067	10.14127222
060771002	1	A	14.7	13.85430108	16.6828125	13.58484848
060798001	1	A	9.2	10.13431548	9.186979167	8.188482143
060792002	1	A	8.4	9.253214286	8.420897436	7.410600962
060811001	1	A	10.6	11.31263441	11.50814659	9.008783997
060831007	1	A	9.5	10.39614583	9.524776786	8.552619048
060830011	1	a	9.8		9.790151515	
060852003	1	A	11.1	11.21527954	11.97833075	10.10515382
060850005	1	a	14.6		17.53139535	11.71046194
060850004	2	a	12.4	12.41383384	12.37619048	
060870007	1	A	8.4	9.128928571	8.569243697	7.392082189
060890004	1	A	9.1	9.183035714	10.52232143	7.526041667
060950004	1	A	11.8	12.48420618	13.61291973	9.364705882
060970003	1	A	10	10.79851852	10.54272876	8.754921303
060990005	1	NA	16.2	15.57948589	18.67289834	14.49569892
061010003	1	A	11.5	11.87777778	13.0770202	9.496875
061072002	1	NA	21.3	22.49180912	23.22230256	18.21350575
061112002	1	A	14.5	14.87208704	14.55905629	14.15718107
061110007	1	A	12.9	14.13690476	12.62575269	11.92483871
061113001	1	A	12.6	13.13149599	12.95973033	11.73546296
061110009	1	a	12	12.96093943	12.03529611	10.97684524
061131003	1	A	9.8	10.38928571	10.72141419	8.42637931
080010006	1	A	10.4	10.48337064	10.11479422	10.5543915
080010001	1	a	12.6	12.59010417		
080050005	1	A	8.9	9.202263825	8.878253615	8.509166667
080070002	1	a	6.8	6.809134615		
080070001	1	a	6	5.709953704	6.535441468	5.732142857
080130003	1	A	9.4	9.937312755	9.092405303	9.120185185
080130012	1	A	8	8.351827957	8.18077957	7.52158046
080290004	1	A	8	7.281785714	8.516877289	8.19349359

080310002	1	A	10.8	11.80196123	10.17702148	10.51213679
080310013	1	a	13.5	13.46375		
080350003	1	a	6.4	6.387693452		
080390001	1	A	4.5	4.282408405	4.56015345	4.622951613
080410011	1	A	7.8	7.716590909	7.769508929	7.958796296
080410008	1	A	7	7.500026882	6.587314815	6.771292875
080510005	1	A	6.9	6.373214286	7.018184524	7.434695513
080670008	1	A	5.7	4.922402597	5.975912698	6.274358974
080690009	1	A	7.9	8.628266593	7.73575	7.31453725
080770003	1	A	7.8	7.800420772	8.105221013	7.478333333
080770017	1	a	10.4	11.96	8.745595238	
081010012	1	A	8	8.515420838	7.758728217	7.618455037
081070003	1	A	7.4	7.869253663	7.533516484	6.910232372
081130004	1	A	5.6	6.232009804	5.510160256	5.094047619
081230008	1	A	9.6	10.60608295	9.221410256	8.952148787
081230006	1	A	9	9.719655172	8.83971444	8.379056034
090010010	1	A	13.3	13.73325269	13.33440132	12.7880094
090012124	1	A	13.3	13.0025216	13.32077176	13.5009255
090011123	1	A	13.2	13.20461047	13.14230769	13.3463558
090013005	1	A	13.2	13.41916667	13.18344704	13.06886232
090010113	1	A	12.9	12.74148148	13.52229689	12.29912037
090019003	1	A	12	12.07809524	12.14120367	11.70802682
090031018	1	A	13.1	13.01429028	13.22858682	13.01599866
090031003	1	A	11.9	12.26941736	11.80117523	11.71932089
090090018	1	NA	16.7	16.98785432	16.32316759	16.84983764
090091123	1	A	14.1	14.32416667	13.89360119	13.99445402
090092123	1	A	13.4	13.93183908	13.63615293	12.63373563
090099005	1	A	11.9	11.87756682	11.60982479	12.2989023
090098003	1	a	12.9		12.85100855	
090090026	1	a	11.9		11.90828283	
090092008	1	a	11.9		11.89045477	
090113002	1	A	12	12.74137931	11.67878139	11.67947629
100010003	1	A	13.1	13.98901515	13.15817204	12.28508112
100010002	1	A	13	13.04975476	13.12053763	12.70930948
100032004	1	NA	16.2	17.61812504	15.42140333	15.45482042
100031012	1	NA	15.1	15.80866122	14.71679534	14.80188746
100031003	1	A	15	15.58447511	14.68670745	14.81090016
100031007	1	a	13.9	14.5366636	14.03135281	13.26252706
100051002	1	A	13.6	14.43217742	13.81013441	12.49715345
110010041	1	NA	15.8	17.11932675	15.52949748	14.75040869
110010043	1	NA	15.2	16.1263351	15.31171643	14.27164468
110010042	1	a	14.7	15.04454284	15.56596154	13.3839114
120010024	1	A	10	10.42392473	9.88051549	9.68280914

120010023	1	A	9.8	10.01192848	9.870522207	9.45540508
120051004	1	a	11.1	11.78505344	10.64087644	10.77282258
120090007	1	A	7.9	8.647068966	7.563940489	7.451005747
120113002	1	A	8.3	8.606878079	8.028460591	8.162094017
120112004	1	A	8.2	8.608619469	7.93099279	7.948403407
120111002	1	A	8	8.356879127	7.796942751	7.766240107
120170005	1	A	9	9.676991758	8.630140485	8.676457718
120310099	1	A	10.4	11.25812072	10.19261701	9.80127809
120310098	1	A	9.9	10.94482581	9.289876964	9.446146519
120330004	1	A	11.2	11.39078818	10.95345522	11.17646644
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120571075	1	A	11	11.70304761	10.7543647	10.48169838
120710005	1	A	8.3	9.208936782	7.813815284	7.984673578
120730012	1	A	12.4	12.51038314	12.92082949	11.82640177
120814012	1	a	9.2	10.39583333	8.913603409	8.423148148
120830003	1	A	9.8	10.37039091	9.823980705	9.300619612
120861016	1	A	9.5	10.0009209	9.129703441	9.395074392
120866001	1	A	7.8	7.943977591	7.405940068	7.918035341
120951004	1	A	10	10.84514892	9.690327505	9.438352764
120952002	1	A	9.8	10.73884649	9.521100598	9.275354406
120990009	1	A	7.4	7.690770308	7.042922772	7.360979494
120992003	1	a	9.1	9.140838068		
120990008	1	a	7.6	6.441463415	8.294012457	8.09605039
120992005	1	a	7.1	6.509601906	7.308718125	7.481241066
121030018	1	A	10.3	11.2520134	10.34261309	9.328952768
121031008	1	a	10.7	10.18624112	11.12142857	
121031009	1	a	9.1		9.054679803	
121056006	1	A	10.1	11.13509089	10.08628412	9.193626251
121111002	1	A	8.4	8.991283233	8.008165025	8.346351708
121130014	1	a	9.6	9.318020022	9.894913793	
121150013	1	A	9.1	10.00603448	8.859008025	8.579319614
121171002	1	A	9	9.673918441	8.852728031	8.557795699
121275002	1	A	9.1	10.00154762	8.750727741	8.52250877
130210007	1	NA	15.2	16.11172161	14.7869086	14.80583333
130210012	1	A	13.3	13.75625	13.15623563	12.94903736
130510017	1	A	13.8	15.24600175	12.77739286	13.37407225
130510091	1	A	13.6	14.71443815	13.09005858	13.05306698
130590001	1	NA	15.6	17.53039103	14.96233466	14.31375283
130630091	1	NA	16.1	17.05923071	15.32796662	16.02031546
130670003	1	NA	16.1	17.21502976	15.11150309	16.00524253
130670004	1	na	15.2		15.20573253	
130892001	1	NA	16.1	18.0534574	14.8928792	15.40720577
130890002	1	NA	15.7	16.8063752	15.36577818	14.97146857

130950007	1	A	14	14.63650794	13.81569372	13.39905172
131150005	1	NA	15.6	15.90823485	14.54729624	16.22545977
131210039	1	NA	18	19.09022989	17.34863064	17.65880462
131210032	1	NA	16.3	17.18523273	15.60413282	16.07137769
131211001	1	na	16	15.97063591		
131270006	1	a	11.6	12.12232143	10.87196429	11.71682636
131350002	1	NA	15.6	15.35378788	15.2557864	16.19309524
131390003	1	a	14.9	15.51944802	14.60156593	14.69032971
131530001	1	A	12.8	12.90867861	12.35958333	12.98950893
131850003	1	A	11.7	12.11747024	11.79819347	11.26386447
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132150011	1	A	14.3	15.8260078	13.80675224	13.15418514
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132230003	1	A	14.1	14.87120051	13.70925926	13.7560858
132450091	1	A	14.7	14.97012963	14.35577955	14.8133461
132450005	1	na	15.3	14.93707265	16.07024138	14.88397874
132950002	1	NA	15.5	15.55123168	14.83811355	16.00345238
133030001	1	A	14.1	14.79456294	13.64091575	13.72821429
133190001	1	A	14.9	17.0135	13.91079841	13.83260083
150031004	1	A	5.3	5.201570929	4.772083333	5.806889881
150031001	1	A	4.1	4.108798154	3.971558345	4.293395892
150032004	1	a	4.7	4.494431289	5.188801708	4.415922428
150030010	1	a	3.9	4.375800493	3.85290293	3.529094687
150090006	1	A	5	4.861311163	4.6698659	5.544960724
160010011	1	A	9.1	9.921127581	9.960708865	7.351666667
160010021	1	a	11.2	14.345	8.014791667	
160010017	1	a	7.1	8.513130227	5.757592593	
160050015	1	A	8.2	9.898996715	8.801184753	5.8725
160050006	1	a	7.7	8.742718262	8.549517196	5.675555556
160050018	1	a	5.8		5.792307692	
160090010	1	a	12.2		12.16151515	
160150001	1	a	8.6		10.52333333	6.655555556
160150002	1	a	5.4		5.439535465	
160170004	1	a	8	8.476658456	7.838839286	7.646153846
160170005	1	a	6.8		6.813504274	
160190010	1	a	9.3	6.832277765	7.729097701	13.24
160190011	1	a	6.7	7.093469732	7.188106781	5.869069549
160190013	1	a	5.2		5.175037879	
160210002	1	a	8.2		9.423076923	7.061683498
160270005	1	A	9.6	11.09043011	9.665556249	7.922395833
160270004	1	A	9.2	10.81539555	9.467419355	7.464294872
160290003	1	a	4.6		4.726666667	4.555892857
160490003	1	a	11.2		12.6047619	9.80469697

160490002	1	a	5.6		5.5925	
160550014	1	a	8.6		10.33333333	6.95
160550006	1	a	8.5	9.039367816	9.712923337	6.756666667
160570005	1	a	5.1		6.596666667	3.620192308
160590004	1	a	7.7		7.743055556	
160690009	1	a	7.9	9.14440194	8.388059629	6.253333333
160690012	1	a	6.6		6.555120713	
160770011	1	A	10.7	14.38111378	10.08497024	7.590833333
160790017	1	A	12.7	12.17321467	14.22102823	11.64666667
160830010	1	a	6.8	6.937578791	7.196690768	6.1196337
160830006	1	a	2.7	3.126906318	2.19047619	
160850001	1	a	8.4	10.18	6.60452381	
170010006	1	A	13.1	12.22822917	13.70767857	13.33779762
170190004	1	A	12.6	12.59464286	12.20380952	13.03047619
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170316005	1	NA	16.7	17.34201852	15.98927976	16.77160526
170310050	1	NA	16.3	18.11770285	15.46581219	15.35666667
170313301	1	NA	16.1	16.50610514	16.11961726	15.6
170310022	1	NA	16	17.11005747	15.30644636	15.57626942
170310014	1	NA	15.9	17.0969182	15.49537767	15.08856527
170310057	1	NA	15.7	16.23853226	15.20868429	15.6138235
170310076	1	NA	15.7	16.53137097	15.66262699	14.84047403
170312001	1	NA	15.7	17.1075	15.18430108	14.92151022
170314007	1	A	14.1	14.81621802	14.43516129	13.18724946
170314201	1	A	13.3	14.69901058	13.16931369	12.1364546
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170434002	1	A	14.4	15.54251234	14.67876933	13.11305422
170890003	1	A	14.2	15.03846154	14.24162125	13.32547619
170971007	1	A	12.8	13.81357143	13.44274194	11.26214286
170990007	1	x	14.1	14.44879755	14.77014368	13.05119048
171110001	1	A	12.7	13.69581049	12.25887653	12.20614263
171132002	1	A	13.6	14.78542239	12.8475	13.14870879
171150013	1	A	14	14.27194389	14.0973514	13.5640873
171191007	1	NA	17.5	17.28908832	17.70940392	17.51091796
171192009	1	A	14.8	15.80061713	14.70321547	14.03054598
171193007	1	A	14.7	14.94502771	15.12486207	13.9833908
171190023	1	x	19.1	19.7440328	19.55621958	18.07693456
171430037	1	A	13.8	13.94053393	13.87697044	13.66675595
171570001	1	A	12.4	12.086875	11.55678571	13.4385119
171613002	1	A	12.4	12.78959936	11.815	12.74376488
171630010	1	NA	16.2	17.00465291	16.65096403	14.84745711
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171670012	1	A	13.3	13.2454332	13.55013441	12.99206897
171971002	1	A	14.7	16.05784326	14.33446237	13.76104167
171971011	1	A	12.8	12.91947917	13.46666667	11.87614583
172010010	1	a	13.6	13.9587884	14.74261494	12.19266827
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180372001	1	NA	16.2	16.54129431	16.33557348	15.72241379
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180650003	1	A	13.6	13.63978175	13.65483333	13.36094183
180670003	1	A	14.7	15.01062525	14.71824713	14.25878205
180830004	1	a	13.9	13.38882635	14.20466929	13.9587404
180890026	1	NA	17.7	18.18904406	17.67038376	17.38147436
180890006	1	NA	15.2	16.11141009	14.91717434	14.60198004
180892004	1	A	14.9	15.37797588	14.6966321	14.55028736
180892010	1	A	14.9	15.54915042	14.87846774	14.26123897
180891016	1	na	16.1	16.25644689	15.92411765	
180891003	1	a	14.8	14.98259457	15.21663474	14.13711638
180890027	1	a	14.6	15.17969295	14.5978782	14.09676405
180896000	1	a	13.6		13.64444444	
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180910012	1	A	13.6	14.16998563	13.46898684	13.19511905
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180950009	1	a	14.6	14.61307143	14.90666722	14.34792354
180970083	1	NA	16.7	17.08825723	16.71796824	16.32017798
180970078	1	NA	16.2	16.58020058	16.55322343	15.50157509
180970079	1	NA	15.6	16.2478891	15.75344889	14.6691954
180970042	1	A	14.8	14.77874384	15.223731	14.52578576
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180970066	1	x	18.1	18.6262963	18.34688172	17.45957982
180970043	1	x	17.3	17.68880952	17.02146609	17.22669328
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181270020	1	A	13.4	13.62115163	13.23632766	13.19373077
181411008	1	A	14.3	14.71885753	14.38592788	13.81400074
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181412004	1	A	14	14.48017503	13.9125	13.4885
181470009	1	A	14.4	14.51571429	14.06160714	14.62696886
181570008	1	a	14.7	14.90365385	15.26113095	13.97991379
181630016	1	NA	15.5	16.16298208	15.24215713	15.08816297
181630006	1	NA	15.3	15.45107163	15.36396552	14.94026418
181630012	1	NA	15.2	15.15291667	15.26781127	15.26833844

181670018	1	A	14.6	15.18487502	14.54668313	14.1074881
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190130008	1	A	11.3	11.79784483	10.9486924	11.26721652
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190450021	1	A	12.3	12.50739247	11.80241935	12.44071839
190630003	1	A	9	9.20443672	8.113284458	9.653977833
191032001	1	A	11.6	11.67424731	11.37591398	11.76510753
191130037	1	A	11.2	11.69124219	10.96106871	10.97356293
191130036	1	a	11.4	11.58159016	11.13400922	
191370002	1	a	9.8		9.982098765	9.564876117
191390015	1	A	13	13.15967742	12.73679088	13.19557008
191532520	1	A	10.6	10.60679457	10.54512096	10.71749589
191532510	1	A	10.4	10.2687037	10.32388594	10.73803903
191530059	1	a	11.1	11.10939303		
191530030	1	a	10.5		10.57803571	10.46936674
191550009	1	A	10.7	10.48178161	10.55444733	11.00061828
191630015	1	A	12.5	13.2104426	12.25218271	12.06738051
191630018	1	A	12.2	12.56140805	12.0036828	12.04222222
191692530	1	a	10	10.29793103	9.801845281	
191770005	1	A	10.6	10.62322879	10.32354819	10.89337302
191930017	1	A	10.3	10.54624583	9.627043011	10.83642857
191970004	1	a	10.6		10.59283794	
200910009	1	A	11.8	11.84554329	11.90775319	11.58447965
200910007	1	A	11.7	12.07123656	12.18519231	10.98816964
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201730010	1	A	11	11.16422619	10.61520671	11.17811576
201770010	1	A	11	10.71436225	11.13645161	11.13383065
201770011	1	A	10.8	10.38510887	10.8705914	11.03354839
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210130002	1	A	14.5	15.07654304	14.29019231	14.20923077
210190017	1	A	14.9	15.27158009	15.54125821	13.9320291
210290006	1	A	14.9	15.55461823	14.69218391	14.37389163
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210430500	1	A	12.1	12.35571429	12.43796182	11.40767344
210470006	1	A	13.5	13.50928202	13.09326742	13.85932835
210590014	1	A	14.8	15.17727833	14.63856897	14.62258506
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210730006	1	A	13.6	13.85286325	13.73684444	13.06582375
210930006	1	A	14	14.60895867	13.97852217	13.38757937
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211110044	1	NA	16.9	17.73403797	17.45124413	15.37767133
211110048	1	NA	16.3	16.90495791	16.42557692	15.53247619
211110051	1	NA	15.6	16.27178571	15.72405983	14.9207967
211111041	1	na	18.7	18.74482761		
211110043	1	na	16.8	17.10361446	17.16370537	16.02075714
211170007	1	A	14.9	15.25245849	15.06072061	14.29653846
211250004	1	a	12.6		13.02150766	12.10745671
211451004	1	A	13.5	14.11213282	12.61027254	13.753
211510003	1	A	13.4	13.85200595	13.45507479	12.92731034
211930003	1	A	13.6	14.32759615	13.02984848	13.30208333
211950002	1	A	13.7	14.49353746	13.57847701	13.13078691
212270007	1	A	13.8	14.77306008	13.27032834	13.30959618
220171002	1	A	12.6	13.14624664	12.37239247	12.36284946
220190010	1	A	11.3	12.122321	10.66861751	11.21517241
220190009	1	A	10	10.34970245	9.347559524	10.26908602
220290003	1	a	12.7	15.20952381	11.01677083	11.74871041
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220330009	1	A	13.1	13.63899431	12.41514331	13.1539043
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220470005	1	A	12.4	12.63717949	12.49751082	12.15201087
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220512001	1	A	12.2	13.03416667	11.54333333	11.98802083
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220550005	1	A	10.9	11.48761223	9.980167779	11.1827957
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220710010	1	A	12.2	13.1995977	11.10634409	12.26485632
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220730004	1	A	11.4	11.85290827	10.77889321	11.71666667
220790002	1	a	11.5		11.54416667	
220790001	1	a	10.8	12.1530469	10.55166667	9.732758621
220870004	1	A	10.4	11.29806644	9.685026882	10.30740749
221050001	1	A	11	11.85585317	10.19765109	10.83021505
221090001	1	A	10.4	10.89367213	9.333924731	10.88025028
221210001	1	A	12.7	13.138841	11.99034317	13.06292438
230010011	1	A	11.1	11.30880396	10.45095729	11.40534722
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230031011	1	A	9.1	8.28717636	9.120882594	9.749433498

