Basis for Denial of Petitions to Reconsider and Petitions to Stay the CAA section 111(d) Emission Guidelines for Greenhouse Gas Emissions and Compliance Times for Electric Utility Generating Units.

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U.S. Environmental Protection Agency
Office of Air Quality Planning and Standards
Sector Policies and Programs Division
Research Triangle Park, North Carolina 27711
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INTRODUCTION, BACKGROUND, AND OVERVIEW

I. Executive Summary

The EPA promulgated the Clean Power Plan (CPP, or Rule) by notice dated October 23, 2015, to address the United States' most important and urgent environmental challenge: climate change. The CPP secures critical reductions in carbon dioxide from fossil fuel-fired power plants, which are by far the largest stationary sources of carbon dioxide emissions in the Nation.

The EPA received 38 petitions asking that the agency reconsider, withdraw, or re-propose various elements of the CPP.[1] All 38 petitions were submitted in the months immediately after promulgation and publication of the final Rule. The agency has dedicated significant resources to reviewing these petitions and closely analyzing the objections over the past year. The EPA has now completed its review of these petitions, and has determined to deny reconsideration with respect to all but two issues.

The EPA also received 22 petitions asking that the agency issue an administrative stay of the CPP until the resolution of judicial review or the completion of the agency's reconsideration process.[2] These petitions were also submitted in the months immediately after promulgation and publication of the final Rule. After a careful review of these petitions, the EPA has also determined to deny all of them.

A. Overview

Pursuant to section 111(d) of the Clean Air Act (CAA or the Act), the EPA established final emission guidelines for states to follow in developing plans to reduce carbon dioxide (CO_2) emissions from existing fossil fuel-fired electric generating units (EGUs)—the Clean Power Plan. 80 FR 64662 (Oct. 23, 2015). The CPP, when fully implemented, will achieve important reductions in carbon dioxide (CO_2) emissions by 2030, while offering states and utilities substantial flexibility in achieving these reductions. In the final Rule, the EPA established a CO_2 emission performance rate for each of the two affected subcategories of fossil fuel-fired EGUs—fossil fuel-fired electric steam generating units and stationary combustion turbines—that expresses the degree of emission limitation achievable by application of the "best system of emissions reduction ... adequately demonstrated" (BSER), as defined in section 111(a) of the Act, for CO_2 from the power sector. The EPA also established state-specific rate-based and mass-based goals that reflect the subcategory-specific CO_2 emission performance rates applied to each state's mix of affected EGUs. The CPP also provides for the development, submittal, and implementation of state plans that achieve the emission reductions of the BSER. The EPA projected at the time of finalization of the Rule that, when fully implemented, CO_2 emissions from these sources could be reduced 32 percent by 2030 from 2005 levels.[3]

The EPA engaged in extensive and vigorous outreach to stakeholders and the general public at every stage of development of the Clean Power Plan, even prior to proposing the Rule.

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[1] For the list of Petitioners, see below.

[2] For the list of Petitioners, see below.

[3] The Clean Power Plan is currently stayed by the Supreme Court's orders in *West Virginia, et al.* v. *EPA, et al.*, No. 15A773 (February 9, 2016). The Court granted applications for a stay of the Clean Power Plan pending disposition of the Stay Applicants' petitions for review of the CPP in the U.S. Court of Appeals for the District of Columbia Circuit, including any subsequent review by the Supreme Court. On September 27, 2016, oral argument was held by an en banc panel of the D.C. Circuit, and the parties are currently awaiting a decision on the merits. *See generally State of West Virginia, et al. v. EPA*, No. 15-1363 (and consolidated cases) (D.C. Cir). For further procedural background see Section III.A *infra*.

The stakeholder input and comments the EPA received produced a wealth of information that significantly informed nearly every aspect of the final Rule. The agency is firmly convinced that the extensive outreach and engagement led to a more workable rule that will achieve the statutory goal to reduce emissions of harmful CO_2 from these sources.