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230050028	1	a	10	10.41364583	9.641199634	
230052003	1	a	8.3	8.765393773	7.83191313	
230090103	1	A	6.5	6.629571429	6.007067602	6.737996068
230112002	1	A	10.9	11.30017857	9.117802198	12.33599702
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230132001	1	a	7	7.639166667	6.273351648	
230172011	1	A	10.3	10.77613095	9.028421474	10.95199405
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230194003	1	a	9.5	9.773351648	9.126854396	
230310008	1	A	9.8	10.01660371	9.042261905	10.30440476
240031003	1	NA	15.3	15.62443614	15.34776942	14.78855911
240032002	1	A	14.2	14.79348978	14.21539395	13.59331281
240030019	1	A	13	14.01966092	12.92999179	12.11701149
240030014	1	A	12.1	12.76369048	12.40566755	11.27336996
240053001	1	NA	15.2	16.05944481	14.51553733	14.99902147
240051007	1	A	14.2	14.85270685	14.08531609	13.55130952
240150003	1	a	13	13.62523656	12.58361303	12.65400387
240251001	1	A	12.8	13.61542367	12.21994048	12.46938095
240313001	1	A	12.6	12.76213282	13.0312444	11.94189359
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240338003	1	a	14.1		15.49271605	12.61316708
240338001	1	a	13.5	13.49904698		
240330002	1	a	11.8		12.14047976	11.45557961
240430009	1	A	13.9	14.168363	14.62164774	12.99936133
245100040	1	NA	16.6	17.41858466	15.690046	16.80370544
245100035	1	NA	15.9	16.24453088	15.23447501	16.18977275
245100049	1	NA	15.4	15.74345365	15.09305608	15.35920115
245100007	1	A	15	15.28842838	14.58321839	15.1048919
245100052	1	na	17.4	17.3661442		
245100008	1	na	16.5	19.34532258	15.53657841	14.48857188
245100006	1	a	14.1	14.59763049	14.1010119	13.57384138
250035001	1	a	12	13.34956459	11.44103098	11.06792007
250053001	1	a	12.2	13.33875661	11.12371795	
250052004	1	a	11.5	12.67455578	10.38365148	
250051004	1	a	10.2		10.21243981	
250096001	1	a	11.1	11.10010573	10.36798447	11.88920304
250092006	1	a	10.7	12.13316288	10.06455882	9.836350575
250095005	1	a	10.3	12.57934589	9.382206349	9.010226579
250130016	1	a	13.4	13.84018014	13.45653763	12.97482459
250132009	1	a	12.2		12.80723051	11.53057215
250130008	1	a	10.8	11.12646922	10.93815137	10.26848757

250154002	1	a	8.8	9.23252886	8.274302486	
250170008	1	a	11	11.3444697	10.63664705	
250171102	1	a	9.9	10.57436738	9.188045336	
250210007	1	a	12.4	13.00778228	11.75708333	
250230004	1	A	11.2	12.14974457	11.63931777	9.790180329
250250043	1	a	14.2	16.03725198	13.0797619	13.62015361
250250002	1	a	14.1	16.58383161	12.95799922	12.80737206
250250027	1	a	13	13.19849184	13.36168831	12.50294965
250250042	1	a	12.4	14.68639662	11.10268382	11.40123378
250270020	1	a	11.8	12.8075986	11.62991862	10.82721112
250270016	1	a	11.4	13.20729167	10.86633578	10.00416667
250272004	1	a	10	10.63642925	9.402183908	
260050003	1	A	12.5	12.82180098	12.42430708	12.39206714
260070005	1	a	9.5	9.860913978	9.05889532	
260170014	1	A	11.2	11.53437596	11.24899649	10.88871328
260210014	1	A	12.7	13.15727011	12.52703003	12.45952606
260330901	1	A	8.3	8.327693586	7.934326037	8.607775953
260330902	1	A	7.9	7.936582314	7.790694444	8.107503193
260490021	1	A	12.6	13.12179233	12.5435944	12.01663793
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260650012	1	A	13.4	13.84677072	13.52822044	12.94635057
260770008	1	A	14.7	15.53574074	14.81349754	13.85178343
260810020	1	A	13.8	14.46447479	13.37440234	13.51561303
260990009	1	A	13.3	13.59961823	13.34983103	12.80500561
261130001	1	a	7.9		7.907384615	
261150005	1	NA	15.1	15.29755811	16.25337831	13.72889033
261210040	1	A	12.3	12.57094086	12.3622154	11.86939655
261250001	1	a	14.8	14.72692308	14.99920635	14.5843295
261390005	1	A	13.4	13.84081076	13.57827586	12.69087968
261450018	1	A	11	11.49635607	10.79407509	10.62023387
261470005	1	A	13.9	13.81643956	13.92230843	14.06944238
261610008	1	A	14.6	14.42818966	14.86999361	14.56679726
261610005	1	A	13.4	13.51010281	13.5727381	13.05823724
261630033	1	NA	19.5	19.60837438	19.84005747	19.11269499
261630015	1	NA	17.4	18.27853243	17.42792976	16.63018519
261630036	1	NA	16.9	18.20147989	16.28232143	16.25645484
261630001	1	NA	16.1	17.23450815	15.90471159	15.19710768
261630016	1	NA	15.7	15.78823512	15.59164654	15.82659457
261630019	1	A	14.9	14.5042153	15.6430174	14.62913155
261630025	1	a	14.4	14.5948659	14.37240011	14.14496821
270353202	1	a	8.7	8.667777778		
270370470	1	A	9.8	10.03846908	9.891880587	9.324736958
270376018	1	A	9.8	10.6033867	9.713734705	9.007045527

270412110	1	a	7.1	7.143333333		
270475401	1	a	13.3	13.28030303		
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270530963	1	A	10.7	11.60812426	10.22629052	10.17119707
270532006	1	A	10.3	11.40801463	10.14383641	9.301348865
270530961	1	A	10.2	11.23599269	9.940086207	9.48244478
270530965	1	a	10.9		11.96111111	9.818511905
270530050	1	a	10.6		10.96935185	10.25224702
270530964	1	a	10.3		10.52691964	10.0265625
270611105	1	a	8	8.017676768		
270674110	1	a	9.4	9.432777778		
270953051	1	A	7.1	7.317365338	7.027078396	6.876305151
271035109	1	a	10.6	10.63055556		
271095008	1	A	10.9	12.13147065	10.42663993	10.14270051
271230866	1	A	12	12.79572581	11.32426519	11.83394294
271230868	1	A	11.9	12.91991263	11.17654509	11.50832672
271230871	1	A	10.8	11.8233614	10.43959295	10.22471821
271230872	1	A	10.2	11.19928543	9.97125576	9.544082785
271377551	1	A	8.3	8.805714286	7.906548855	8.281726919
271377001	1	A	6.7	6.870959596	6.899707201	6.412268519
271377550	1	A	6.7	7.078770806	6.291422811	6.738132184
271390505	1	A	9.9	10.81171366	9.795465928	9.122183908
271453052	1	A	9.7	10.78715599	9.23791507	8.937652116
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280110001	1	A	12.4	12.74069581	11.73283741	12.76407314
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280350004	1	A	13.3	13.56384409	12.7968846	13.59793946
280450001	1	A	10.1	10.25486559	9.521153846	10.54603495
280470008	1	A	11.4	11.65207082	10.64130131	12.0030038
280490018	1	a	13.3	13.71523652	12.06989469	14.1194512
280490010	1	a	13.1	13.22241174	12.13411111	13.82263889
280590006	1	A	11.7	12.17712644	10.95558954	11.94569376
280670002	1	A	14.4	14.29666667	13.74025641	15.0689908
280750003	1	a	13	13.41271264	12.75729115	12.75722222
280810005	1	A	12.4	12.83954493	11.76517241	12.51180371
280870001	1	A	13.3	13.43599343	13.30373412	13.15884331
281090001	1	A	11.7	11.74168057	11.15193966	12.16438172
281210001	1	A	13.1	13.40659483	12.51494624	13.44507913
281230001	1	a	11.7	11.52591191	11.18334046	12.36893773
281490004	1	A	12.2	12.87611065	11.33382184	12.49252498
290190004	1	a	12.4		12.368711	12.4417791
290210010	1	A	12.6	12.90448369	12.99822303	11.89206989
290370003	1	a	11.4	11.44410754	11.72741121	11.09154762

290390001	1	A	11.6	11.64376375	11.7954023	11.38734969
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290950034	1	a	13.5		13.51517168	
290950037	1	a	13.4	13.01432332	13.32740267	13.83384974
290952002	1	a	13.1	14.17117816	14.01102852	11.13333333
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290970003	1	A	13.9	14.47590749	13.9020787	13.39064815
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291290001	1	a	11.1		11.66813336	10.51612239
291370001	1	A	11.3	11.2085076	11.35841676	11.36531795
291831002	1	A	14.3	14.96892281	14.04239433	14.02290786
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291892003	1	A	14	13.92854746	14.5712263	13.63570452
291895001	1	a	13.1	13.42105488	13.43860215	12.52833333
291890004	1	a	12.8	12.37079365	13.04179147	12.95238506
295100087	1	NA	15.2	15.42182054	15.57561357	14.66580958
295100085	1	A	14.9	15.23710691	15.38393322	14.12349874
295100007	1	A	14.8	14.82354311	15.30765087	14.41112719
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300310008	1	a	8.3	8.864279967	7.352178161	8.627013305
300310013	1	a	2.5		2.468181818	
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300470013	1	A	9	9.433435961	7.600648148	9.974396552
300490025	1	a	9.9	8.757142857	11.10639881	
300490018	1	a	8.1	8.717757937	6.517067529	8.933743687
300490019	1	a	6.6		6.56794272	
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300630031	1	a	10.5	10.43478632	8.474366359	12.69367369
300630012	1	a	10.3		9.715804598	10.83181334
300630024	1	a	9.4	10.49522154	8.3	
300810001	1	a	8.4	9.131806453	6.989439655	9.185233516
300870307	1	A	6.8	7.00038665	6.219360806	7.269481352
300890007	1	A	6.6	6.343678161	6.173371648	7.154135758
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310270001	1	a	8.1	8.779017857	7.500833333	
310310001	1	a	4.4	4.819605807	4.033111111	
310490001	1	a	5.7	5.8905	5.526309524	
310550051	1	A	10.7	11.14583333	10.52416814	10.47892473
310550019	1	A	10.5	10.89670488	10.68206587	10.04092515
310550052	1	A	10.1	10.66758792	9.323861999	10.45206126
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311090022	1	A	9.6	9.971537193	9.50188172	9.318571429
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311530007	1	A	10.3	10.51715201	10.58559934	9.881657268
311570003	1	A	6	6.206494048	5.688238916	6.097832723
311770002	1	a	9.8	10.11410489	9.975775221	9.286723485
320030560	1	A	11	10.60902942	11.703282	10.67599682
320032002	1	A	9.7	9.88465312	9.641811573	9.543694515
320030298	1	A	6.4	6.576340047	6.433143524	6.18769943
320030022	1	A	4.4	4.36025641	4.741279762	4.227306548
320031019	1	A	4	4.20744906	3.969180043	3.719468391
320050008	1	a	3.4	4.632258065	2.142857143	
320310016	1	A	9	10.3258871	9.195281963	7.337069892
320312002	1	a	5.8	5.78172043	5.857142857	
330012004	1	a	8.3	10.48507937	7.154117647	7.2621875
330050007	1	A	11.8	11.63108059	11.7781994	12.0296875
330070014	1	A	9.6	10.33591346	8.686375855	9.751102151
330090008	1	a	8		8.293095238	7.685264423
330111007	1	a	11.8	10.82630546	12.75454545	
330110020	1	a	10.9	11.44573828	10.96089388	10.37718014
330110019	1	a	10.6	10.55		
330111010	1	a	9.8		9.963465822	9.720523862
330115001	1	a	7.8		9.028958333	6.535520833
330130003	1	A	9.6	9.692647849	9.916554917	9.237370226
330135001	1	a	5.2	5.927174908	4.526923077	
330150014	1	a	10.8	12.98076464	9.877495365	9.586255032
330150006	1	a	9.8	8.230357143	10.45823886	10.79
330150009	1	a	8.2	8.221969697		
330190003	1	A	10	9.778086081	9.584672619	10.50313988
340011006	1	a	11.6	11.19333333	11.57640599	12.03759176
340030003	1	a	13.8	14.54006139	13.50068687	13.32790242
340070003	1	a	14.6	13.75505291	14.06516129	16.06330733
340071007	1	a	14.3	14.22767702	14.62229885	13.91932244
340130016	1	a	14.5	15.1755	14.85083426	13.53833333
340130015	1	a	13.8	13.53388795	13.74405109	14.06214744

340155001	1	a	13.8	14.52621607	13.02471025	13.7559842
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340210008	1	A	14	14.93398842	13.74538793	13.4666986
340218001	1	a	12	12.19056753	11.96909151	11.96531537
340230006	1	A	12.7	13.23123016	11.82141204	12.96190134
340270004	1	a	12.6	13.42935714	12.08893062	12.1793757
340273001	1	a	11.2	11.76859091	11.13819787	10.74494048
340292002	1	a	11.7	11.86469235	11.45261161	11.63596277
340310005	1	a	13.3	13.05346526	13.40695623	13.29930231
340390004	1	NA	15.7	15.65860356	15.05231472	16.25611596
340392003	1	A	13.1	12.82503573	13.07999175	13.29375513
340390006	1	a	13.5	13.36416667	13.09225576	14.03754579
340410006	1	A	13.5	13.66531778	13.31036747	13.4565198
350010023	1	A	6.6	6.398004259	6.34825591	6.912837149
350010024	1	A	6.1	5.553685401	5.890976024	6.845720138
350019013	1	a	11.2		11.22714286	
350019004	1	a	6.8	6.806666667		
350050005	1	A	6.7	6.715663919	6.710078348	6.813876529
350130017	1	A	11.5	10.90601076	12.21940725	11.23733333
350130025	1	A	6.6	6.27383461	6.627550287	6.872916667
350171002	1	A	6.3	5.921497831	6.506160969	6.40768163
350250007	1	A	6.7	6.650255428	6.584417769	7.00732499
350439004	1	A	10.2	9.21	10.82209821	10.57583333
350431003	1	A	5	4.729281874	4.981216166	5.246505376
350439011	1	a	9.3		9.26344697	
350439003	1	a	5.5	5.549954212		
350439001	1	a	4.3	4.251111111		
350450006	1	A	6.6	6.062764182	6.899761772	6.710986943
350490020	1	A	5	4.728219627	4.94516129	5.199166667
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360010005	1	a	12.3	12.28608722	12.63103448	11.89785441
360010012	1	a	10.7	10.53779431	11.4364532	10.11666667
360050080	1	NA	15.8	15.93776882	15.86144142	15.72927135
360050083	1	A	13.9	14.37083333	13.98814516	13.42278736
360050110	1	a	14.8	15.00904217	14.50019935	14.80471502
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360290005	1	A	14	14.60798851	13.65334975	13.65289352
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360290002	1	a	12.5	12.77551242	12.14295977	12.47586207
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360470122	1	A	14.9	15.34932888	14.57272803	14.80036841
360470052	1	a	14.5	16.03883319	14.69170977	12.85
360470076	1	a	14.4	15.09035536	13.80808564	14.19333333
360556001	1	A	11.4	11.74387634	11.51992306	10.93282734
360552002	1	a	11	11.80059473	10.30885531	11.0375
360590008	1	A	12.4	12.85864055	11.92666667	12.41036718
360590013	1	a	11.7	12.50679487	11.78325269	10.88214286
360590012	1	a	11.6	12.26126766	11.83795977	10.72
360610056	1	NA	17.7	17.91536952	16.53239247	18.53716667
360610062	1	NA	16.4	17.34406136	15.9688172	15.78172414
360610079	1	A	14.8	15.19516129	14.66117353	14.50741379
360610010	1	na	17.1	17.1272619		
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360632008	1	A	12	12.48402809	11.82764532	11.77089286
360652001	1	a	11.5	11.6932497	12.4516747	10.50384615
360670019	1	a	11.1	11.47567282	11.58877268	10.13333333
360670020	1	a	10.6	10.97195249	10.99969124	9.877777778
360671015	1	a	10.5	10.53275862	11.09423697	9.881043956
360710002	1	A	11.6	11.58407143	11.50552907	11.7917037
360810124	1	a	13.6	14.18159376	12.97891072	13.54194392
360810094	1	a	13.5	13.78946069	13.30869565	
360810096	1	a	13.4	14.06212865	13.67201149	12.36428571
360850067	1	A	12.2	13.08456174	12.09272752	11.35927275
360850055	1	a	14	14.52537634	14.3770977	13.16904389
360893001	1	A	8.7	8.440762108	9.920941393	7.724912028
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361030001	1	A	12.3	13.01566092	11.97480349	11.86894032
361191002	1	A	12.5	12.94193548	12.28795699	12.14623563
370010002	1	A	13.7	13.98403226	13.49198718	13.73666667
370210034	1	A	12.9	12.34917533	13.78434372	12.62725806
370250004	1	A	14.5	14.41318238	14.39892473	14.58362903
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370350005	1	a	13.3	13.32466974		
370370004	1	A	12.2	12.90621213	12.22304309	11.52287698
370510009	1	A	13.9	14.30917819	14.08498331	13.38585249
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370610002	1	A	11.9	12.36678955	12.35450997	10.87314153
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370710016	1	A	14	13.89477104	14.15322581	13.895
370810013	1	A	14	14.97746571	13.75801474	13.39951914
370811005	1	a	14.1	14.10722496		
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371190042	1	A	14.2	14.56810345	14.14188172	13.97226085
371190041	1	A	14.1	14.77558303	13.88895295	13.75364625
371210001	1	A	13.3	14.06	13.79045964	12.06046388
371230001	1	A	12.1	12.6922147	12.24870597	11.40453384
371270002	1	a	9.8		9.780769231	
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371290002	1	a	9.6	9.908	9.226666667	
371330005	1	A	11.1	11.45410906	11.02342432	10.74597701
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371470005	1	A	12.3	12.36159893	12.26859207	12.19845779
371550005	1	A	12.8	13.1932266	12.49653524	12.57137171
371730002	1	A	12.6	12.85796354	12.35565188	12.5238751
371830014	1	A	13.8	14.2090988	13.57883267	13.7006824
371830015	1	A	13.5	14.1413376	13.57298387	12.76431034
371890003	1	a	10.9	9.761111111	11.73694323	11.22072281
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380570004	1	A	6.3	5.858333333	5.928541667	7.2375
380890002	1	a	6	6.00625		
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390170017	1	NA	15.3	15.78978495	15.51472377	14.66233867
390171004	1	a	13.5	11.62	13.85330929	14.98697917
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390350060	1	NA	17.4	17.65145776	17.45823362	17.21327313
390350013	1	NA	17.1	17.65136364	16.85912681	16.73816667
390350045	1	NA	16.7	17.43080049	16.18645717	16.35232759
390350027	1	NA	16.6	17.80672222	16.51407903	15.44094067
390350065	1	NA	16	16.57112017	15.80953043	15.56114853
390351002	1	A	14.6	14.77644585	15.04881865	13.93350096
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390490025	1	NA	16.1	16.89697377	16.05799119	15.28921178
390490081	1	NA	15.9	16.7839097	16.17661198	14.85051139
390570005	1	a	9.5		9.518181818	
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390610042	1	NA	17.1	17.63209528	16.82915515	16.68928161
390618001	1	NA	17.1	17.01661129	16.97931683	17.31254098
390617001	1	NA	16.3	16.76315187	16.07653398	16.01165472
390610043	1	NA	15.7	16.06938855	15.42395161	15.67253456
390610040	1	NA	15.6	15.92664409	15.33195866	15.49924162
390610041	1	NA	15.5	16.11003456	15.09586207	15.30341974
390810016	1	NA	17.8	18.20325629	17.56765394	17.66577586
390811001	1	NA	17.8	18.86483318	17.13952993	17.28134542
390810017	1	na	15.2		15.17058824	
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390933002	1	a	12.9		14.03423531	11.8189946
390950024	1	NA	15.1	15.72407107	14.97532746	14.527357
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390990005	1	NA	15.2	16.4096691	14.74680826	14.40613852
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391130014	1	na	17.5	17.48904396		
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391330002	1	A	14.2	15.24314496	14.56777916	12.64933761
391351001	1	a	13.5	13.54374188	13.44825293	13.55589744
391450013	1	NA	17.2	20.32459832	16.65358354	14.6937069
391510017	1	NA	17.3	17.82833333	17.363659	16.75114153
391510020	1	NA	15.8	16.63912197	15.78317802	14.97234511
391530017	1	NA	16.6	17.6100739	16.7220213	15.40742203
391530023	1	NA	15.6	15.88958966	16.76151726	14.16598198
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400710602	1	A	10.8	11.09967057	10.5367293	10.73770968
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401091037	1	A	10.3	10.52470861	10.40589286	9.990722158
401090038	1	a	10.7	10.9629062	10.44771195	10.63790547
401159004	1	A	11.6	11.13916667	11.93785714	11.80214286
401179007	1	a	8.2	8.610705128	7.255037879	8.751587302
401190614	1	a	8.8	9.398333333	10.23678571	6.7
401210415	1	A	11.6	11.75876933	11.54683908	11.60005747
401339006	1	A	9.5	9.80608631	7.6078125	11.02096612
401431127	1	A	12	12.41032258	11.84298387	11.85332948
401430110	1	A	11.9	12.38708654	11.40241521	11.80532627
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410030013	1	a	7.4	7.256354568	7.638339094	
410090004	1	A	6.1	6.195196	6.375936225	5.640320513
410170113	1	a	9.8	9.75		
410170120	1	a	7.3	6.543369644	7.946532206	7.550173993
410250002	1	a	8.6	9.113572641	9.706730769	7.114871795
410290133	1	A	11.4	10.640619	12.32393351	11.09454433
410292129	1	A	11.2	10.18005618	12.12401893	11.3027694
410291001	1	A	5.7	5.199136541	6.684450549	5.215
410330114	1	a	11.4		13.13602484	9.680805861
410330107	1	a	9.8	10.6414307	8.85962963	
410350004	1	A	10.5	8.876383299	12.51288957	10.01794951
410370001	1	a	7.1	7.17711689	7.968073729	6.0396875
410370003	1	a	3.5	3.018319328	3.931428571	
410392013	1	A	13.4	13.81874242	14.05787873	12.31781092
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410510080	1	A	8.4	8.653608156	8.442106537	8.189491758
410510244	1	a	7.9	8.3402657	7.856930024	7.6
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410610117	1	A	6.7	6.733539325	7.28148913	6.207946591
410610119	1	a	9		9.028571429	
410619103	1	a	4.9	4.666314103	5.15875	
410650007	1	A	7.1	7.463229167	7.660580357	6.231524725
410671003	1	A	9.3	8.96628966	10.53329281	8.331715368
410670111	1	A	7.4	7.648688357	7.927115385	6.693214286
420010001	1	A	13.4	14.05689738	12.63285388	13.56073398
420030064	1	NA	21.2	23.05205882	20.29561714	20.20623215
420033007	1	NA	17.2	18.65435897	16.00020147	17.02084821
420031301	1	NA	16.9	17.09083516	16.92015736	16.79639652
420031008	1	NA	15.9	16.10589515	16.0893702	15.50362835
420030008	1	NA	15.7	16.57670415	15.32727867	15.20448142
420030021	1	a	15	15.80773132	14.54728289	14.56365231
420030116	1	a	15	15.58981481	14.19533476	15.27781593
420030095	1	a	14.9	15.32836538	13.62617695	15.71053571
420039002	1	a	14.9	14.83738095	13.92215909	15.95427083
420030133	1	a	14.4		14.44285714	
420030093	1	a	14.2	14.86714692	13.63075092	13.9614881
420030067	1	a	13.2	14.03587607	12.30900621	13.23470214
420030131	1	a	12.8	14.84641775	13.50659341	9.983333333
420070014	1	NA	16	16.96071429	15.22269188	15.67481481
420110009	1	NA	16.4	16.49222926	16.65638086	16.14247126
420170012	1	A	14.3	14.47484491	14.14885522	14.41644253
420210011	1	NA	15.8	15.84841547	16.09444124	15.4625
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420290100	1	na	15.1		14.61305716	15.56958333
420410100	1	na	17.6	17.55465116		
420410101	1	a	14.7	14.29973645	14.35270578	15.31276719
420430401	1	NA	15.7	16.49571251	14.50375268	16.18144359
420450002	1	NA	15.4	15.85293938	14.66770115	15.62998563
420490003	1	a	13.2	13.8325804	13.20500823	12.55521377
420692006	1	A	12.5	12.72938794	12.44565476	12.42400644
420710007	1	NA	17	17.24454023	16.15603243	17.55788191
420770004	1	A	14.4	15.10055812	13.14906473	15.01669147
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421010004	1	NA	15.2	16.47032238	14.37649634	14.79917205
421010020	1	A	14.3	15.39266452	13.75743152	13.6719189
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421010014	1	a	13.9		14.5375	13.25045954
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421250200	1	A	15	15.84761024	14.48636514	14.73845238
421255001	1	a	13.7	14.42698011	13.21432749	13.40207671
421290008	1	NA	15.5	16.11077381	14.96453047	15.32281769
421330008	1	NA	17	16.69969349	17.05541091	17.35863068
440030002	1	a	8.8	9.376668418	8.272643678	8.734150718
440070022	1	A	11.6	12.13587835	10.6770915	11.86770222
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440071010	1	a	11	11.66874202	10.69418526	10.65914293
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450150005	1	a	10.2		10.17546296	10.26836207
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450190046	1	a	11	11.03794048		
450250001	1	A	12.1	12.32774129	12.25729063	11.84260739
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450730001	1	A	10.6	11.18380952	10.69281199	9.802804598
450750002	1	a	11.7		11.9033781	11.57984868
450790007	1	A	12.8	13.11857341	12.90168011	12.3650084
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460290002	1	a	9.6		9.632385057	
460710001	1	a	5.5	5.597559524	5.152282886	5.773518062
460930001	1	A	6.3	6.088349224	6.28811828	6.375431034
460990006	1	A	10	10.39198733	9.187541713	10.43723443
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461030016	1	A	7.4	7.852761593	7.178135892	7.166206897
461030013	1	a	8	8.444176136	7.728958333	7.707857143
461030019	1	a	8	9.128970847	7.987903226	6.956666667
461030020	1	a	8		8	
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470654002	1	NA	15.2	16.13393771	14.73051428	14.88160714
470650032	1	a	14.2	14.2334375	14.2	
470651011	1	a	14.1		13.92375	14.27477679
470931017	1	NA	16.4	17.45593591	16.37391987	15.51482381
470931020	1	NA	15.8	16.96917748	16.09627004	14.29093189
470930028	1	NA	15.2	15.71236289	15.42096121	14.35449918
470931013	1	na	16.4		16.85350427	16.02909035
470990002	1	A	12	12.80742821	11.53146375	11.67862765
471050108	1	na	15.4		15.36518519	
471071002	1	a	14.6	16.06265364	14.2032567	13.60135791
471130004	1	a	12.7	13.38538594	12.1079366	12.59555556
471192007	1	A	12.7	13.1705	12.37539392	12.70238095
471251009	1	A	13.3	13.19249142	12.56219212	14.18223354
471410001	1	A	13.3	13.83612388	13.02011371	12.92706897
471450004	1	A	14.1	15.22708366	13.62572944	13.30727136
471570014	1	A	14	15.14709448	13.25216908	13.64819048
471570047	1	A	14	14.52446129	13.78120663	13.74785092
471570038	1	A	13.9	14.52057201	13.5795635	13.53078812
471571004	1	A	11.7	11.96811058	11.44776583	11.70800366
471631007	1	A	14.5	15.43350643	14.21655914	13.86417888
471650007	1	A	13.5	14.14083333	12.81262421	13.48796296
480290060	1	a	10.3	9.978931483	9.628691976	11.2975
480290053	1	a	8.7	8.403233745	9.392518712	8.409677419
480290052	1	a	8	8.000243967	8.627388176	7.393670886

480370004	1	A	13.9	15.09226013	13.20806207	13.33265758
480391003	1	a	9.5	10.21238095	9.474877535	8.76875
480430101	5	a	6.1		6.244973545	5.887986111
480430002	5	a	5.2	5.370166667	5.396423687	4.938467262
480550062	1	a	9.6	8.98337523	10.33401384	9.53
480612002	1	A	10.1	9.749050179	9.796666667	10.74410486
480850005	1	a	12.1	11.42905914	11.5824277	13.14444444
481130057	1	A	13.9	13.90632184	13.56860122	14.17543487
481130035	1	A	12.9	12.9012963	13.26416667	12.59614943
481130069	1	A	12.6	12.65096573	12.4383263	12.61779674
481130087	1	A	11.7	11.44532258	11.74637189	11.89412698
481130050	1	a	13.6	13.39499441	13.7932092	13.68872354
481133004	1	a	13.1		13.9590472	12.28308105
481130020	1	a	11.5	12.22585237	10.8649643	
481350003	1	a	7.6	7.046974112	7.865746789	7.805599798
481390015	5	a	11.7		11.84986111	11.5285989
481410037	1	a	10.9	9.374776235	10.65139113	12.80764957
481410002	1	a	10.8	10.41060651	10.90000693	11.22541998
481410057	1	a	10	9.444733225	10.98576066	9.623706897
481410044	1	a	9.9	9.341596016	10.60232997	9.705833333
481410038	1	a	9.3	8.716528199	9.74541758	9.526666667
481410045	1	a	8.6	8.300698824	8.275761976	9.211935484
481410010	1	a	6.7	6.66656377	6.808708709	
481410058	1	a	6.7		7.412606838	5.945
481410053	5	x	16.9	14.17857143	17.05041667	19.51059524
481670014	5	A	9.6	9.960024141	8.76437639	10.20713474
481670053	1	a	11	11.41098412	9.920819787	11.61818182
481671005	1	a	10.4	10.37495048	9.081223472	11.64545455
481830001	1	A	12.3	12.175	12.35773081	12.48227011
482011035	1	A	14.2	13.79685226	14.08729724	14.75186601
482010024	5	A	12.8	12.37450231	12.20798522	13.79701605
482010058	1	A	12.3	12.73122587	11.30522622	12.76424659
482010055	5	A	10.9	10.49181978	10.52890848	11.70480534
482010803	5	a	13.5	13.50278571		
482010075	1	a	13.2	12.43841867	12.78520453	14.48181818
482011037	1	a	13	13.04230769		
482011034	5	a	12.6		12.44950893	12.66791667
482010062	1	a	11.9	10.99390361	11.75864615	12.82857143
482010051	1	a	11.3	10.35058398	10.74300151	12.7
482010026	5	a	10.6	12.65509019	8.970198484	10.04898712
482030002	5	a	12.3	13.44616617	11.44433549	12.03272414
482150043	1	A	11	10.6067163	10.32067204	12.06456691
482150042	1	a	11	10.43149495	10.63998848	11.94333333

482430004	5	a	4		3.912673993	4.102232143
482450021	1	A	11.1	11.38257835	10.71568144	11.31641677
482450022	5	A	10.5	10.76556314	9.931568627	10.9200343
482570005	5	a	12		12.57956349	11.46093407
482730314	5	a	9.2		9.214940476	
483030001	1	a	7.8	7.664894689	7.553936782	8.074866071
483091002	1	a	10.3	9.886209202	10.41147316	10.72333333
483150050	1	a	10.5	10.54285714		
483390078	5	a	11.5	11.845	10.73928571	11.86647167
483390089	5	a	11.3	11.28828283		
483550032	1	A	10.3	10.57664675	9.823767149	10.51449527
483550034	5	A	9.2	8.7834375	9.677700501	9.264935897
483550020	1	a	10.3	9.894254643	10.61166667	
483611001	1	A	11.4	11.27009745	11.00696503	11.9627596
483611100	5	a	11.4	12.16122599	11.12577189	11.00123366
483750005	1	a	6.6	7.485669192	5.686677718	6.693710136
484393006	1	A	12.5	12.09292241	12.58834405	12.79957093
484391002	1	A	12.2	12.24201194	11.95477634	12.26513821
484391003	1	a	13.1	13.05609756		
484391006	1	a	12.7	12.2154304	12.62661027	13.38996043
484393010	1	a	12.1		11.28517107	12.85769231
484390063	1	a	11.3	11.26871709		
484530021	1	a	10.6	10.77991712	11.74337885	9.335240964
484530020	1	a	8.2	8.462679515	9.394494018	6.876966292
484790016	1	a	10.9	10.28532056	10.06681683	12.27051282
490030003	1	A	9	9.307928254	10.64102151	7.090913978
490050004	1	A	12.8	15.56220899	14.64920498	8.268341394
490110004	1	a	9.7		9.718832891	
490110001	1	a	9.5	10.03242975	10.9577142	7.496153846
490350012	1	A	14	14.11482421	15.45307988	12.3150463
490350003	1	A	12.6	13.16834227	14.12258065	10.47101965
490353007	1	A	12.4	12.85677881	13.36718759	10.84540741
490353006	1	A	11.6	12.43986751	12.6583256	9.618842391
490353008	1	a	9.5	13.34090909	8.260258621	6.954317618
490351001	1	a	8.5		8.530757576	
490353003	1	a	7.6	7.643736264		
490450002	1	a	8	7.938566279	9.390037202	6.736666667
490490002	1	A	10.9	11.78362234	11.58395717	9.244425287
490494001	1	A	10.4	11.59181081	10.93723648	8.59768449
490495010	1	A	8.9	9.799712644	9.188578874	7.587559524
490495008	1	A	8.8	10.20216867	9.100672043	7.048409962
490570007	1	A	10.2	10.39065781	12.47337803	7.606979978
490571003	1	A	9.8	9.186451613	12.19055327	7.952126437

490570002	1	a	12	11.57724958	14.54048851	9.973392857
500010003	1	a	8.4		8.445454545	
500030005	1	a	10.4	10.2133426	10.52932677	
500030004	1	a	8.7		8.719254992	
500070012	1	A	9.5	9.742123656	9.534892473	9.327741935
500070014	1	a	10.1		10.1186954	
500070007	1	a	7.5	7.394707082	7.633895731	
500210002	1	a	11.6	11.94550493	11.35458333	11.5471618
500230005	1	a	10.8	10.49464286	11.20332612	
510130020	1	A	14.6	14.72520182	14.84638487	14.13237579
510360002	1	A	12.8	13.56486467	12.43553321	12.37059387
510410003	1	A	13.6	13.75501374	13.42994432	13.62445104
510595001	1	A	14	14.48687402	14.06255514	13.54737787
510590030	1	A	13.6	14.33258764	13.11027025	13.21585508
510591004	1	a	13.9	13.94166667		
510591005	1	a	13.4		13.66291304	13.21545788
510870014	1	A	13.7	13.46958864	13.68124253	14.00621684
510870015	1	A	12.9	12.96181673	13.05274809	12.79804392
511071005	1	A	13.6	14.11474206	13.48362069	13.07798758
511390004	1	A	12.9	13.26198481	13.17839369	12.39719029
515200006	1	A	14.3	15.14579451	14.085803	13.81541777
515500012	1	A	12.5	13.44747377	11.80518236	12.29867064
516500004	1	A	12.5	13.56655177	11.65348901	12.42489976
516800015	1	a	13.5		13.5002384	
516800014	1	a	12.6	14.42987274	13.79098876	9.5
517000013	1	A	11.9	11.99533844	11.9039881	11.81206942
517100024	1	A	13	13.58100369	12.49888096	12.78341954
517600020	1	A	14	14.6791245	13.44925457	13.81238451
517700014	1	A	14.2	14.78961068	14.37151372	13.49751536
517750010	1	A	14.7	15.10124113	15.08632555	13.7879413
518100008	1	A	12.6	12.74058087	12.23896455	12.74651515
530010003	1	a	5.5	6.48235348	4.533333333	
530050002	1	A	6.5	6.7575	6.405172414	6.334512987
530090009	1	a	12.8	12.78		
530110013	1	A	9.5	9.528555803	9.836020578	9.127323821
530110022	1	a	8.3		8.316153846	
530110020	1	a	6.7	6.944444444	6.529166667	
530150015	1	a	8.8	8.939305556	8.71	
530251002	1	a	6.7		6.688685065	
530272002	1	a	7.9		8.341666667	7.46745098
530310003	1	a	8.9	8.906666667		
530330057	1	A	11.1	11.39516187	11.27231273	10.69626096
530330024	1	A	10.4	11.06695137	10.75873563	9.505654762