The EPA explained in promulgating the CPP that the guidelines were "based on, and reinforce the actions already being taken by states and utilities to upgrade aging electricity infrastructure with 21st century technologies," 80 FR 64678-79, including the replacement of aging coal-fired generation with increased natural gas combined cycle (NGCC) generation and renewable generation. The EPA recognized that those replacements of coal-fired generation with increased cleaner-emitting generation were projected to continue. *Id.* at 64725. The EPA noted that "[h]istorically, the industry has invested about $100 billion a year in capital improvements," and concluded that the CPP "will help ensure that, as those necessary investments are being made, they are integrated with the need to address GHG pollution from the sector." *Id.*

Since the Rule was finalized, new information makes clear that the trends away from coal-fired generation and towards cleaner generation have accelerated. As a result of these trends, the EPA has determined that the CPP is projected to have a modest impact on the generation mix, one that is less than the EPA projected at the time of the final Rule. As discussed in the Power Sector Trends Appendix, new data indicate that natural gas prices are expected to remain low for the foreseeable future, renewable energy technologies are becoming cheaper to install and operate, and total energy demand is growing slowly (in part due to greater deployment of energy efficiency measures and programs). Since the Rule was finalized, Congress has also extended the production and investment tax credits for wind and solar generation. The combination of all of these factors is leading to continued changes in the nation's generation mix away from coal-fired generation and towards natural gas-fired and renewable generation. This means that the final Rule will be less impactful on the generation mix of the industry and considerably less costly to implement now than the EPA anticipated at the time of promulgation.

Specifically, in terms of the CO_2 emissions at the heart of this Clean Air Act rule, as a result of these trends, sources covered by the CPP have made, and are expected to continue to make, significant progress toward meeting the emission reductions that the EPA projected would occur under the CPP. As of 2015, nationwide CO_2 emissions were essentially identical to the total level to which the states, taken together, would need to limit their emissions in order to meet the level of emissions in 2022 (the first year of the CPP compliance period) contemplated under the CPP. When the EPA finalized the CPP in August 2015, the agency projected that, by 2030, the power sector would end up having reduced its CO_2 emissions 32 percent below 2005 levels. In 2012, CO_2 emissions from sources covered by the CPP were already 19 percent below 2005 levels.[4] By the end of 2015, several months after the CPP was finalized, those sources had achieved CO_2 emission levels 24 percent below 2005 levels.[5] As just noted, the level of 2015

[4] EPA data show 2,171 million short tons of CO_2 emissions in 2012 from sources covered by the CPP. CO_2 Emission Performance Rate and Goal Computation Technical Support Document for CPP Final Rule, available at https://www.epa.gov/sites/production/files/2015-11/documents/tsd-cpp-emission-performance-rate-goal-computation.pdf.

[5] EPA data show 2,047 million short tons of CO2 emissions in 2015 from sources covered by the CPP for the 47 states and three Indian Tribes that were covered by the CPP. Data available at Air Markets Program Data, https://ampd.epa.gov/ampd/

emissions is roughly equivalent to (only 0.05 percent different than) the level the EPA contemplated for 2022, the first year of the CPP compliance period.[6] For 24 states, emissions from their sources in 2015 were *lower* than their 2022 first-year annual goal. These trends have continued through 2016: For the period from January through September 2016, power plants reported CO_2 emissions to the EPA that were about 8 percent lower than emissions during the same nine-month period in 2015. Thus, current emissions, on a nationwide basis, are already at or below the levels contemplated by the CPP in its early years.

Several different modelling studies show that approximately one-third to more than one-half of the states are expected to achieve the 2030 goals as a result of business-as-usual trends, including at least some that at present are coal-heavy. The CPP will continue to require the remaining states to impose requirements to achieve their state goals.

At the time the EPA promulgated the CPP, the expected impact of the CPP on the nation's generation mix (that is, the relative amounts of coal-fired, natural gas-fired, and renewable generation) was no greater than historical changes in the generation mix over a comparable time-frame, and moderately greater than the projected impact of business-as-usual trends by 2030. However, because of the increased movement away from coal-fired generation and towards cleaner generation since the CPP was finalized, the expected impact of the CPP on the generation mix is smaller than historical changes in the generation mix over a comparable time-frame.