530332004	1	A	10.3	10.85976489	10.32323949	9.753809524
530330080	1	A	8.4	8.494758194	8.641389773	7.929422518
530330037	1	A	8.3	8.625205453	8.290223325	7.910287115
530330017	1	A	5.3	5.52466133	5.66962963	4.707118056
530330021	1	a	10.5	10.69193767	10.34070632	
530330027	1	a	8.6	7.475	7.826480415	10.48
530330023	1	a	4.8		4.786324786	
530350008	1	a	8.5	6.6148659	8.678797847	10.20694444
530410006	1	a	11.3	11.30714286		
530410008	1	a	8.5		9.366666667	7.635
530450004	1	a	6.2	6.403981481	5.998842204	
530530029	1	A	10.6	11.3881919	10.56837015	9.961761975
530530031	1	a	10.5	11.23145624	10.20978579	10.16
530531018	1	a	10.3	10.82933815	10.17193085	9.8
530570014	1	a	6	6.753645833	5.333333333	
530590002	1	a	6		6.7875 5.12547619	
530611007	1	A	11.1	11.428198	11.32594086	10.66545977
530610005	1	A	9.5	9.331738042	9.970180756	9.156666667
530630016	1	A	10.1	10.12702619	10.20834362	10.11306452
530630047	1	A	8.8	9.16317655	8.837787356	8.26202381
530639000	1	a	6.3	7.286112953	5.365939153	
530650004	1	a	9.7	8.856006494	10.605625	
530650009	1	a	8.3	8.242470862	8.313333333	
530670013	1	A	9	9.648368227	9.417394037	7.785104167
530710005	1	a	6.8	7.145238095	6.483333333	
530730015	1	A	7.4	7.186322134	7.806021505	7.065
530750004	1	a	5.7	5.733333333		
530750003	1	a	4.9	5.264866071	4.483333333	
530770009	1	A	10.3	10.54142473	10.19741342	10.21720523
540030003	1	NA	16.3	15.89399836	16.8411006	16.21281609
540090005	1	NA	16.8	17.30094202	16.56790829	16.4260652
540110006	1	NA	16.6	17.49889888	16.7338698	15.45031106
540291004	1	NA	17.4	17.37643062	17.41390695	17.45618637
540290011	1	NA	16.2	16.46737393	15.41155914	16.66659251
540330003	1	A	14	14.44985261	14.04260468	13.39866777
540391005	1	NA	17.1	18.07095384	17.11680108	16.13214286
540390010	1	NA	15.5	16.4870977	15.38567666	14.60821839
540490006	1	NA	15.4	15.9238558	15.34940438	14.98926975
540511002	1	NA	15.7	16.04893334	15.61564496	15.39578202
540550002	1	A	12.5	13.40649745	12.35809524	11.81142857
540610003	1	A	14.9	14.94491935	15.15212149	14.56327295
540690008	1	NA	15.2	15.55250896	15.0233871	15.05247504
540810002	1	A	13.1	13.97647849	12.90428717	12.34908046

540890001	1	A	10.1	10.58573563	10.16158556	9.506332277
541071002	1	NA	16	17.40186384	15.75995895	14.93361125
550030010	1	a	6.4		6.169230769	6.621532738
550090005	1	A	11.5	11.90592701	11.20923235	11.25850458
550090028	1	a	11.4	11.75660714	11.80459524	10.49473684
550090026	1	a	10.4	10.7928164	10.29831294	10.01578947
550090009	1	a	8.6		8.602222222	
550250047	1	A	12.5	13.30556075	12.30723118	11.86135057
550250025	1	a	12.2	12.4239296	12.1647755	12.07142857
550270007	1	A	11	11.15333333	11.44179144	10.54951872
550290004	1	a	7.4	8.254206526	7.482482079	6.489473684
550310025	1	a	8.6	8.150510753	7.80650723	9.911111111
550430009	1	A	11.4	11.86996617	10.92625616	11.33913094
550550008	1	a	12	11.8597043	11.36862903	12.62857143
550590019	3	A	11.7	12.70418799	11.57615591	10.76166504
550710007	1	A	9.9	10.13835888	10.11027557	9.452894327
550790059	2	A	13.2	13.79675926	13.1774424	12.52706989
550790099	1	A	13.2	13.97207082	13.14133204	12.42010753
550790010	2	A	13.1	13.94641272	12.99372983	12.49076805
550790026	1	A	12.5	13.25555261	12.45191381	11.74763626
550790043	1	a	13.2	13.72692308	12.71875411	13.17748686
550790051	1	a	11.8	13.12778631	12.64795977	9.6
550790050	1	a	11.2	12.02516129	11.91638889	9.74
550870009	1	A	10.7	11.05960128	10.75016129	10.38502874
550890009	1	a	11.7		11.65125448	
550890008	1	a	10.3	11.57396466	10.87015666	8.59
551050002	1	a	13.6	13.57608922		
551050024	1	a	11	7.643965517	11.80379403	13.57619048
551091002	1	a	10.1	9.099454365	10.69638393	10.37
551110007	1	a	9.1		9.081972668	
551198001	1	a	8.1		8.069734432	
551250001	1	A	6.6	5.728020833	6.175227273	7.980995671
551330027	2	A	13.2	14.03266852	12.78427419	12.67925287
551330034	1	a	11.5	13.16663306	12.30283412	8.98
551390011	1	a	10.6	10.64651176	10.535165	10.5
551410016	1	a	10.6	9.8069092	10.40729885	11.46666667
560050877	1	A	6.5	6.459846006	6.184722222	6.747196647
560050892	1	a	5.3	5.21865963	4.962563857	5.77797619
560050899	1	a	4.9	4.825016026	3.994590909	5.902545682
560090819	1	a	3.8	3.783392857	3.395789835	4.302428775
560131003	1	a	11.6	17.1375	9.588718947	8.14778921
560131004	1	a	9.9	9.930516314		
560210001	1	A	4.9	5.028305153	4.688012821	4.949702381

560330002	1	A	10.4	11.04675334	10.07738095	10.07065476
560330001	1	A	9.3	10.1391954	8.784887268	9.042298851
560390006	1	a	7.6	8.546666667	7.412300945	6.703452381
720210009	1	A	6.7	7.116248507	6.600197522	6.530105217
720530003	1	A	5.1	5.242083969	5.22066869	4.815731227
720570008	1	A	6.4	7.1841133	6.246199171	5.872447173
720590016	1	A	7.1	7.454475369	7.255686689	6.583348683
720610005	1	A	9.3	9.796946381	9.595781454	8.558260432
720690001	1	a	5.6	5.891111111	5.673970474	5.324320292
720810001	1	a	5.9	6.023505195	6.21450968	5.492745218
720970003	1	A	8	8.408742933	7.847181985	7.79079786
721130004	1	A	7.4	7.558132612	7.460727513	7.321989864
721270003	1	A	9.2	9.122433602	9.172448638	9.309237346
780010012	1	a	6.3	6.279166667	6.85	5.90260989
780050009	1	a	8.7	7.823878205	7.617777778	10.51221154

Changes in $_{PM2.5}$ Annual Means, 2001 to 2002 and 2002 to 2003

County level (maximum site annual mean in county) and Site level
Using 'complete' sites/counties per '01-'03 DV's

County Basis

Total number of counties (w/ complete sites)	526
Where county (max) mean 2002 gt county (max) mean 2001 + .5	53
Where county (max) mean 2002 gt county (max) mean 2001 + 1.0	38
Where county (max) mean 2002 gt county (max) mean 2001 + 1.5	22
Where county (max) mean 2002 gt county (max) mean 2001 + 2.0	13

Total number of counties (w/ complete sites)	526
Where county (max) mean 2003 gt county (max) mean 2002 + .5	113
Where county (max) mean 2003 gt county (max) mean 2002 + 1.0	57
Where county (max) mean 2003 gt county (max) mean 2002 + 1.5	22
Where county (max) mean 2003 gt county (max) mean 2002 + 2.0	8

Site Basis

Total number of complete sites	771
Where site mean 2002 gt site mean 2001 + .5	76
Where site mean 2002 gt site mean 2001 + 1.0	49
Where site mean 2002 gt site mean 2001 + 1.5	30
Where site mean 2002 gt site mean 2001 + 2.0	17

Total number of complete sites	771
Where site mean 2003 gt site mean 2002 + .5	146
Where site mean 2003 gt site mean 2002 + 1.0	71
Where site mean 2003 gt site mean 2002 + 1.5	28
Where site mean 2003 gt site mean 2002 + 2.0	13

ATTACHMENT C TO III.C.17

Design Value Increases

List of counties with $PM_{2.5}$ DV increases (the 3 3-year periods for which data is available.) -- only for areas within 3 ug/m3 over or under the standard

st	cou	state_name	county_name	change 9901_0002	change 9901_0103	change 0002_0103
06	001	California	Alameda	0.1		
26	005	Michigan	Allegan	0.1		
26	021	Michigan	Berrien	0.1		
42	043	Pennsylvania	Dauphin	0.1		
54	029	West Virginia	Hancock	0.1		
10	001	Delaware	Kent	0.2		
17	119	Illinois	Madison	0.2		
21	111	Kentucky	Jefferson	0.2		
26	049	Michigan	Genesee	0.2		
26	139	Michigan	Ottawa	0.2		
26	147	Michigan	St Clair	0.2		
29	021	Missouri	Buchanan	0.2		
29	047	Missouri	Clay	0.2		
29	077	Missouri	Greene	0.2		
42	071	Pennsylvania	Lancaster	0.2		
42	125	Pennsylvania	Washington	0.2		
54	003	West Virginia	Berkeley	0.2		
06	111	California	Ventura	0.3		
21	043	Kentucky	Carter	0.3		
26	099	Michigan	Macomb	0.3		
29	097	Missouri	Jasper	0.3		
18	127	Indiana	Porter	0.4		
21	019	Kentucky	Boyd	0.4		
26	065	Michigan	Ingham	0.4		
29	189	Missouri	St Louis	0.4		
41	039	Oregon	Lane	0.5		
42	021	Pennsylvania	Cambria	0.5		
42	133	Pennsylvania	York	0.5		
42	011	Pennsylvania	Berks	1.1		
06	031	California	Kings	2.4		
26	099	Michigan	Macomb		0.1	
26	121	Michigan	Muskegon		0.1	
26	139	Michigan	Ottawa	0.1		
26	147	Michigan	St Clair		0.1	

42	071	Pennsylvania	Lancaster	0.1		
10	001	Delaware	Kent	0.2		
17	119	Illinois	Madison	0.2		
26	021	Michigan	Berrien	0.2		
29	021	Missouri	Buchanan	0.2		
29	097	Missouri	Jasper	0.2		
41	039	Oregon	Lane	0.2		
42	043	Pennsylvania	Dauphin	0.2		
26	005	Michigan	Allegan	0.3		
26	065	Michigan	Ingham	0.3		
54	003	West Virginia	Berkeley	0.3		
42	021	Pennsylvania	Cambria	0.5		
42	133	Pennsylvania	York	0.7		
42	011	Pennsylvania	Berks	0.8		
06	031	California	Kings	2.4		
17	001	Illinois	Adams		0.1	
26	021	Michigan	Berrien		0.1	
26	121	Michigan	Muskegon		0.1	
36	061	New York	New York		0.1	
40	101	Oklahoma	Muskogee		0.1	
42	043	Pennsylvania	Dauphin		0.1	
42	079	Pennsylvania	Luzerne		0.1	
42	091	Pennsylvania	Montgomery		0.1	
48	201	Texas	Harris		0.1	
54	003	West Virginia	Berkeley		0.1	
18	141	Indiana	St Joseph		0.2	
19	045	Iowa	Clinton			0.2
24	005	Maryland	Baltimore		0.2	
26	005	Michigan	Allegan		0.2	
34	023	New Jersey	Middlesex		0.2	
39	095	Ohio	Lucas		0.2	
42	001	Pennsylvania	Adams		0.2	
42	069	Pennsylvania	Lackawanna		0.2	
42	077	Pennsylvania	Lehigh		0.2	
42	133	Pennsylvania	York		0.2	
48	439	Texas	Tarrant	0.2		
51	059	Virginia	Fairfax		0.2	
36	059	New York	Nassau	0.3		
42	099	Pennsylvania	Perry		0.3	
48	113	Texas	Dallas		0.3	
20	209	Kansas	Wyandotte	0.4		
36	047	New York	Kings		0.5	
09	003	Connecticut	Hartford		0.6	

26	161	Michigan	Washtenaw	1.2

ATTACHMENT D TO III.C.17

8-HOUR OZONE – HISTORICAL DESIGN VALUE DATA

County Name	East/West	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Autauga Co, AL	E	84																					
Baldwin Co, AL	E																					82	76
Clay Co, AL	E												63	74	86	86	86	85	88	88	84	82	80
Colbert Co, AL	E																						
Cullman Co, AL	E				85	86	87																
Elmore Co, AL	E											73	75	79	83	80	77	79	79	84	79	80	76
Etowah Co, AL	E		93	91	90	91																	
Geneva Co, AL	E															66	69	72					
Jefferson Co, AL	E	105	106	96	94	86	86	91	89	93	84	86	83	82	90	92	92	93	93	94	91	88	83
Lawrence Co, AL	E													75	80	82	81	82	84	86	82	78	76
Limestone Co, AL	E																						
Madison Co, AL	E	83	71						87	83	77	82	85	83	80	78	82	86	90	91	87	82	79
Mobile Co, AL	E	82	78	89	87	83	82	80	78	80	75	74	70	74	75	77	80	86	88	90	83	81	77
Monroe Co, AL	E	68																					
Montgomery Co, AL	E							98	89	75	67				80	74	70	75	84	90	85	81	74
Morgan Co, AL	E	73	70																			85	81
Russell Co, AL	E																						
Shelby Co, AL	E							104	94	91	82	88	89	92	96	96	95	95	97	102	96	92	87
Sumter Co, AL	E												66	69	68	68	67	66	67	73	75	76	71
Tuscaloosa Co, AL	E	77																					78
Walker Co, AL	E																						
Anchorage Ed, AK	W				29																		
Valdez-cordova Ed, AK	W																						
Yukon-koyukuk Ed, AK	W								47	49	47	49	49	49	50	51	52	53	53	51	51	51	54
Apache Co, AZ	W								69	68	70	61											
Cochise Co, AZ	W	66	58	62	63						68	68	68	68	69	70	69	68	68	70	70	70	71
Coconino Co, AZ	W	74	76	77	70						70	73	71	71	69	72	72	73	73	73	72	73	74
Gila Co, AZ	W																		67				
Greenlee Co, AZ	W	68	62	54																			
Maricopa Co, AZ	W	85	90	93	96	90	86	81	77	82	83	91	88	86	89	90	92	91	88	88	85	85	87
Navajo Co, AZ	W																						
Pima Co, AZ	W	82	81	82	79	76	74	69	71	75	74	74	76	78	81	79	79	77	75	73	72	73	74
Pinal Co, AZ	W																						83
Yavapai Co, AZ	W		62	62														81	81	83	81	82	77
Yuma Co, AZ	W	80	77	77	80	80	81	78	79	76	74								82	76	69		
Crittenden Co, AR	E												77	78	86	93	95	90	90	90	92	94	92
Mississippi Co, AR	E																						
Montgomery Co, AR	E												54	58	65	65	67	66	71	72	69	69	66
Newton Co, AR	E													60	69	71	71	73	77	78	78	78	78

County Name	East/West	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Pulaski Co, AR	E	85	82	83	87	87	89	90	85	82	79	80	78	77	80	80	81	80	82	87	87	86	81
Alameda Co, CA	W	81	86	90	96	93	89	87	89	87	84	82	81	82	87	93	90	89	86	87	82	81	84
Amador Co, CA	W													91	91	93	90	95	96	99	91	88	85
Butte Co, CA	W	70	68	69	73	78	82	81	82	80	77	75	75	78	78	77	72	72	77	81	81	89	89
Calaveras Co, CA	W															97	93	96	96	100	94	92	91
Colusa Co, CA	W	62	78	80	82	85	85						79	82	82	81		77	76	75	77	76	75
Contra Costa Co, CA	W	91	89	91	88	88	85	86	88	86	83	81	79	79	81	85	83	83	84	84	82	78	81
Del Norte Co, CA	W								42	46	44	51	50	51	49								
El Dorado Co, CA	W	70	69	66	67	68	71	74	75	75	76	74		97	99	103	99	103	103	107	104	106	107
Fresno Co, CA	W	123	116	114	110	117	118	121	115	110	108	108	111	107	108	107	111	115	113	111	108	115	111
Glenn Co, CA	W	77	77	79	80	80	84					81	80	76		79	77	76	78	77	77	74	73
Humboldt Co, CA	W																						
Imperial Co, CA	W	83	78	59	67	55		73	75	76	75	79	95	104	105	103	103	93	91	89	92	87	87
Inyo Co, CA	W													68	64	76	74	79	79	80	79	81	81
Kern Co, CA	W	107	114	109	111	114	116	118	116	112	118	115	112	111	119	119	115	115	111	111	109	112	115
Kings Co, CA	W	82	87	95	98	88	88	88	96	91	88	80	80			96	97	105	99	102	98	99	95
Lake Co, CA	W	63	59	63	59	64	65	65	58	54	55	55	57	59	61	60	58	57	61	62	64	64	64
Los Angeles Co, CA	W	210	204	225	226	222	217	205	192	186	179	177	177	168	156	145	135	133	118	115	105	113	126
Madera Co, CA	W											91	96	91	93	93			84	90	88	91	93
Marin Co, CA	W	53	51	58	62	63	59	58	57	53	55	52	47	50	55	57	55	51	51	50	51	47	48
Mariposa Co, CA	W								90	90	86	89	80	79	79	91	95	95	95	94	91	89	91
Mendocino Co, CA	W	55	53	50	49	51	56							50	56	52	50	52	58	58	55	55	57
Merced Co, CA	W												98	98	100	102	94	96	97	106	101	101	102
Mono Co, CA	W					82	84	86	81	80	75	80	78	82	79	79	77	73					
Monterey Co, CA	W	62	61	65	74	71	71	68	72	70	70	71	69	70	69	67	65	66	62	64	63	64	66
Napa Co, CA	W	69	66	72	73	69	68	70	71	66	64	62	66	65	73	71	67	63	67	69	66	63	65
Nevada Co, CA	W											88		49	61	87	89	95	95	96	97	98	98
Orange Co, CA	W	155	166	163	166	157	152	142	141	138	127	120	114	117	107	100	88	88	84	84	79	83	86
Placer Co, CA	W	107	101	99	100	109	105	108	105	107	105	105	101	103	105	103	95	95	97	102	101	101	99
Plumas Co, CA	W													62	77	78	65	60	60	70	69	71	69
Riverside Co, CA	W	212	199	201	209	197	191	180	180	177	175	169	165	157	149	140	129	127	124	114	111	113	118
Sacramento Co, CA	W	112	114	115	118	118	114	114	114	101	100	101	110	104	106	106	97	95	101	105	99	100	100
San Benito Co, CA	W	83	81	77	81	78	82	79	90	83	82	83	76	74	73	85	84	86	82	82	79	81	81
San Bernardino Co, CA	W	217	210	209	211	210	200	188	188	185	182	180	177	171	165	161	148	154	147	146	129	128	131
San Diego Co, CA	W	137	130	126	132	125	124	121	125	129	125	118	112	109	108	104	99	102	99	100	94	95	93
San Francisco Co, CA	W	43	41	44	48	48		52	51	49	45	43	42	42	44	46	45	43	44	44	46	44	47
San Joaquin Co, CA	W	91	88	84	91	101	97	98	93	90	87	88	88	87	86	85	87	87	87	88	84	81	81
San Luis Obispo Co, CA	W	72	72	75	75	72	72	75	73	75	82	77	75	74	74	80	79	86	82	81	72	73	74
San Mateo Co, CA	W	59	58	63	68	61	60	60	65	58	53	49	50	49	58	61	62	53	49	47	49	52	58
Santa Barbara Co, CA	W	88	91	93	96	90	87	96	98	99	99	96	91	92	90	94	89	87	82	81	80	82	84
Santa Clara Co, CA	W	94	95	100	103	97	92	92	97	88	82	78	80	79	83	88	85	85	80	81	76	82	86
Santa Cruz Co, CA	W	69	65	64		65	67	62	61	59	58	58	59	58	57	66	67	68	66	66	65	64	65
Shasta Co, CA	W	91	88	82			91	88	85	73	72	90	83	84	80	87	86	95	95	93	82	78	80
Siskiyou Co, CA	W		56	59	61	64	69	69	69	66	58	56	51	58	57	59	58	61	62	63	53	55	57