When all these trends and changes in the power sector are accounted for, the modeling and analysis indicate that the CPP continues to drive emission reductions in the later years, but a lower amount at a significantly lower cost than the EPA projected at the time it finalized the CPP. At that time, the EPA estimated the highest marginal cost of compliance in any state in 2030 to be \$26/ton of CO_2, with an average of \$11/ton of CO_2, and 7 states without any marginal costs. The EPA's updated analysis estimated the highest marginal cost of compliance in any state in 2030 to be \$17/ton of CO_2, with an average of \$4/ton of CO_2, and 18 states without any marginal costs. In addition, recent analyses show that while states have a number of choices for implementing the CPP, some – in particular, interstate mass-based trading – have low costs. As a representative example, modeling by the Bipartisan Policy Center (June 2016) identifies the cost of CPP compliance for the plausible scenario of mass-based state plans with interstate trading at approximately \$1 billion per year.[7] Modeling by Duke University's Nicholas Institute for Environmental Policy Solutions (July 2016) identifies total policy costs for the U.S. power sector under a scenario of mass-based state plans with interstate trading at approximately \$1.9 billion through 2040.[8] These costs are significantly lower than projected by the EPA at the time it promulgated the CPP (based on state rate- or mass-based plans that did not include interstate trading), and generally lower – in some cases, significantly lower – than other EPA rules regulating non-greenhouse gas emissions from fossil fuel-fired power plants.

[6] The mass goal for all 47 states and three tribes is 2,046 million short tons in 2022 (Goal Computation Data File, Appendix 5).

[7] Modeling the Evolving Power Sector and Impacts of the Final Clean Power Plan, Bipartisan Policy Center (June 2016), available at http://cdn.bipartisanpolicy.org/wp-content/uploads/2016/06/BPC-Energy-Clean-Power-Plan-Modeling.pdf.

[8] Martin T. Ross et al, Ongoing Evolution of the Electricity Industry: Effects of Market Conditions and the Clean Power Plan on States, Nicholas Institute for Environmental Policy Solutions 23–24 (2016) (projecting costs on a cumulative, not annual, basis).

B. Response to Petitions for Reconsideration

Under the standard established by Congress under section 307(d)(7)(B) of the Act, the EPA grants reconsideration when a petitioner can "demonstrate to the Administrator that it was impracticable to raise such objection within [the period for public comment] or if the grounds for such objection arose after the period for public comment (but within the time specified for judicial review) and if such objection is of central relevance to the outcome of the rule." As discussed in more detail in Section II below, the EPA generally views this standard as creating a two-part test: whether there was adequate notice and an opportunity to comment on the issues relevant to the petitioner's objection, and whether the objection is centrally relevant, that is, substantively compelling, in the sense that the agency, had it been aware of the objection, would have reached a different result in the final rule.

The EPA has analyzed each objection raised in the petitions to determine if there was adequate notice of, and therefore opportunity to comment on, the relevant issues. The EPA's specific findings on that question are presented in detail in the sections below. The agency has determined that there was adequate notice. The Petitioners for reconsideration of the CPP have brought dozens of objections before the agency, yet many of these same objections were already raised in either Petitioners' or others' comments on the CPP proposal. In many cases, the EPA already specifically considered the information or request a Petitioner is making and rejected it. For example, Petitioners renew their fundamental legal objections to the CPP, even though these were well-noticed and discussed extensively throughout the rulemaking process. Petitioners have not presented the agency with any new information that would warrant a change in its legal interpretation of section 111(d) or other relevant authority. In other instances, the agency responded to comments on a particular issue raised in the proposal by adjusting the final Rule to accommodate or account for that comment, but Petitioners now object that the change did not go far enough or should itself be subject to a further round of comment. For example, Petitioners ask for reconsideration of the reliability safety valve and the Clean Energy Incentive Program (CEIP), even though these facets of the final Rule were responsive to comments solicited to address grid reliability and early action crediting, respectively, and commenters were overwhelmingly supportive of mechanisms to do so. In still other cases, Petitioners object to changes in the final Rule that were necessary or could have been anticipated in order to accommodate suggestions strongly encouraged by Petitioners themselves. For example, Petitioners claim the uniform subcategorized emission performance rates were never noticed. The record shows, however, that the EPA's decision to calculate nationally uniform rates was directly responsive to comments on the proposal that state-specific performance rates for affected EGUs would create an uneven playing field. In addition, the uniform rates provide a far simpler pathway to developing multi-state plans, responding to another dominant theme in the comments. In this respect and others, the changes the EPA made from proposal to final fit squarely within the courts' standard that a final rule should be a "logical outgrowth" of its proposal.