County Name	East/West	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Solano Co, CA	W	74	72	74	75	73	77	79	82	75	74	74	74	73	77	79	78	82	85	85	77	72	71
Sonoma Co, CA	W	72	62	66	68	68	69	71	76	72	72	67	63	66	69	69	72	77	82	76	69	63	62
Stanislaus Co, CA	W		99	102	109	102	100	97	102	99	95	92	86	93	95	96	96	98	95	96	91	95	96
Sutter Co, CA	W	60	77	89	89	92	86	88	86	82	76	82	82	85	87	96	91	91	89	89	83	84	88
Tehama Co, CA	W											89	86	86	86		83	86	91	91	86	83	84
Tulare Co, CA	W	105	103	108	105	108	108	111	111	106	104	101	103	106	107	105	100	102	102	102	104	105	107
Tuolumne Co, CA	W									76	74	74	75	85	87	88	88	92	92	96	92	91	85
Ventura Co, CA	W	144	143	137	132	116	114	131	132	130	126	117	115	112	117	119	115	112	106	105	101	97	95
Yolo Co, CA	W	96	91	84	86	86	87	87	85	80	77	80	78	79	78	82	79	80	81	85	82	83	83
Adams Co, CO	W	74	76	76	79	69		76	73	69	68	68	68	68	69	71	72	76	75	72	65	64	66
Alamosa Co, CO	W									59	60												
Arapahoe Co, CO	W	81	89	87	81	79	81	88	87	86	80	74	70	69	71	72	68	74	74	78	76	76	81
Boulder Co, CO	W		82	85	83	83	82	84	82	78	76	73	73	71	72	73	73	78	78	78	72	73	77
Denver Co, CO	W	86	67	68	82			85	83	76	71	70	69	66	65	66	67	73	73	74	70	72	76
Douglas Co, CO	W																75	78	77	79	77	80	85
El Paso Co, CO	W	60	60	63	62	62	60	61	63	65	66	63	62	61	61	59	56	59	62	66	69	71	73
Jefferson Co, CO	W	84	88	86	82	78	80	84	84	82	79	74	71	74	81	81	79	84	83	86	81	83	87
La Plata Co, CO	W											60	62	66	64	66	66	68	68	67	62	58	58
Larimer Co, CO	W		64	65	68	66	66	68	72	74	73	70	72	72	74	74	72	74	74	77	74	78	81
Mesa Co, CO	W								64	61	62	63											
Montezuma Co, CO	W														62	66	66	67	66	70	69	69	67
Weld Co, CO	W			71	69	67	68	70	72	74	75	72	68	66	68	71	70	71	71	71	70	74	79
Fairfield Co, CT	E	169	155	157	144	127	120	128	131	124	113	105	107	100	106	101	104	98	103	96	97	98	102
Hartford Co, CT	E		107	106	100	85	79	96	105	110	101	94	94	91	96	89	89	84	91	84	88	90	90
Litchfield Co, CT	E												93	91	95	94	94	95	97	93			
Middlesex Co, CT	E	131	129	127	124	105	99	103	113	116	113	107	106	101	103	97	98	93	99	95	99	97	98
New Haven Co, CT	E	121	130	136	128	115	108	112	113	116	116	113	108	97	105	101	107	100	103	96	97	98	102
New London Co, CT	E		144	150			116	119	122	114	109	100	98	93	97	96	100	94	94	87	90	89	93
Tolland Co, CT	E	117	121	120	113	101	93	101	103	110	102	103	99	98	96	91	91	92	95	89	90	94	95
Kent Co, DE	E	66	75	95	108	99	98	108	109	102	86	76	78	83			94	96	99	97	93	92	89
New Castle Co, DE	E	93	106	112	116	102	106	114	114	115	107	101	98	99	103	98	99	95	100	97	97	96	93
Sussex Co, DE	E				104	93	98	105	101			98	96	87	89	88	93	97	99	98	95	94	91
Dist. Columbia, DC	E	110	107	112	108	100	99	104	104	99	90	87	85	85	95	93	94	95	100	96	94	95	94
Alachua Co, FL	E																		82	84	78	75	72
Baker Co, FL	E																	75	76	77	75	72	71
Bay Co, FL	E																					81	79
Brevard Co, FL	E									66	74	74	73	75	72	71	71	77	79	79	77	76	74
Broward Co, FL	E	75	71	69	69	73	73	77	76	77	73	73	76	79	74	69	69	72	75	75	75	71	68
Collier Co, FL	E																						62
Columbia Co, FL	E																						71
Duval Co, FL	E	85	80	76	75	75	81	84	86	83	80	78	79	81	80	78	81	82	82	79	76	72	68
Escambia Co, FL	E	76	87	87	85	87	87	88	86	87	85	90	85	88	86	85	84	89	91	94	88	84	79
Highlands Co, FL	E																						64
Hillsborough Co, FL	E	79	82	80	80	88	91	90	86	80	74	81	80	80	80	81	82	85	87	86	84	80	79

County Name	East/West	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Holmes Co, FL	E																	72	77	79	74	72	71
Lake Co, FL	E																					75	77
Lee Co, FL	E	60	59							64	70	68	68	73	71	68	65	74	78	80	75	69	68
Leon Co, FL	E	79	75	74	69	70	68		60								66	66	69	78	77	72	71
Manatee Co, FL	E	58	46									76	75	76	76	75	77	82	84	85	83	79	76
Marion Co, FL	E																			78	78	75	74
Miami-Dade Co, FL	W	87	85	82	69	75	82	84	83	78	72	72	76	80	80	74	75	76	78	78	74	69	66
Orange Co, FL	E	78	78	78	73	75	77	82	82	81	80	79	78	82	79	79	78	82	83	84	81	78	76
Osceola Co, FL	E														69	73	72	78	80	80	77	73	71
Palm Beach Co, FL	E	69	67	66	67	70	69	71	71	70	64	61	67	68	73	69	67	71	76	78	75	68	67
Pasco Co, FL	E													73	74	74	75	80	82	83	79	78	77
Pinellas Co, FL	E	87	89	90	87	84	85	85	84	85	79	75	72	72	72	72	73	78	84	85	83	77	75
Polk Co, FL	E													77	76	72	74	78	81	81	80	78	78
St Johns Co, FL	E													69	74	72	72	61					
St Lucie Co, FL	E																62	69	72	73	72	68	68
Santa Rosa Co, FL	E																					84	80
Sarasota Co, FL	E								75	77	74	78	77	78	78	77	76	80	84	86	85	82	80
Seminole Co, FL	E	70	70	69	73	75	78	79	82	82	78	75	75	77	75	71	72	75	79	80	78	78	77
Volusia Co, FL	E													74	72	68	69	73	76	77	74	72	70
Wakulla Co, FL	E																						76
Bibb Co, GA	E																		104	105	98	92	86
Chatham Co, GA	E																72	72	76	79	76	70	67
Cherokee Co, GA	E																				76	78	
Clarke Co, GA	E																						
Cobb Co, GA	E																				96	98	90
Coweta Co, GA	E																				96	93	87
Dawson Co, GA	E								89	90	84	82	80	79	79	76	78	84	88	89	83	83	80
De Kalb Co, GA	E	98	105	102	105	105	114	124	113	107	96	95	94	94	101	100	100	102	105	110	102	95	89
Douglas Co, GA	E								110	104	87	88	88	91	99				101	104	98	95	91
Fannin Co, GA	E															76	77	79	79				
Fayette Co, GA	E																			108	99	90	83
Fulton Co, GA	E								108	106	85		88	100	109	105	110	113	118	121	107	99	91
Glynn Co, GA	E																70	77	79	77	73	73	72
Gwinnett Co, GA	E																91	95	100	104	94	89	85
Henry Co, GA	E																				107	98	89
Mc Intosh Co, GA	E																						
Murray Co, GA	E																					87	85
Muscogee Co, GA	E	81	82	81	84	84	85	86	79	75	71	73	74	77	78	81	83	84	89	93	90	83	74
Paulding Co, GA	E								95	97	88	92	93	98	99			94	97	98	92	90	89
Richmond Co, GA	E										78	78	81	83	87	87	87	91	92	93	87	87	83
Rockdale Co, GA	E	89	109	110	115	109	112	112	106	106	104	105	101	101	105	102	106	107	115	111	104	96	89

County Name	East/West	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Sumter Co, GA	E												81	79					83	85	86	81	74
Hawaii Co, HI	W								47	43	40	39	39	44	45							40	42
Honolulu Co, HI	W	27	33	36	38	36	36	26	20	18	29	40	45	49	50	48	46	45	48	47	44	43	41
Maui Co, HI	W												42	45	46								
Ada Co, ID	W																						76
Butte Co, ID	W													53	58	61	60	63	64	67	64	64	65
Canyon Co, ID	W																						
Elmore Co, ID	W																						68
Kootenai Co, ID	W																						
Adams Co, IL	E	69	70		77	77	76	76	74	72	74	75	73	67	67	73	74	73	72	73	74	77	77
Champaign Co, IL	E	76	79	82	84	80	80	84	84	81	75	73	69	73	77	84	81	81	84	83	80	76	76
Clark Co, IL	E																						75
Cook Co, IL	E	96	99	103	106	98	101	111	113	101	88	84	84	79	86	89	91	86	90	86	88	88	87
Crawford Co, IL	E																						
Du Page Co, IL	E		78			72	75	78	80	75	76	71	72	68	73	75	75	71	71	67	68	71	73
Effingham Co, IL	E		70	83	86	85	84			87	82	79	78	77	81	83	81	80	84	83	81	77	75
Hamilton Co, IL	E																		76	78	77	80	79
Jersey Co, IL	E									95	88	86	83	80	83	84	84	85	91	91	89	89	89
Kane Co, IL	E		74	76	82	78	77	80	83	79	80	79	81	78	84	86	85	76	77	75	77	77	79
Kankakee Co, IL	E		68	71	71																		
Lake Co, IL	E	93	93	93	93	88	93	101	102	92	86	85	82	78	82	87	86	84	88	82	80	84	87
La Salle Co, IL	E	75	74																				
Livingston Co, IL	E									80	78	77											
Logan Co, IL	E											77											
Mc Henry Co, IL	E	80	85	83	79	74	76	82	85	81	79	75	78	75	82	83	85	79	82	81	83	83	84
Mc Lean Co, IL	E																						77
Macon Co, IL	E	72			80	79	78	81	83	83	82	80	76	74	74	84	83	83	80	80	78	77	75
Macoupin Co, IL	E		69	85	89	89	88	93	91	92	83	81	76	79	82	86	83	81	80	82	80	80	78
Madison Co, IL	E	93	93	98	101	97	97	100	94	92	86	85	83	83	88	91	93	87	87	86	83	84	88
Monroe Co, IL	E	80	80	85	89	84	82	85	84														
Peoria Co, IL	E	76	81	78	77	72	78	85	86	82	77	77	74	74	77	82	80	77	77	77	78	79	80
Randolph Co, IL	E											76	75	77	78	82	78	78	78	80	78	79	79
Rock Island Co, IL	E	72	69	70	74	74	75	78	80	77	73	69	68	66	68	71	70	70	70	70	70	69	71
St Clair Co, IL	E	82	83	89	93	86	83	83	79	78	75	76	74	74	77	77	78	76	80	82	82	85	83
Sangamon Co, IL	E	73	77	81	83	83	82	88	88	88	82	80	80	79	80	80	76	76	74	77	75	77	76
Will Co, IL	E	79	84	82	81	75	80	86	88	82	78	76	75	71	77	80	79	78	80	80	79	80	79
Williamson Co, IL	E	80	80	83	84	81																	
Winnebago Co, IL	E	73	78	78	80	77	81	84	86	82	76	77	75	76	77	81	79	74	75	74	76	75	77
Allen Co, IN	E	96	98	97	94	86	84	89	94	92	87	85	85	88	89	93	90	90	88	90	87	88	88
Bartholomew Co, IN	E										82												

County Name	East/West	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Boone Co, IN	E																					88	90
Carroll Co, IN	E										80												84
Clark Co, IN	E	110	104	101	95	98	97	105	98	99	96	92	94	94	100	94	92	94	96	92	86	90	92
De Kalb Co, IN	E																						
Delaware Co, IN	E																						88
Elkhart Co, IN	E													79	83	88	90	87	82	74	66		
Floyd Co, IN	E																90	92	92	90	82	83	86
Gibson Co, IN	E																				71	71	73
Greene Co, IN	E																					89	88
Hamilton Co, IN	E								95	93	87	84	85	90	94	98	97	98	97	95	91	93	96
Hancock Co, IN	E	100	96	93					91	93	91	89	87	87	93	97	95	94	92	91	89	92	94
Hendricks Co, IN	E																					88	85
Huntington Co, IN	E																					86	84
Jackson Co, IN	E																					85	85
Jasper Co, IN	E																						
Johnson Co, IN	E																		89	89	87	87	86
Knox Co, IN	E					89	85	90	89														
Kosciusko Co, IN	E																						
Lake Co, IN	E	90	95	97	95	88	87	93	96	92	87	83	80	77	84	91	95	90	91	88	90	92	90
La Porte Co, IN	E											90	90	88	95	102	104	97	91	86	85	92	93
Lawrence Co, IN	E																						
Madison Co, IN	E														91	97	91	92	90	90	87	91	95
Marion Co, IN	E	103	101	101	96	90	91	96	98	95	91	87	87	89	94	97	95	93	93	91	88	90	92
Morgan Co, IN	E						91	93	90	88	83								90	90	87	88	85
Perry Co, IN	E																			94	90		
Porter Co, IN	E		86	89	96	90	96	112	111	100	86	92	83	82	86	94	96	91	93	91	90	90	87
Posey Co, IN	E										89							78	91	91	86	87	84
St Joseph Co, IN	E	102	95	89	88	81	88	92	93	87	80	83	81	81	88	93	91	92	91	86	84	90	93
Shelby Co, IN	E																					93	94
Tippecanoe Co, IN	E								92	93													
Vanderburgh Co, IN	E		96	94	92	90	94	99	97	93	90	88	86	88	94	95	93	92	94	90	84	83	83
Vigo Co, IN	E				93	88	88	82	82	81	87	81	77	79	84	92	88	88	83	80	79	79	87
Wabash Co, IN	E																						
Warrick Co, IN	E								100	99	91	86	87	89	93	94	93	93	94	89	84	84	85
Washington Co, IN	E																						
Bremer Co, IA	E																					72	69
Clinton Co, IA	E																				79	78	78
Harrison Co, IA	E																		72	74	74	77	76
Johnson Co, IA	E	71	86	90	85	72	67	75	77	78	67												
Linn Co, IA	E	66	69	69	69	64	64	72	76	70	64	63	64	64	62	63	62	60	69	72	73	71	69

County Name	East/West	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Madison Co, IA	E		68	72	68																		
Montgomery Co, IA	E																						
Palo Alto Co, IA	E																		64	71	69	66	63
Polk Co, IA	E		77	81	82	64	52	44	50	56	57	61	64	63	62	62	66	61	59	58	60	60	56
Scott Co, IA	E	78	71	75	78	76	77	83	86	83	81	81	81	79	77	80	78	76	76	77	79	79	79
Story Co, IA	E																		72	70	66	64	60
Van Buren Co, IA	E												75				68	68	70	73	73	74	74
Warren Co, IA	E																		66	71	67	63	60
Woodbury Co, IA	E																						
Douglas Co, KS	E																						
Ford Co, KS	W												61										
Jefferson Co, KS	E			68	66	62	64																
Johnson Co, KS	E																						
Leavenworth Co, KS	E																						
Linn Co, KS	E																			81	79	76	75
Miami Co, KS	E																						
Montgomery Co, KS	E																						
Neosho Co, KS	E																						
Pawnee Co, KS	E																						
Sedgwick Co, KS	E	74	78	79	81	77	76	80	80	81	75	74	68	65	70	72	74	78	80	80	81	81	81
Sherman Co, KS	W															60							
Sumner Co, KS	E																				82	80	78
Trego Co, KS	W																					66	62
Wyandotte Co, KS	E			78	74	73	73	78	73	73	64	67	63	67	74	82	85	84	82	84	80	81	80
Bell Co, KY	E													72	74	76	76	79	80	86	82	86	82
Boone Co, KY	E	94	90	92	89	88	88	95	94	94	89	84	79	80	83	85	82	83	85	86	85	86	85
Boyd Co, KY	E	90	95	97	96	87	89	97	103	103	89	82	59		89	86	85	80	85	83	86	88	91
Boyle Co, KY	E																						
Bullitt Co, KY	E					75	81	89	85	81	74			79	85	85	85	87	89	88	85	85	81
Calloway Co, KY	E	83	82																				
Campbell Co, KY	E	94	94	96	95	91	95	102	103	98	92	84	81	82	89	91	90	88	89	90	90	94	91
Carter Co, KY	E																			89	83	80	78
Christian Co, KY	E														82	81	78	82	86	86	85	85	85
Clark Co, KY	E																						
Clay Co, KY	E		70																				
Daviess Co, KY	E	86	88	90	88	87	92	102	98	94	81	78	77	82	87	88	87	86	87	83	79	77	76
Edmonson Co, KY	E						87	95	95	92	81	78	74	74	79	82	85	88	93	94	88	84	80
Fayette Co, KY	E	85	86	91	92	92	94	99	99	96	85	78	77	79	87	87	85	85	87	85	81	78	76
Floyd Co, KY	E		79																				
Fulton Co, KY	E		84																				