In addition, Petitioners failed to bring new information or objections of central relevance to the EPA's attention. The specific reasons why the EPA concludes that the objections raised in the Petitions lack central relevance are laid out in greater detail throughout this document. In general, however, Petitioners failed to provide the agency with the technical data or analysis to support their claims that the EPA's analysis was deficient or that a different outcome was warranted. In cases where Petitioners did supply support for their objections, the EPA checked the information against the information already in the administrative record or other publicly-

available sources. The agency found in many cases that the concern or objection raised by a Petitioner had already been submitted to the agency in the Petitioner's or others' comments on the proposal, and that the EPA already considered that concern, and responded to or addressed it. Thus, Petitioners failed to provide substantial support for their arguments that the CPP should be revised. In deciding whether to grant reconsideration, the EPA considered not just the arguments and information presented by the Petitioners, but also other arguments and information that were presented after promulgation of the CPP, including in litigation challenging the CPP. We did so to ensure that our reasoning is robust and as part of our explanation for why Petitioners did not present information that would lead us to revise the CPP. That is, after considering the arguments and information that Petitioners included in their reconsideration petitions, as well as other arguments and information of which we have become aware after promulgation of the rule, we remain confident that the CPP is well-grounded in the statute and the record and we conclude that Petitioners have not presented information that would lead us to make changes.

The agency also observes that, at base, many (but not all) of the Petitioners seek a significantly less stringent program of CO_2 emission reduction than what the EPA required in the CPP. However, as discussed in the Power Sector Trends Appendix and in Section III below, the most recent information on power sector trends since the Rule was finalized indicates that the Rule is more readily achievable and at significantly lower cost than the record indicated when the Rule was finalized. The shift to cleaner sources of power generation has continued and, in fact, accelerated during the period since finalization, and as a result, a large part of the emission reductions required under the final Rule have already occurred or are expected to occur as a result of business-as-usual actions. The CPP is projected to drive few reductions in the early compliance years. It is projected to drive more reductions in the later years, although fewer than EPA expected at the time of the final Rule and at a significantly lower cost.

At the same time, as discussed in the update on climate science below, the most recent data before the agency indicate that climate change is an urgent and worsening global environmental crisis, and it will require countries to take steps to dramatically reduce greenhouse gas emissions. Climate change is already having a harmful impact on public health and the environment in this country (as well as globally), affecting the health, economic well-being, and quality of life of Americans across the country, and especially those in the most vulnerable communities. The EPA has determined, and has been upheld by the courts, that greenhouse gas (GHG) air pollutants, including CO_2, which is the most prevalent GHG, endanger public health and welfare through their contribution to climate change.[9] A study of the climate change threat and potential responses by the U.S. National Academies therefore concludes that there is "an urgent need for U.S. action to reduce greenhouse emissions."[10]

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[9] Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 FR 66496 (Dec. 15, 2009). *See also* 80 FR 64662, 64682-64688 (Oct. 23, 2016).

[10] National Research Council, *Adapting to Impacts of Climate Change. America's Climate Choices: Report of the Panel on Adapting to the Impacts of Climate Change,* The National Academies Press (2010), available online at http://www.nap.edu/catalog.php?record_id=12783. In a later report, the National Research Council added, "In the judgment of the Committee on America's Climate Choices, the environmental, economic, and humanitarian risks of climate change indicate a pressing need for substantial action to limit the magnitude of climate change and to prepare to adapt to its impacts," and recommended: "In order to minimize the risks of climate change and its adverse impacts, the nation should reduce greenhouse gas emissions substantially over the coming decades." National Research Council, *America's Climate Choices,* The National Academies Press (2011).

The purpose of the CPP, as authorized by Congress through the adoption of section 111(d), is to protect human health and the environment by reducing CO_2 emissions from fossil fuel-fired power plants in the United States. Congress directed the EPA in the Clean Air Act to regulate harmful air pollution, including carbon dioxide as a greenhouse gas. See *Massachusetts v. EPA*, 549 U.S. 497 (2007). Once the EPA set standards for carbon dioxide from new fossil-fuel-fired power plants under section 111(b) of the Act, section 111(d) "requires regulation of existing sources within the same category." *American Electric Power v. Connecticut*, 564 U.S. 410, 424 (2011). These plants are by far the largest domestic stationary source of CO_2 emissions; reducing emissions from these sources is one of the highest priority actions the agency could take to fulfill Congress' intent under Section 111 of the Act, and is a cornerstone of American domestic and global leadership on climate change. Those Petitioners who renewed their fundamental objections to the final Rule have failed to present new information that would persuade the agency that it should now undo or weaken the final Rule, which is based on an imminently achievable degree of emission reduction. Other Petitioners, while not seeking a complete reversal of the agency's positions in the final CPP, also failed to present new information of central relevance to the agency.

The EPA is denying all of the petitions, with the following exceptions: Certain aspects of the CEIP have effectively been reopened by the CEIP Design Details proposal published on June 30, 2016, and thus the petitions for reconsideration of the CEIP may be considered granted to that limited extent. (The EPA is denying other objections to the CEIP raised in the petitions for reconsideration. *see* Section XXIV.) The EPA is deferring action on the petitions to reconsider the waste management assessment requirement in 40 CFR § 60.5800(d)(2) for waste-to-energy (WTE) resources submitted by Energy Recovery Council and Local Government Coalition for Renewable Energy. The EPA is also deferring action on the petitions to reconsider the treatment of biomass submitted by Biogenic CO_2 Coalition; Biomass Power Association, Energy Recovery Council, and Local Government Coalition for Renewable Energy; the State of Kentucky (biomass issues only); National Alliance of Forest Owners; and Oglethorpe Corporation (biomass issues only).

C. Response to Petitions for Administrative Stay

The EPA received 22 petitions requesting an administrative stay under the Administrative Procedure Act § 705 and CAA §307(d)(7)(B). Administrative Procedures Act § 705 provides, "When an agency finds that justice so requires, it may postpone the effective date of action taken by it, pending judicial review." 5 U.S.C. § 705. Under CAA section 307(d)(7)(B), the EPA may stay the effectiveness of a rule while it is being reconsidered "for a period not to exceed three months." The EPA is denying these petitions. They are mooted by the stay issued by the U.S. Supreme Court, noted below.

D. Judicial review

The EPA's denial of the petitions for reconsideration of the CPP is a "refusal to convene …[the reconsideration] proceeding" under CAA section 307(d)(7)(B). Judicial review for the denial of the petitions for reconsideration and for administrative stay of the CPP lies in the D.C. Circuit because the CPP is "a requirement under [section 111]," for which judicial review lies in the D.C. Circuit, under section 307(b)(1).

II. Standard for Granting Reconsideration under Section 307

Section 307(d)(7)(B) of the CAA requires the EPA to convene a proceeding for reconsideration of a rule if a party raising an objection to the rule "can demonstrate to the

Administrator that it was impracticable to raise such objection within [the public comment period] or if the grounds for such objection arose after the period for public comment (but within the time specified for judicial review) and if such objection is of central relevance to the outcome of the rule." The requirement to convene a proceeding to reconsider a rule is thus based on the petitioner demonstrating to the EPA both: (1) that it was impracticable to raise the objection during the comment period, or that the grounds for such objection arose after the comment period but within the time specified for judicial review (i.e., within 60 days after publication of the final rulemaking notice in the *Federal Register*, see CAA section 307(b)(1)); and (2) that the objection is of central relevance to the outcome of the rule.

A. Adequate Notice and Logical Outgrowth

In all cases, Petitioners here, rather than arguing that the grounds for reconsideration arose after the comment period, allege that their objections satisfy the first prong of the reconsideration standard based on some change in the final Rule that they claim so deviated from the proposal that they were unable to comment on it during the public comment period. In other words, the grounds for the objection is the final Rule itself, which the Petitioners claim contained changes or elements that were completely new and unknown or unable to be known and therefore could not have been commented upon during the comment period. The EPA, in reviewing these petitions under section 307(d), is first called upon to consider whether the contents of the final Rule were properly and adequately noticed to the public.