County Name	East/West	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Graves Co, KY	E												72	70	72	71	74	79	87	88	83	81	79
Greenup Co, KY	E		91	92	92	86	85	91	97	96	92	86	84	85	88	85	80	84	90	90	86	83	83
Hancock Co, KY	E	68	87	89	93	91	94	104	102	104	91	85	78	83	89	91	89	89	91	89	83	83	82
Hardin Co, KY	E	75	78											83	92	89	82	78	80	83	82	81	79
Henderson Co, KY	E	67		80	88	83	81	82	78	77	70	72	71	82	87	89	86	84	86	85	83	80	80
Henry Co, KY	E		86																				
Hopkins Co, KY	E	78	85																				
Jefferson Co, KY	E	106	106	113	106	96	90	96	93	90	84	78	82	84	92	92	91	90	95	94	89	85	84
Jessamine Co, KY	E												68	76	82	82	80	81	83	82	78	79	77
Kenton Co, KY	E	94	96	97	95	93	97	111	109	102	87	81	79	84	92	95	90	87	88	89	86	88	85
Lawrence Co, KY	E												77	79	84	79	71	69					
Livingston Co, KY	E		89	86	86	83	87	94	92	89	83	81	83	84	86	84	86	89	95	90	87	84	84
Logan Co, KY	E		74																				
Mc Cracken Co, KY	E	75	82	84	86	84	84	90	87	84	80	79	75	74	76	79	80	84	89	89	84	82	79
Mc Lean Co, KY	E												77	85	88	88	83	83	90	89	86	84	82
Mercer Co, KY	E	81	79																				
Metcalfe Co, KY	E		80																				
Muhlenberg Co, KY	E	81	85	85	80	67	66	67															
Ohio Co, KY	E	73	79																				
Oldham Co, KY	E		76	89	95	95	93	101	92	93	85	83	82	82	89	89	87	91	96	96	91	87	86
Pendleton Co, KY	E		83																				
Perry Co, KY	E													73	74	73	69	68	69	73	72	76	76
Pike Co, KY	E															80	74	74	76	81	78	78	73
Pulaski Co, KY	E	74	80											75	79	78	76	77	84	88	86	81	77
Scott Co, KY	E														87	85	78	78	80	80	72	71	69
Simpson Co, KY	E												77	78	79	80	83	85	91	90	88	83	81
Trigg Co, KY	E		81	83	79	75	74	80										82	87	85	82	75	73
Warren Co, KY	E																					86	82
Ascension Par, LA	E														90	87	87	87	88	91	86	82	77
Beauregard Par, LA	E										74	75	72	75	76	76	75	75	79	79	78	74	73
Bossier Par, LA	E	80	80	77	78	81	85	86	86	88	84	86	85	86	83	79	79	83	89	92	90	84	80
Caddo Par, LA	E		81	77	79	82	85	86	87	85	82	81	82	80	81	80	82	84	87	88	83	79	77
Calcasieu Par, LA	E		90	85	84	84	90	92	93	90	87	86	79	79	86	80	85	84	88	88	86	81	78
East Baton Rouge Par, LA	E	112	105	104	99	95	96	97	95	101	99	94	90	85	89	93	95	93	92	96	91	86	86
Grant Par, LA	E	74									73	67	57				75	76	80	83	81	78	74
Iberville Par, LA	E	100	90	91	93	93	97	98	98	101	95	92	85	87	91	94	96	94	91	91	90	86	84
Jefferson Par, LA	E			99	87	83	87	89	87	84	77	76	75	77	82	83	83	84	85	90	89	85	82
Lafayette Par, LA	E				82	83	87	86	85	83	77	73				85	84	82	81	85	83	81	78
Lafourche Par, LA	E										80	76	73	77	87	87	85	81	85	87	85	80	78
Livingston Par, LA	E													83	87	87	88	87	87	91	88	84	78

County Name	East/West	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Orleans Par, LA	E	68	73	74	75	76	78	81	79	76	71	71	71	72	73	73	71	70	71	76	76	71	69
Ouachita Par, LA	E		76	68	73	75	81	83						78	80	78			76	79	80	78	78
Pointe Coupee Par, LA	E									70	85	84	81	80	82	80	83	78	80	76	75	71	73
St Bernard Par, LA	E		77	81	89	89	88	83	80	79	76	80	81	86	84	85	80	82	80	83	81	79	78
St Charles Par, LA	E				62	61							78	81	83	80	81	80	84	87	86	81	78
St James Par, LA	E									75	80	76	72	76	83	85	84	79	82	85	83	76	73
St John The Baptist Par, LA	E	85	83	83	85	86	88	94	90	85	75	76	76	82	83	84	82	81	84	87	86	81	78
St Mary Par, LA	E									69	72	68	67	69	78	77	81	80	84	86	83	77	74
West Baton Rouge Par, LA	E				92	93	95	95	95	100	97	96	84	80	80	84	86	85	85	88	88	85	84
Androscoggin Co, ME	E																						
Aroostook Co, ME	E																						
Cumberland Co, ME	E	80	107	110	116	110	112	112	113	105	100	99	98	91	91	89	94	91	89	77	80	86	88
Franklin Co, ME	E																						
Hancock Co, ME	E			74	88	85	87	97	85	90	86	88	85	78	82	80	81	87	89	87	89	93	94
Kennebec Co, ME	E	89	93	95	96	89	83	84	86	89			81	80	76	77	75	76	77	73	75	78	80
Knox Co, ME	E							103	108	105	102	96	94	88	87	85	87	82	82	76	80	83	87
Lincoln Co, ME	E																						
Oxford Co, ME	E													67	63	62	59	58	59	58	61	60	62
Penobscot Co, ME	E	73										67			77	73	73	72	75	72	76	79	83
Piscataquis Co, ME	E														59	64				62	65		
Sagadahoc Co, ME	E														92	92	95	92	92	84			
Somerset Co, ME	E												73	72	72	69							
Waldo Co, ME	E																						
Washington Co, ME	E										78	79	79	75	76								
York Co, ME	E				115	112	112	112	117	115	109	105	102	95	96	92	96	90	92	82	86	90	91
Allegany Co, MD	E	50		69	87	76	71			75	66												
Anne Arundel Co, MD	E	110	109	112	114	106	108	118	114	108	100	99	102	99	104	101	107	104	109	107	103	102	98
Baltimore Co, MD	E	112	107	106	107	101	103	114	108	103	98	98	101	96	100	95	96	94	99	93	93	93	93
Calvert Co, MD	E																	87	90	91	89		
Carroll Co, MD	E				99	95	99	106	107	106	100	99	98	95	97	93	93	92	95	94	93	92	89
Cecil Co, MD	E													99	104	101	110	107	110	106	106	104	98
Charles Co, MD	E					80	100	111	106	98	89	94	101	96	94	87	93	98	104	101	96	94	94
Frederick Co, MD	E	95	96	89	84															92	91	91	88
Harford Co, MD	E	108	113	111	111	109	119	132	125	115	104	106	107	103	107	105	107	104	106	100	104	104	103
Howard Co, MD	E	95	103	99	94																		
Kent Co, MD	E										98	98	98	91	94	91	96	96	100	101	100	102	95
Montgomery Co, MD	E	95	97	94	94	93	97	104	100	95	89	88	91	90	95	91	93	92	95	90	89	89	88
Prince Georges Co, MD	E	113	113	109	110	103	105	113	110	107	100	100	100	95	97	94	100	101	106	99	97	95	93
Washington Co, MD	E		77	89																	85	87	86
Wicomico Co, MD	E					81	88	81															

County Name	East/West	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Baltimore city, MD	E	94	99	101	98	93	84	94	93	98			85	84	91		103	95	95				
Barnstable Co, MA	E								109	110	104	101	98	90	93	96	100	93	95	89	96	93	95
Berkshire Co, MA	E	83			88						86	90	87	81	76	75	77	76	74	72	79	83	87
Bristol Co, MA	E	96	97	114	121	114	107	113	107	105	97	95	94	92	97	92	97	89	91	87	93	90	95
Essex Co, MA	E	91	94	94	98	95	93	99	94	91	85	91	96	87	87	89	89	91	93	86	86	90	93
Franklin Co, MA	E																						
Hampden Co, MA	E			100	112	102	96	104	101	103	95	91	93	95	94	90	89	89	91	86	85	92	94
Hampshire Co, MA	E		107	108	104	92	87	106	109	115	107	105	100	95	93	92	97	96	99	89	89	89	87
Middlesex Co, MA	E	95	99	103	104	89	88	98	105	101	91	89	90	91	92	89	87	88	93	86	88	89	89
Norfolk Co, MA	E	97	98	103	110																		
Plymouth Co, MA	E								95	90	86	85	91	85	82	75	71						
Suffolk Co, MA	E	77	75			88	87	93	92	89	80	84	84	83	80	77	76	77	82		84	89	91
Worcester Co, MA	E		92	96	99	91	86	88	91	91	89	91		95	95	89	87	87	94	88	85	85	86
Allegan Co, MI	E													77	94	97	98	94	94	89	87	92	97
Bay Co, MI	E	85																					
Benzie Co, MI	E													80	89	89	88	85	89	89	89	86	88
Berrien Co, MI	E													76	87	94	98	96	96	88	87	87	91
Cass Co, MI	E	74	71	77	77								89	87	89	94	94	92	92	88	87	90	93
Clinton Co, MI	E	73	63	55	59	66	77	90	89	87	81	82	81	79	77	74	74	74	81	79	82	82	86
Delta Co, MI	E																						
Dickinson Co, MI	E						73	76	79	77	74	73	76										
Genesee Co, MI	E	85	88	87	80	77	79	90	91	90	85	81	77	71	76	82	84	86	89	86	86	84	90
Grand Traverse Co, MI	E																						
Houghton Co, MI	E								61	59	54												
Huron Co, MI	E															83	82	83	85	83	83	82	87
Ingham Co, MI	E	70	80	80	76	73	73	84	84	84	79	79	80	79	82	84	83	80	82	82	83	82	85
Kalamazoo Co, MI	E												78	83	84	86			87	82	82	81	86
Kent Co, MI	E	91	95	94	93	87	94	104	105	103	96	90	85	81	86	89	88	85	87	84	84	82	88
Leelanau Co, MI	E																						
Lenawee Co, MI	E														82	86	83	82	81	83	83	85	87
Macomb Co, MI	E	97	95	91	85	79	80	91	97	99	96	91	88	88	91	93	91	93	95	89	88	88	97
Marquette Co, MI	E																						
Mason Co, MI	E														95	96	98	90	93	89	91	87	89
Mecosta Co, MI	E																						
Missaukee Co, MI	E																			81	82	78	81
Monroe Co, MI	E																						
Montcalm Co, MI	E																						
Muskegon Co, MI	E	98	103	101	103	96	103	111	117	113	109		93	86	96	101	99	91	93	91	92	89	95
Oakland Co, MI	E		98	94	87	82	82	93	97	95	87	82	81	81	82	81	78	79	84	84	84	86	91
Oceana Co, MI	E																						

County Name	East/West	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Osceola Co, MI	E																						
Ottawa Co, MI	E										97	93				84	84	85	87	84	84	85	89
Roscommon Co, MI	E																						
Saginaw Co, MI	E																						
St Clair Co, MI	E		103	98	94	89	93	100	99	95	94	88	89	86	93	94	92	86	88	87	85	88	90
Schoolcraft Co, MI	E																						
Van Buren Co, MI	E																						
Washtenaw Co, MI	E	80	78	79	78	77	78	86	91	88	83	81	80	76	79	83			83	84	87	87	91
Wayne Co, MI	E	95	95	89	85	79	80	93	95	93	87	85	85	84	89	90	88	89	91	88	88	85	91
Anoka Co, MN	E	79	76	73	73	65	67	76	80	79	75	70	68	68	70	71	72	67	73	70	71	72	74
Beltrami Co, MN	E																						
Blue Earth Co, MN	E	66																					
Carlton Co, MN	E																						60
Dakota Co, MN	E	70	66	67	69	67	70	75	77	70		71	69	69	68	70	70	70	70	69	69	67	68
Goodhue Co, MN	E																						
Koochiching Co, MN	E								57	55	50	55	59	63	65	65							
Lake Co, MN	E					57	59	64							56	65	63	65	66	66	64	62	61
Mille Lacs Co, MN	E																				74	71	72
Olmsted Co, MN	E	74	70	67	64																		
Ramsey Co, MN	E	73	66	63	60	57																	
St Louis Co, MN	E																	66	70	68	67	64	65
Scott Co, MN	E																						
Sherburne Co, MN	E	64																					
Stearns Co, MN	E																						
Washington Co, MN	E	70	66	68	71	69	69	75	76	74	66	69	70	70	72	74			65	73	75	73	74
Wright Co, MN	E																						
Adams Co, MS	E								75	74			72	73	74	75	77	80	80	85	82	80	77
Alcorn Co, MS	E																						
Bolivar Co, MS	E																				82	77	75
Choctaw Co, MS	E																						
De Soto Co, MS	E	83	85	84	84	82	84	88	84	87	84	84	81	80	83	88	88	89	88	91	86	86	81
Franklin Co, MS	E														75								
Hancock Co, MS	E								89	89			81	85	85	85	80	81	86	89	87	82	82
Harrison Co, MS	E																				89	81	80
Hinds Co, MS	E	81	79	75	77	76	76	77	75	76	71	71	68	68	71	73	76	79	81	81	80	76	73
Jackson Co, MS	E					87	88	94	89	89	82	82		74	78	80	86	91	93	92	87	82	80
Lamar Co, MS	E								73	73			68										
Lauderdale Co, MS	E								75	75			66	67	69	72			77	80	79	76	73
Lee Co, MS	E												70	70	73	74	75		87	88	86	81	79
Lowndes Co, MS	E																						

County Name	East/West	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Madison Co, MS	E	81								78	76	76	74	75	76	77	77	80	81	83	79	76	74
Panola Co, MS	E																						
Sharkey Co, MS	E														81	82	80						
Warren Co, MS	E								81	79			73	72	73	74	76	78	77	79	78	78	74
Atchison Co, MO	E																						
Cass Co, MO	E				77	75	74	78														79	79
Cedar Co, MO	E																			88	84	83	79
Clay Co, MO	E	89	89	94	96	89	84	88	88	86	82	83	82	82	90	92	94	93	91	89	84	85	84
Greene Co, MO	E			69	73	75	75	67	65	73	66	64	66	69	75	79	78	73	73	75	75	76	73
Jackson Co, MO	E									70	78	78	77	72	72	72	73	72	75				
Jefferson Co, MO	E								79	88	84	84	84	89	93	97	90	87	92	91	89	86	87
Madison Co, MO	E	87	88																				
Monroe Co, MO	E								77	78	75	79	81	80	78	84	84	82	83	82	81	79	78
Platte Co, MO	E	82	77	82	84	84	80	82	79	76	73	74	78	77	83	83	86	86	85	85	81	84	80
St Charles Co, MO	E	86	81	81	76	85	87	102	99	96	89	89	86	90	98	104	100	95	95	94	90	90	92
Ste Genevieve Co, MO	E																	88	88	90	85	84	83
St Louis Co, MO	E	101	107	111	113	103	102	114	111	102	98	98	91	91	92	92	88	87	89	90	88	89	91
St Louis city, MO	E			80	89	88	89	98	95	92	84	81	75	76	79	83	83	81	83	84	84	88	89
Cascade Co, MT	W																						
Flat Head Co, MT	W										55	54	53	53	52	55	54	56	56	57	54	52	54
Missoula Co, MT	W																						
Rosebud Co, MT	W	56	54																				
Silver Bow Co, MT	W																						
Yellowstone Co, MT	W																						
Dakota Co, NE	E																						
Douglas Co, NE	E	82	66	71	77	77	75	77	77	78	72	71	65	62	62	67	67	65	71	71	69	68	67
Lancaster Co, NE	E	62	57	58			54	61	58	61	58	61	58	59	57	58	56	55	55	56	53	54	55
Clark Co, NV	W	85	85	80	79	80	83	82	81	78	78	76	75	79	79	80	79	80	77	85	80	83	86
Douglas Co, NV	W			52	60	70	75	82	78	76	74	73	70	66	66	68	68	69	66		72	72	71
Washoe Co, NV	W	71	72	73	68	73	69	74	71	81	80	77	69	69	69	72	71	72	72	72	73	73	74
White Pine Co, NV	W														62	70	71	72	72	73	72	73	71
Carson City, NV	W		47	60	71	88													68	66	68	69	69
Belknap Co, NH	E																	64	68				78
Carroll Co, NH	E																	64	67	64	66	67	
Cheshire Co, NH	E		77									77	79	78	76	76	76	76	75	71	72	73	76
Coos Co, NH	E		69	70	69	67	68						78	74	75	75	77	76	77	73	76	78	80
Grafton Co, NH	E																	63	70	70	69	68	72
Hillsborough Co, NH	E	91	79	70	79	89	87	93	87	87	82	89	89	86	85	84	87	86	89	81	83	85	87
Merrimack Co, NH	E								91	89				73	72	70	71	73	74	71	70	74	75
Rockingham Co, NH	E	97	94	82	77	78	87	94	104	100	98	92	96	93	96	94	95	91	90	80	81	83	84