The D.C. Circuit has made clear that "EPA undoubtedly has authority to promulgate a final rule that differs in some particulars from its proposed rule." *Small Refiner Lead Phase-Down Task Force v. EPA*, 705 F.2d 506, 546 (D.C. Cir. 1983). If that were not the case, the purpose of notice and comment – to allow an agency to reconsider, and perhaps revise, a proposed rule based on the comments submitted – would be undermined and agencies could either be "forced into perpetual cycles of new notice and comment periods," or "refuse to make changes in response to comments." *Ass'n of Battery Recyclers, Inc. v. EPA*, 208 F.3d 1047, 1058 (D.C. Cir. 2000). Thus, when considering the adequacy of notice and comment under both the Administrative Procedure Act (APA) and CAA § 307(d), courts ask whether the final rule is a "logical outgrowth" of the proposal. *Small Refiner*, 705 F.2d at 546.

This is a fact-intensive, case-by-case inquiry that requires balancing the purposes of public notice—improving rulemaking by "exposure to diverse public comment," ensuring "fairness to affected parties" and "develop[ing] evidence in the record"—against the "public interest in expedition and finality." *Id.* at 547; *see Nat'l Min. Ass'n v. Mine Safety & Health Admin.*, 116 F.3d 520, 531 (D.C. Cir. 1997) ("Our cases offer no precise definition of what counts as a "logical outgrowth"). "Whether the logical outgrowth test is satisfied depends on whether the affected party 'should have anticipated' the agency's final course in light of the initial notice." *Agape Church v. FCC*, 738 F.3d 397, 412 (D.C. Cir. 2013). Courts conducting this inquiry have thus assessed "whether potential commenters would have known that an issue in which they were interested was 'on the table' and might be addressed by the final rule," *Anne Arundel County v. EPA*, 963 F.2d 412, 418 (D.C. Cir. 1992) (quoting *Am. Med. Ass'n. v. United States*, 887 F.2d 760, 768 (7th Cir. 1989)); *Nat'l Min. Ass'n*, 116 F.3d at 531.

In particular, courts have found a final rule to be a logical outgrowth of the proposal where "at least the 'germ' of the outcome is found in the original proposal," *NRDC v. Thomas*, 838 F.2d 1224, 1242, 1242 (D.C. Cir. 1988). This includes instances where an agency "expressly ask[ed] for comments on a particular issue or otherwise ma[de] clear that the agency [was] contemplating a particular change." *United States Telecom Ass'n v. FCC*, 825 F.3d 674,

700 (D.C. Cir. 2016), and where a new provision was "adequately forshadowed" by a proposal discussing the importance of an issue that the new provision addressed, *Health Insurance Ass'n of America v. Shalala,* 23 F.3d 412, 421 (D.C. Cir. 1994).

Ultimately, courts ask whether a new round of notice and comment would provide parties with "their first occasion to offer new and different criticisms which the agency might find convincing," *Fertilizer Inst. v. EPA*, 935 F.2d 1303, 1311 (D.C. Cir. 1991), quoting *BASF Wyandotte Corp. v. Costle*, 598 F.2d 637, 644-45 (1st Cir. 1979); *Int'l Union, United Mine Workers v. MSHA*, 626 F.3d 84, 94-95 (D.C. Cir. 2010). Where a commenter "identifie[s] no relevant information they might have supplied had they anticipated EPA's final rule, courts have thus found the notice requirement to be satisfied. *Ass'n of Battery Recyclers*, 208 F.3d at 1059.

In conducting this fact intensive, case-by-case inquiry, courts have found the following factual scenarios to satisfy the logical outgrowth standard; these scenarios, as is made clear at various points throughout this document, are directly analogous to the notice and comment issues raised by Petitioners. As is noted in the individual sections of this document, in applying these cases to the CPP rulemaking process and Petitioners' various arguments, the EPA has concluded that the final Rule is a logical outgrowth of the proposal.