County Name	East/West	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Strafford Co, NH	E																	78	81	76	75	77	80
Sullivan Co, NH	E											70	71	71	72	69	71	69	73	70	72	73	75
Atlantic Co, NJ	E	120	125	123	128	114	109	104	107	107	107	104	99	90	92	92	100	97	97	90	91	90	90
Bergen Co, NJ	E	107			104	98	105	115	114	107	97	90	85	81	91	91	94	77				91	94
Burlington Co, NJ	E	125	114	115	116	112	111	116	117	116	113												
Camden Co, NJ	E	113	110	114	117	119	123	132	123	120	113	104	103	96	103	98	106	103	106	101	103	103	101
Cape May Co, NJ	E	106																					
Cumberland Co, NJ	E				107	101	105	112	117	116	110	101	99	92	93	87	93	96	99	96	97	98	95
Essex Co, NJ	E	99	103				86	92	105	98	88	86	84	81	88	88	92	88	93				
Gloucester Co, NJ	E			122	119	108	110	122	121	116	109	107	106	96	103	99	105	99	102	102	101	102	98
Hudson Co, NJ	E	101			111	104	109	117	118	115	107	104	103	96	100	95	98	93	100	92	93	86	85
Hunterdon Co, NJ	E	115	117	116	109	102	103	111	112	114	106	104	101	96	99	95	98	96	102	98	100	96	96
Mercer Co, NJ	E		116	117	120	110	114	124	123	117	111	112	111	105	104	100	101	97	104	102	105	103	99
Middlesex Co, NJ	E		113	120	128	119	121	122	124	120	107	104	97	95		79	103	99	105	101	103	101	98
Monmouth Co, NJ	E										108	101	98	89	97	96	100	94	94	95	94	96	97
Morris Co, NJ	E	120	121	118	107	101	105	121	118	115	106	103	103	96	102	99	100	95	98	96	97	98	98
Ocean Co, NJ	E													97	106	103	108	104	107	107	109	112	106
Passaic Co, NJ	E																			89	89	88	88
Somerset Co, NJ	E	84																					
Union Co, NJ	E	109	118	118	118	108	122	129	120	103	89	94	92	90			83						
Bernalillo Co, NM	W	70	73	73	72	73	71	71	73	73	70	68	65	67	70	74	71	73	72	75	75	75	77
Dona Ana Co, NM	W	68	71	72	75	77	78	80	78	76	73	73	72	81	84	82	78	80	79	81	80	80	79
Eddy Co, NM	W																		68	71	68	70	69
Los Alamos Co, NM	W										63	70	68	66									
Sandoval Co, NM	W		68	68	68	71	75	72	71	68	71	71	69	70	74	70	65	74	74	74	72	72	73
San Juan Co, NM	W																		67	72	73	76	74
Valencia Co, NM	W									66	69	67	66	63	63	65	65	66	67	70	69	69	66
Albany Co, NY	E								88	89	83	85	85	85	83	84	81	80	80	77	80	83	86
Bronx Co, NY	E											68	68	72	77	79	95	83	88	80	83	81	84
Broome Co, NY	E	84	74																				
Chautauqua Co, NY	E											75	80	81	83	83	85	87	89	88	89	92	94
Chemung Co, NY	E	81	83	82	80	75	78	87	87	85	81	79	79	73	76	74	73	75	79	79	79	81	83
Dutchess Co, NY	E	70	74	67	59	55	60	81	77	82	75	84	97	92	93	89	90	89	90	87	87	93	94
Erie Co, NY	E	82	90	90	92	92	96	103	100	95	89	86	80	75	77	78	76	80	85	89	92	97	99
Essex Co, NY	E	92	90	89	89	84	84	93	97	96	92	94	93	86	86	85	86	81	81	81	83	87	91
Hamilton Co, NY	E												74	73	74	73	75	75	79	77	77	79	81
Herkimer Co, NY	E													70	70	69	70	68	72	70	72	74	76
Jefferson Co, NY	E							106	108	95	90	87	90	83	88	85	88	85	90	83	87	91	97
Kings Co, NY	E	102	100	94	100	95	92	97	96						71	89							
Madison Co, NY	E											78	87	81	81	77	77	77	79	78	78	80	82

County Name	East/West	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Monroe Co, NY	E	86	87	86	86	85	90	99	99	94	89	83	79	74	81	79	81	77	83	79	81	85	88
Nassau Co, NY	E	67																					
New York Co, NY	E	77	74	78	94	89	84	90	83	76	72	69	63						77	69	61		
Niagara Co, NY	E	94	92	96	95	95	93	102	98	95	87	88	86	83	87	86	85	83	86	85	87	91	95
Oneida Co, NY	E	90	84	81	75	72	77	88	90	88	84	86	79	74	72	71	72	71	76	73	76	78	83
Onondaga Co, NY	E	79	84				83	96	92	88	83	83			82	79	79	77	82	80	81	83	85
Orange Co, NY	E																91	89	90	86	87	84	87
Oswego Co, NY	E																						
Putnam Co, NY	E															90	90	91	94	89	89	92	93
Queens Co, NY	E	108	102	99	100	92	96	97	94	92	95	93	87	78	86	88	91	89	93	88	86	84	85
Rensselaer Co, NY	E	87	85	83	83	78																	
Richmond Co, NY	E	117	119	117	116	111	111	114	109	107	100	94	89	86	95	95	103	100	105	96	98	96	94
Saratoga Co, NY	E						62						83	79	76	73	76	76	84	80	84	83	87
Schenectady Co, NY	E	76	84	83	83	78	79	84	86	87	80	82	82	79	77	72	74	71	75	71	75	76	81
Suffolk Co, NY	E	94	98	87	95	89	110	115	117	112	109	103	99	93	99	97	102	97	98	94	91	97	100
Ulster Co, NY	E												91	86	84	80	82	81	83	80	81	81	83
Warren Co, NY	E	79	77	75	61																		
Wayne Co, NY	E	83	90	91	90	90	91	99	95	95	92	90	88	80	85	81	83	80	86	81	81	83	88
Westchester Co, NY	E	113	113	109	103	93	97	109	109	105	98	96	96	90	94	93	94	91	98	92	92	90	94
Alexander Co, NC	E			79	84													84	86	89	87	91	88
Avery Co, NC	E																			80	78	79	78
Buncombe Co, NC	E	77	77	74	73	72	75	83			69	66	64	66	70	73	75	79	83	88	83	85	78
Burke Co, NC	E												68	74									
Caldwell Co, NC	E		82	85															90	92	87	86	84
Camden Co, NC	E									76				84	82				84	80	80		
Caswell Co, NC	E														87	85	89	93	94	93	90	91	88
Chatham Co, NC	E															79	85	86	88	85	81	83	82
Cumberland Co, NC	E		88				92	99	97	93	86	82	83	85	86	87	84	88	92	93	89	87	87
Davie Co, NC	E			84	85								83	79				92	98	98	96	95	93
Duplin Co, NC	E													81	75	72	73	80	85	86	82	81	79
Durham Co, NC	E														85	84	83	86	88	91	87	91	89
Edgecombe Co, NC	E				88													86	90	89	87	88	89
Forsyth Co, NC	E	78	84	80	82	82	83	91	89	93	82	83	86	87	89	88	89	92	97	96	94	94	93
Franklin Co, NC	E														87	83	86	92	93	90	86	91	90
Graham Co, NC	E																						
Granville Co, NC	E	87	85	89	90	88	95	105	104	96	87	85	90	87	88	87	94	97	92	89	88	94	94
Guilford Co, NC	E	90	87	89	87	89	89	100	97	100	88	85	83	84	88	86	85	88	92	94	90	93	89
Haywood Co, NC	E															79	85	91	94	94	87	87	85
Jackson Co, NC	E																				85	86	84
Johnston Co, NC	E				81												87	89	95	91	87	85	85

County Name	East/West	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Jones Co, NC	E	77	73																				
Lenoir Co, NC	E																			87	82	81	81
Lincoln Co, NC	E			76	79								79		88	87	86	86	87	90	91	94	92
Martin Co, NC	E				85	84													82	82	80	82	81
Mecklenburg Co, NC	E	100	99	97	98	94	102	112	104	101	92	91	91	92	94	94	97	103	104	104	101	102	98
Montgomery Co, NC	E			82																			
New Hanover Co, NC	E	77																81	78	77	75	79	78
Northampton Co, NC	E																		87	84	82	84	84
Person Co, NC	E			82	88	87													93	91	89	90	91
Pitt Co, NC	E			77	83								83	82	83	81	88	90	93	88	84	83	82
Randolph Co, NC	E																						85
Robeson Co, NC	E			79	87																		
Rockingham Co, NC	E														82	86	84	89	85	83	85	90	91
Rowan Co, NC	E														92	94	93	96	99	100	99	101	100
Swain Co, NC	E																66	70	74	76	73	74	74
Union Co, NC	E																				87	88	88
Wake Co, NC	E	90	88	85	87	87	92	104	99	93	89	86	87	86	86	87	89	93	101	98	94	94	92
Yancey Co, NC	E													82	86	83	82	74	79	84	89	87	83
Billings Co, ND	W																			57	58	59	
Cass Co, ND	E																56	65	65	63	63	62	63
Dunn Co, ND	W	64	58	56	58	58	57	60													56	56	60
Mc Kenzie Co, ND	W				59	57	54	58	61	64	62	59	57	56	56	58	62	64					62
Mercer Co, ND	W	67	66	65	65	64	66	70			64	61	59	57	54	56	59	61	61	58	56	58	62
Oliver Co, ND	W	67	64	62	63	63	63	66		64	59	57	57	57	55	57	58	59	60	58	56	56	58
Steele Co, ND	E															56	62	62	63	60			
Allen Co, OH	E			84	83	76	77	80	86	86	87	85	87	87	90	91	89	88	88	89	86	88	89
Ashtabula Co, OH	E	94	97	92	88	82	85	97	101	98	92	89	89	85	87	84	85	87	92	89	89	94	99
Butler Co, OH	E	94	96	100	97	92	87	97	96	103	94	89	87	88	95	94	93	92	93	90	89	89	92
Clark Co, OH	E	100	105	97	91	84	90	101	103	101	95	90	87	87	90	94	93	97	94	93	87	90	88
Clermont Co, OH	E	89	90	94	96	93	98	109	106	101	87	81	80			90	89	91	93	94	89	90	90
Clinton Co, OH	E	100	100					97	97	96	96	92			94	97	97	98	98	99	95	96	96
Cuyahoga Co, OH	E	89	96	95	92	80	84	93	94	90	88	90	91	87	88	89	88	88	88	86	83	86	90
Delaware Co, OH	E																		97	95	91	89	91
Franklin Co, OH	E	93	92	94	93	89	89	93	97	95	89	86	86	82	86	87	87	90	93	89	84	84	95
Geauga Co, OH	E																		91	89	93	99	103
Greene Co, OH	E																		93	89	85	86	90
Hamilton Co, OH	E	97	99	100	97	91	94	100	102	99	97	92	88	85	93	95	95	92	91	87	86	89	93
Hocking Co, OH	E	79																					
Huron Co, OH	E																						
Jefferson Co, OH	E	83	73	71	64	62	69	86	90	88	85	83	85	80	87	86	84	77	81	81	84	86	86

County Name	East/West	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Knox Co, OH	E									83	86	86	90	89	90	90	91	91	91	91	90	90	88
Lake Co, OH	E	91	96	98	100	94	92	104	105	104	93	90	92	93	98	100	99	98	99	95	91	92	95
Lawrence Co, OH	E											96	92	84	86	81	82	89	93	92	86	86	83
Licking Co, OH	E												90	86	87	90	92	93	92	92	88	90	89
Logan Co, OH	E											92	89	88	87	88	86	84	84				
Lorain Co, OH	E	92	96	89	83	73	72	81	88	91	86	82	83	82	84	86	87	88	87	82	81	85	90
Lucas Co, OH	E	100	101	90	87	79	83	97	102	99	86	82	85	86	90	91	89	89	85	84	85	89	93
Madison Co, OH	E														90	92	91	93	94	93	88	89	90
Mahoning Co, OH	E	93		73	89	82	87	94	96	92	90	91	91	84	86	89	90	90	91	89	86	87	89
Medina Co, OH	E	82	89	88	89	84	84	94	96	94	91	86			91	90	89	89	89	86	86	87	90
Mercer Co, OH	E																						
Miami Co, OH	E														77	81	88	90	88	87	84	87	88
Montgomery Co, OH	E	103	104	100	92	88	90	95	91	89	85	82	84	86	92	93	91	93	92	90	87	86	87
Portage Co, OH	E	102	108	102	96	91	95	109	110	105	94	92	92	88	89	89	88	90	93	93	92	91	93
Preble Co, OH	E	99	99	94	83	80	82	91	96	91	86	79	80	78	83	86	86	84	83	80	78	82	81
Sandusky Co, OH	E																						
Stark Co, OH	E	90	102	99	93	84	88	102	103	101	91	89	89	88	91	89	88	89	91	91	88	89	90
Summit Co, OH	E	101	105	100	96	89	92	107	112	109	99	93	94	88	90	89	91	92	94	92	92	95	96
Trumbull Co, OH	E												74	89	91	92	93	94	95	91	88	90	95
Tuscarawas Co, OH	E																						
Union Co, OH	E											92							80				
Warren Co, OH	E	101	100	99	97	93	95	104	105	107	102	95	91	91	98	99			95	92	88	89	92
Washington Co, OH	E											91	96	94	98	93	89	87	90	90	88	87	86
Wood Co, OH	E																		86	83	85	86	90
Adair Co, OK	E																						
Canadian Co, OK	E																						
Carter Co, OK	E																						
Cherokee Co, OK	E																				84	80	76
Cleveland Co, OK	E	71	66	72	72		67			75	76	74	69	69	74	79	79	82	84	84	79	77	76
Comanche Co, OK	E															74	68	70	75	84	81	79	77
Cotton Co, OK	E																						
Creek Co, OK	E																						
Dewey Co, OK	E																						
Jefferson Co, OK	E																						
Johnston Co, OK	E																						
Kay Co, OK	E																				83	79	75
Latimer Co, OK	E																		79	73	62		
Love Co, OK	E																						
Mc Clain Co, OK	E				89	87	84	76	76	74	71	71	70	69	73	75	77	79	81	83	81	79	78
Marshall Co, OK	E																				85	81	

County Name	East/West	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Mayes Co, OK	E																						
Muskogee Co, OK	E																						
Oklahoma Co, OK	E	83	87	85	84	84	84	85	87	87	86	84	81	81	84	85	83	85	86	84	80	82	80
Okmulgee Co, OK	E																						
Ottawa Co, OK	E																						79
Pittsburg Co, OK	E																						
Tulsa Co, OK	E	96	93	97	98	94	88	92	89	90	87	87	82	83	88	91	89	87	88	93	90	87	83
Clackamas Co, OR	W	82	81	74	76	85	86	85	77	85	82	91	76	78	71	83	78	80	71	72	68	65	69
Columbia Co, OR	W	67	64	56	56	62	65	63	63	62	60	62	61	65	62	66	63	65	56	56	53	57	62
Crook Co, OR	W	58	55																				
Jackson Co, OR	W	72		73	69	70	71	73	70	69	62			71	68	71	69	74	71	72	65	69	71
Lane Co, OR	W	75	79	68			79	79	77	70	65	70	63	66	61	73	70	75	68	70	66	65	70
Linn Co, OR	W																						
Marion Co, OR	W		68	68	70	71											72	76	67	67	60	59	64
Multnomah Co, OR	W																						
Adams Co, PA	E																						
Allegheny Co, PA	E	100	106	98	92	85	90	104	107	98	92	88	95	96	105	103	105	99	101	96	92	95	93
Armstrong Co, PA	E																		86	93	92	91	93
Beaver Co, PA	E	90	88	89	95	86	84	90	99	97	89	87	91	83	83	86	87	90	92	90	89	90	94
Berks Co, PA	E	114	106	102	100	92	96	104	105	102	96	94	94	86	88	89	92	91	96	92	95	92	91
Blair Co, PA	E	82	88	88	89	86	93	100	96	89	81	84	85	85	89	88	90	92	95	89	84	84	85
Bucks Co, PA	E	121	112	113	114	107	108	120	122	118	107	101	99	94	100	99	102	97	103	102	105	104	100
Butler Co, PA	E	54																					
Cambria Co, PA	E	97	87	87	87	85	87	97	97	93	86	83	84	80	85	85	88	91	93	91	88	88	87
Centre Co, PA	E																	86	90	84	80	85	88
Chester Co, PA	E																					95	98
Clearfield Co, PA	E																	90	93	87	83	87	90
Dauphin Co, PA	E	90	98	100	98	91	96	103	103	98	94	91	91	89	92	87	88	88	94	93	94	91	88
Delaware Co, PA	E	113	109	108	103	101	102	113	110	109	101	97	94	89	96	95	100	97	100	96	94	95	92
Erie Co, PA	E	103	105	97	94	83	88	80		96	88	86	85	85	86	87	86	89	93	90	87	88	92
Franklin Co, PA	E																	92	97	95	92	94	93
Greene Co, PA	E																		97	96	92	90	89
Lackawanna Co, PA	E	105	95	94	85	83	85	94	96	96	92	90	93	87	89	86	86	86	90	87	86	85	85
Lancaster Co, PA	E	96	101	100	98	90	91	97	97	93	90	90	93	91	96	93	96	96	101	97	96	94	92
Lawrence Co, PA	E	90	93	86	84	78	82	90	93	90	83	80	80	79	81	82	84	82	83	78	78	78	80
Lehigh Co, PA	E	101	96	94		88	95	103	101	96	92	89	86	81	85	89	95	96	100	97	96	93	91
Luzerne Co, PA	E	77		98	94	88	84	91	88	92	91	90	91	87	90	86	90	89	92	84	84	84	86
Lycoming Co, PA	E	71	87	85	83			79	78	77	72	75	76	72	72	70	73	73	74	77	76	79	80
Mercer Co, PA	E		97	93	89	85	89	101	103	99	90	89	88	87	89	91	92	96	96	92	88	92	94
Monroe Co, PA	E																		97				

County Name	East/West	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Montgomery Co, PA	E	115	104	95	97	95	102	110	109	103	95	96	96	93	95	92	97	100	104	102	100	97	92
Northampton Co, PA	E	101	103	106	105	98	97	105	104	99	94	93	90	84	92	94	90	88	93	95	97	92	90
Perry Co, PA	E	96	93	91	87	82	85	94	94	92	86	84	86	84	87	83	84	86	90	85	84	83	87
Philadelphia Co, PA	E	113	110	112	115	109	113	117	107	104	96	101	100	93	100	99	102	95	90	89	88	98	97
Tioga Co, PA	E																				81	84	86
Washington Co, PA	E	104	105	99	99	90	93	103	101	95	89	84	87	86	94	92	95	99	101	94	88	88	89
Westmoreland Co, PA	E											73	77	79	92	89	88	83	85	81	86	86	91
York Co, PA	E	96	97	98	99	93	94	100	99	99	94	92	89	83	86	83	87	90	94	93	90	92	89
Kent Co, RI	E	121	115	121	119	114	105	110	108	108	107	105	99	88	96	94	96	90	92	88	94	97	95
Providence Co, RI	E	97	93	97	101	98	96	97	94	89	82	82	81	81	84	89	87	81	80	79	87	91	93
Washington Co, RI	E																		84	85	92	93	95
Abbeville Co, SC	E												75	79	79	78	77	80	86	88	85	85	82
Aiken Co, SC	E							91	83	82	77	77	73	76	76	79	81	89	89	91	86	88	80
Anderson Co, SC	E												79	83	89	88	88	91	95	95	90	88	86
Barnwell Co, SC	E							89	86	89	85	87	81	79	75	75	76	85	88	90	84	83	78
Beaufort Co, SC	E	71																					
Berkeley Co, SC	E	72	72	76	77	79	78	86	83	82	76	72	72	73	72	72	71	77	79	82	78	75	71
Charleston Co, SC	E	74	72	74	76	81	85	90	87	83	76	74	74	75	74	73	76	76	79	82	78	74	72
Cherokee Co, SC	E									87	77	78	81	83	82	82	84	88	93	92	87	87	84
Chester Co, SC	E	96	97	95	89	85	88	93	89	88	81	80	77	80	85	84	87	87	91	88	85	84	84
Chesterfield Co, SC	E																						
Colleton Co, SC	E	76	82	83	77	74	74					75	73	75	74	73	74	79	82	83	80	81	77
Darlington Co, SC	E	90													78	78	78	84	88	89	86	86	82
Edgefield Co, SC	E	85	87	87	86	80	80	85	82	83	74	74	74	76	78	76	77	82	85	85	80	83	79
Greenville Co, SC	E	94	93	89	88	85	89	90	85	84													
Horry Co, SC	E	81	83																				
Lexington Co, SC	E																						
Oconee Co, SC	E										74	72	74	78	80	77	76	81	86	87	82	85	84
Pickens Co, SC	E	86	89				80	91	90	85	75	75	82	81	82	81	83	87	90	90	87	85	84
Richland Co, SC	E	89	88	93	92	89	86	88	91	91	82	84	84	87	86	81	80	87	92	96	93	93	89
Spartanburg Co, SC	E											80	79	79	83	85	86	90	94	95	93	90	87
Union Co, SC	E				77	82	85	88	84	81	77	77	75	77	79	79	80	82	84	83	81	81	80
Williamsburg Co, SC	E												80	80	76	72	70	73	75	77	73	73	71
York Co, SC	E					87	90	95	94	92	84	82			90	83	82	82	86	85	82	84	84
Jackson Co, SD	W									59	57	55											
Minnehaha Co, SD	E																				65	65	65
Pennington Co, SD	W																						
Anderson Co, TN	E													85	90	88	87	84	88	91	90	92	87
Blount Co, TN	E					94				84	84	86	85	89	93	93	95	98	104	104	96	94	92
Bradley Co, TN	E				85																		

County Name	East/West	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Claiborne Co, TN	E																						
Coffee Co, TN	E																						
Davidson Co, TN	E	75	81	82	81	70	71	83	83	86	73	73	70	75	84	91	88	88	91	91	87	80	77
Dickson Co, TN	E																						
Dyer Co, TN	E																						
Fayette Co, TN	E								84	82	76												
Giles Co, TN	E	86	82	84	80	51	75	84															
Hamblen Co, TN	E																						
Hamilton Co, TN	E	97	97	91	89	89	89	94	92	90	86	83	82	86	91	91	90	93	94	97	92	93	88
Haywood Co, TN	E														82	85	82	85			89	86	81
Humphreys Co, TN	E																						
Jefferson Co, TN	E													93	95	94	96	99	101	101	96	95	91
Knox Co, TN	E	93	90	88	83	84	87	97	92	92	85	89	88	88	91	91	95	100	102	102	96	96	92
Lawrence Co, TN	E																		88	89	83	78	77
Loudon Co, TN	E																						
Madison Co, TN	E														68								
Marshall Co, TN	E																						
Maury Co, TN	E	75									75	81	77	77									
Meigs Co, TN	E																					93	88
Montgomery Co, TN	E																						
Obion Co, TN	E																						
Putnam Co, TN	E																		88	91	87	86	82
Roane Co, TN	E		84	86																			
Rutherford Co, TN	E									85	77	74	71	72	74	75	79	84	90	89	86	84	80
Sevier Co, TN	E									84	82	81	82	84	90	91	93	97	100	102	98	98	92
Shelby Co, TN	E	96	97	92	92	93	96	100	95	95	89	91	90	90	91	94	95	93	95	97	93	90	89
Sullivan Co, TN	E	92	86	89	86	83	81	73	79	89	86	86	82	84	87	85	88	90	91	94	90	92	86
Sumner Co, TN	E	83	83	90	95	97	98	106	104	104	96	96	95	96	99	99	99	101	102	100	93	88	86
Williamson Co, TN	E									87	79	76	76	78	81	79			95	93	88	87	84
Wilson Co, TN	E									84	85	86	79	74	79	86	90	88	87	89	87	85	82
Bexar Co, TX	E	92	90	87	86	85	83	84	85	85	82	79	79	82	87	87	87	85	88	86	82	86	89
Brazoria Co, TX	E	88	96		65	81						96	93	91	96	92	92	84	95	93	91	86	91
Brewster Co, TX	W												60	64	65	69	67	68	65	66	63	62	62
Cameron Co, TX	E														56	68	66	66	66	66	64	64	65
Chambers Co, TX	E		102	97	94	105	90																
Collin Co, TX	E													92	99	99	101	98	101	101	99	93	88
Culberson Co, TX	W								72	66	62	63											
Dallas Co, TX	E	108	116	108	107	104	100	100	99	100	92	90	88	90	97	97	95	91	92	96	93	91	90
Denton Co, TX	E		103	108	118	113	108	98	99	99	83	78	79	93	101	103	104	101	104	102	101	99	97
Ector Co, TX	W	72	72																				

County Name	East/West	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Ellis Co, TX	E																	87	92	97	88	86	82
El Paso Co, TX	W	68	79	84	89	96	96	92	88	83	80	79	78	81	84	89	80	82	78	80	76	81	79
Fort Bend Co, TX	E																						
Galveston Co, TX	E	94	87		92						93	82	90	89	114	102	105	90	109	106	98	89	89
Gregg Co, TX	E	93	91		78				87	88	85	82	84	84	92	88	91	92	100	102	95	88	82
Hardin Co, TX	E										82	80	82										
Harris Co, TX	E	133	139	128	124	127	127	118	117	119	119	116	104	110	113	116	117	116	118	112	110	107	102
Harrison Co, TX	E																						76
Hays Co, TX	E																						
Hidalgo Co, TX	E																	61	71	74	75	75	73
Hood Co, TX	E																					84	84
Hunt Co, TX	E																						
Hutchinson Co, TX	W																						
Jefferson Co, TX	E	81	102		80	87	85	97	93	100	101	100	97	93	94	91	93	91	88	87	89	90	91
Johnson Co, TX	E																					89	90
Kaufman Co, TX	E																					70	73
Liberty Co, TX	E																						
Marion Co, TX	E																			88	81		
Montgomery Co, TX	E																				92	91	89
Nueces Co, TX	E		79	86	84	78	83	86	89	85	79	77	78	79	82	83	83	80	81	83	81	81	80
Orange Co, TX	E	99	89								89	92	89	86	85	83	86	81	75	74	78	81	80
Parker Co, TX	E																					86	89
Potter Co, TX	W																						
Rockwall Co, TX	E																					83	81
San Patricio Co, TX	E		88	79																			
Smith Co, TX	E															87	89	87	91	91	88	84	81
Tarrant Co, TX	E	102	99	110	113	111	103	101	100	105	105	99	95	96	106	104	97	97	99	99	97	98	100
Travis Co, TX	E	89	86	84	85	87	85	84	84	86	84	84	81	82	84	84	81	81	88	88	88	85	84
Tyler Co, TX	E								82	79	76	75											
Victoria Co, TX	E										78	74	81	79	82	78	78	74	79	79	79	76	78
Waller Co, TX	E																						
Webb Co, TX	W																	62	65	68	66	66	64
Wise Co, TX	E																						
Box Elder Co, UT	W																						79
Cache Co, UT	W																63	66	65	68	68	70	70
Davis Co, UT	W	88	88	93	93	97	93	91	90	89	86	79	78	75	79	81	82	87	84	84	79	82	83
Grand Co, UT	W									57	54	53											
Salt Lake Co, UT	W		87	90	98	96	91	84	84	82	78	75	76	79	82	89	85	88	82	83	79	81	80
San Juan Co, UT	W													62	66	69	69	70	70	73	72	71	71
Uintah Co, UT	W																						

County Name	East/West	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Utah Co, UT	W					80	80	79	76	74	69	69	68	69	68	75	76	82	82	83	78	78	79
Washington Co, UT	W																73						
Weber Co, UT	W	76	75	78	82	84	82	78	78	77	74	70	72	74		76	75	81	79	79	75	78	81
Addison Co, VT	E	80																					
Bennington Co, VT	E							86	89	90	87	86	85	81	80	79	79	78	80	76	79	80	80
Chittenden Co, VT	E	72	75	78	76	74	73	75			74	79	80	79	75	71	70	70	74	74	75	77	78
Windham Co, VT	E			78	83																		
Windsor Co, VT	E																						
Amherst Co, VA	E											78	79										
Arlington Co, VA	E	102	105	103	102	98	100	109	106	101	93	92	96	91	95	90	91	92	97	92	92	96	99
Augusta Co, VA	E						82	89	87	83	76	76	78	77									
Caroline Co, VA	E														84	81	84	88	92	88	85	83	84
Charles City Co, VA	E									93	83	87	91	88	90	84	90	92	96	88	87	90	91
Chesterfield Co, VA	E		98	96	99	90	90	95	96	91	80	79	86	88	91	85	87	87	91	87	86	86	86
Fairfax Co, VA	E	99	105	107	110	104	110	116	115	106	100	96	99	95	98	93	91	92	96	97	95	97	97
Fauquier Co, VA	E		86	88	92	87	88	92	92	91	85	84	85	82	82	79	81	84	88	86	82	81	80
Frederick Co, VA	E													80	83	82	84	88	90	87	83	85	85
Hanover Co, VA	E	84	97	98	99	95	97	104	103	97	84	85	90	92	93	87	90	92	99				94
Henrico Co, VA	E		94	97	97	90	91	96	97	93	87	87	90	88	89	86	90	92	96	91	90	90	90
Henry Co, VA	E															78	82						
Loudoun Co, VA	E																			89	86	90	92
Madison Co, VA	E				70	76	82	89	87	86	80	82	81	81	84	84	86	92	96	93	87	85	87
Northampton Co, VA	E	96	99	96	95	88	91	95	94	92													
Page Co, VA	E																				82	80	82
Prince William Co, VA	E												89	85	90	87	88	88	91	88	85	85	87
Roanoke Co, VA	E		83	86	84	83	87	95	92	85	76	74	77	80	82	78	78	85	90	89	86	87	85
Rockbridge Co, VA	E																				80	79	78
Smyth Co, VA	E	80	80	82	80	75	77	84	84														
Stafford Co, VA	E													78	88	84	86	88	91	87	85	86	88
Warren Co, VA	E				93	87	87	94	97	93	83	80	79	77									
Washington Co, VA	E																						
Wythe Co, VA	E											77	77	77	80	78	78	81	84	84	81	81	80
Alexandria city, VA	E	94	98	97	97	84	83	86	88	86	83	85	89	88	91	82	81	83	91	89	88	90	92
Chesapeake city, VA	E																						
Fairfax city, VA	E	98	95	93	91	91	98	107	104	100	95												
Fredericksburg city, VA	E																						
Hampton city, VA	E	91	93	92	90	85	89	95	93	90	84	85	88	88	87	83	87	90	94	89	87	89	90
Salem city, VA	E																						
Suffolk city, VA	E								93	91	84	86	90	88	87	80	82	84	90	87	86	88	88
Virginia Beach city, VA	E	91	96	95	93	87																	

County Name	East/West	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Clallam Co, WA	W								44	41	44	45	43	43	44	45	46	45	44	45	45	43	43
Clark Co, WA	W	66	66	58	60	63				63	63	65	59	57	58	67	65	67	62	61	59	59	63
Cowlitz Co, WA	W																	53	56				
King Co, WA	W	66	68	64	69	75	77	71	62	67	78	86	77	72	68	76	78	81	74	75	69	68	71
Klickitat Co, WA	W														63	67	66	64	62	64	65	65	66
Lewis Co, WA	W																49	54	52	54			
Mason Co, WA	W																						
Pierce Co, WA	W	85	80	69	68	70	73	74	76	79	77	81	75	74	71	74	72	76	72	69	67	67	72
Skagit Co, WA	W																	44	44	47	48	47	50
Snohomish Co, WA	W	59	59	57	57	62									61	59	59						
Spokane Co, WA	W	56	57	53	55	61						60	61	63	64	66	66	68	67	67	68	70	73
Thurston Co, WA	W																			62	57	58	64
Whatcom Co, WA	W										51	58	57	57	57	58	56	56	52	52	50	51	53
Berkeley Co, WV	E																						86
Cabell Co, WV	E			97	97	90	93	99	98	96	86	84	87	90	96	91	88	92	95	94	88	88	88
Greenbrier Co, WV	E					83	88	99	97	90	81	86	88	88	84	84	83	89	90	89	83	82	80
Hancock Co, WV	E								75	83	78	77	79	78	84	85	85	84	87	83	82	85	86
Kanawha Co, WV	E	78	82	86	87	84	87	99	94	89	81	74	69	64	76	81	81	81	90	93	90	85	86
Monongalia Co, WV	E																					81	79
Ohio Co, WV	E	66	75	84	84	81	84	91	92	89	84	81	80	76	81	84	86	85	85	82	82	85	87
Wood Co, WV	E				95	92	95	105	103	97	91	85	85	83	90	92	89	89	91	92	88	88	87
Brown Co, WI	E	75	79	79	82	75	77	79			76	71	71			81	82	80	78	77	81	81	83
Buffalo Co, WI	E																						
Chippewa Co, WI	E																						
Columbia Co, WI	E	88	78	76	78	75	79	90	91	78	81	79	73	68	71	80	81	77	78	78	78	76	79
Dane Co, WI	E	75	81	81	76	73	79	81	84	79	78			72	72	76	79	78	80	77	78	76	78
Dodge Co, WI	E			79	83	79	83	86	88	82	78	76	72	66		75	78	79	83	82	82	79	82
Door Co, WI	E										99	97	86	82	86	90	92	93	97	92	93	91	94
Douglas Co, WI	E	62	65																				
Dunn Co, WI	E																						
Florence Co, WI	E								78	77	73	69	68	66	65	65	64	67	75	75	75	69	70
Fond Du Lac Co, WI	E							82	84	81	75	76	76			77	79	78	81	78	80	77	80
Grant Co, WI	E			79																			
Green Co, WI	E																					74	75
Jefferson Co, WI	E						83			86	79	77	76	76	79	80	80	78	85	85	86	82	83
Kenosha Co, WI	E	95	103	97	100	89	98	111	114	114	104	99	100	93	99	97	96	90	95	93	95	100	101
Kewaunee Co, WI	E						94	103	103	96	85	82	78			90	93	91	94	89	89	88	93
La Crosse Co, WI	E	69	70	72			66																
Manitowoc Co, WI	E					98	104	116	118	109	97	92	83	70	75	93	95	94	97	92	92	88	90
Marathon Co, WI	E					73	75						66	70	68	69	71	72	76	78	76	72	73

County Name	East/West	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Milwaukee Co, WI	E	106	111	104	105	95	105	113	117	105	101	95	90	84	92	96	94	88	91	89	89	91	94
Oconto Co, WI	E																						
Oneida Co, WI	E															60	64	66	72	72	73	68	69
Outagamie Co, WI	E	76	81	82	79	74	73	82	82	78	71	70	70	66			80	76	79	75	79	75	78
Ozaukee Co, WI	E	93	101	99	100	87	94	105	111	104	91		84	82	91	97	98	93	97	92	95	93	98
Polk Co, WI	E												59	64	66	69	69	70					
Price Co, WI	E																						
Racine Co, WI	E	109	113	112	111	102	107	120	124	110	98	88	86	82	88	89	92	88	91	85	87	93	95
Rock Co, WI	E	84	89	84			84	88	92	87	85	81	79	71	74	83	85	84	87	86	86	84	83
St Croix Co, WI	E	72	70			70	72	77	78	75	68	68	65	65	64	66	67	69	73	73	73	72	73
Sauk Co, WI	E																74	75	78	79	77	73	73
Sheboygan Co, WI	E		77	102	101	92	100	116	117	102			86	77	86	89	86		93	92	95	99	100
Taylor Co, WI	E	80																					
Vernon Co, WI	E											72	71	67	66	67	70	71	73	73	72	71	72
Vilas Co, WI	E														67	66	67	66	71	72	72	68	69
Walworth Co, WI	E								89	89	86	86	86	82	82	83	83	82	85	83	84	82	84
Washington Co, WI	E	89	92	87			92	97	95	86			80	76	79	82	80	77	82	83	84	81	83
Waukesha Co, WI	E	86	97	90	85	79	88	92	97	88	86	79	80	74	78	78	81	77	84	84	86	81	81
Winnebago Co, WI	E	82	83	79	82	80	83	84	86	82	78	74	73			78	81	77	80	76	80	78	82
Wood Co, WI	E																						
Campbell Co, WY	W																						71
Teton Co, WY	W								63	61	58	58	58	59	58	60		62	66	67	67	65	65
Catano Municipio, PR	W																		39	43	44	46	
Florida Municipio, PR	W							49	43														
Toa Baja Municipio, PR	W			27				40	37	40	39	43	32										
St. John, Virgin Islands	W																			45	47	47	45

ATTACHMENT D TO III.C.17

Count Statistics – National

statistic	84-03[1]	93-03
number of times counties have gone from A to NA	449	299
Number of times counties have gone from 3ppb below (82) or more to NA	202	129
Number of times counties have gone from 5ppb below (80) or more to NA	98	56
Number of times counties have gone from 7ppb below (78) or more to NA	40	20
Number of times counties have gone from 8ppb below (77) or more to NA	26	14
total number of design values in attainment	4725	3234
total number of design values 3ppb (82) or more below standard	4060	2790
total number of design values 5ppb (80) or more below standard	3429	2351
total number of design values 7ppb (78) or more below standard	2834	1918
total number of design values 8ppb (77) or more below standard	2562	1727
number of times a county design value increased 3 or more ppb	1993	1275
number of times a county design value increased 5 or more ppb	929	502
number of times a county design value increased 7 or more ppb	441	188
number of times a county design value increased 8 or more ppb	307	118
number of times Fulton County GA increased 7ppb or more	2[2]	
number of times county went from 3ppb below standard (82) or more to NA in any subsequent year		373[3]
number of times county went from 5ppb below standard (80) or more to NA in any subsequent year		276[3]
number of times county went from 7ppb below standard (78) or more to NA in any subsequent year		205[3]
number of times county went from 8ppb below standard (77) or more to NA in any subsequent year		179[3]

1. all years are really a 3-year period (e.g. 84 is the period 1982-1984 for calculating design values)

2 .1993-1994 and 1994-1995

3. 1982-2004

Count Statistics for Eastern Counties

statistic	84-03[1]	93-03
number of times counties have gone from A to NA	407	272
Number of times counties have gone from 3ppb below (82) or more to NA	175	112
Number of times counties have gone from 5ppb below (80) or more to NA	83	48
Number of times counties have gone from 7ppb below (78) or more to NA	31	16
Number of times counties have gone from 8ppb below (77) or more to NA	18	10
total number of design values in attainment	3348	2367
total number of design values 3ppb (82) or more below standard	2742	1959
total number of design values 5ppb (80) or more below standard	2214	1583
total number of design values 7ppb (78) or more below standard	1716	1211
total number of design values 8ppb (77) or more below standard	1490	1049
number of times a county design value increased 3 or more ppb	1641	1059
number of times a county design value increased 5 or more ppb	781	421
number of times a county design value increased 7 or more ppb	367	152
number of times a county design value increased 8 or more ppb	252	90
number of times Fulton County GA increased 7ppb or more	2[2]	
number of times county went from Attainment to NA in any subsequent year		463[3]
number of times county went from 3ppb below standard (82) or more to NA in any subsequent year		328[3]
number of times county went from 5ppb below standard (80) or more to NA in any subsequent year		240[3]
number of times county went from 7ppb below standard (78) or more to NA in any subsequent year		176[3]
number of times county went from 8ppb below standard (77) or more to NA in any subsequent year		152[3]

1. all years are really a 3-year period (e.g. 84 is the period 1982-1984 for calculating design values)

2 .1993-1994 and 1994-1995

3. 1982-2004