In *Arizona Public Service Co. v. EPA*, 211 F.3d 1280 (D.C. Cir. 2000), a group of petitioners challenged the EPA's "Tribal Authority Rule," which addressed the power of tribes to implement air quality regulations under the CAA. EPA's proposed rule stated that tribes would be treated the same as States for purposes of judicial review. However, in the final rule, the EPA exempted tribes from the judicial review requirements of the CAA. Petitioners argued that the EPA did not provide adequate notice of its final position on the issue because it had taken the opposite position at proposal. In holding that the final rule was a logical outgrowth of the proposal, the D.C. Circuit stated:

> In this case, there was more than enough notice for interested parties to offer comments on EPA's treatment of the judicial review provisions of the Act *vis a vis* Indian tribes. The parties were not asked to "divine the EPA's unspoken thoughts." *Shell Oil Co.*, 950 F.2d at 751. And the final rule was not wholly unrelated or surprisingly distant from what EPA initially suggested. In first proposing that tribes would have to meet the "same requirements" as states, EPA effectively raised the question as to whether this made sense. EPA's proposal was not a "bureaucratic game of hide and seek," *MCI Telecomm. Corp. v. FCC*, 313 U.S. App. D.C. 51, 57 F.3d 1136, 1142 (D.C. Cir. 1995); the proposal raised a highly visible and controversial issue and elicited responses from both tribal and industry commenters. Furthermore, any reasonable party should have understood that EPA might reach the opposite conclusion after considering public comments. In short, it is fair to say that the purpose of notice and comment rulemaking has been served, and that the Agency's change of heart on this issue only demonstrates the value of the comments it received.

211 F.3d at 1299. In *Long Island Care at Home, Ltd. v. Coke*, 551 U.S. 158 (2007), the Supreme Court cited to D.C. Circuit's *Arizona Public Service Company* decision addressing whether the Department of Labor failed to provide adequate notice after it finalized the opposite of its proposal. In rejecting the Petitioner's argument, the Court stated:

> Since the proposed rule was simply a proposal, its presence meant that the Department was *considering* the matter; after that consideration the Department might choose to adopt the proposal or to withdraw it. As it turned out, the Department did withdraw the proposal for special treatment of employees of "covered enterprises." The result was a determination that exempted *all* third-party-employed companionship workers from the Act. We do not understand why such a possibility was not reasonably foreseeable. *See, e.g., Arizona Public Serv. Co. v. EPA*, 341 U.S. App. D.C. 222, 211 F.3d 1280, 1299-1300 (CADC 2000).

Long Island Care, 551 U.S. at 175 (emphasis original). Here, the Petitioners have advanced instances of failure to provide adequate notice based on circumstances similar to both *Arizona Public Service Company* and *Long Island Care at Home*. As explained more thoroughly below, Petitioners arguments similarly fail.

In *New York v. EPA*, 413 F.3d 3 (D.C. Cir. 2005), the EPA had proposed a "menu of alternatives" that allowed state governments to choose any or all of the new program elements, but did not require states to adopt any of the new elements. The EPA's final rule did not include the "menu approach" and instead adopted the new elements as part of a mandatory package. As the court explained, EPA's approach to make the new elements voluntary "would be adopted or it would not" and so it was "readily foreseeable" that EPA might abandon its proposal and make the requirements voluntary rather than mandatory – as it had in the past. Here, Petitioners have attacked the EPA for similarly finalizing mandatory provisions that were proposed as voluntary and for other instances in which EPA ultimately declined to adopt its novel approach in favor of a more traditional approach used in prior rulemakings. Given the factual similarities discussed below, Petitioners' notice arguments cannot hold.

In *Northeast Maryland Waste Disposal Authority v. EPA*, 358 F.3d 936 (D.C. Cir. 2004), petitioners challenged the EPA's final rule setting emission guidelines for existing small municipal waste combustion (MWC) units. The proposed rule established three classes of MWC units. Two of the classes were based on the distinction between units that used "refractory" versus "nonrefractory" technology. Based on comments it received, the EPA collapsed the three classes into two classes in the final rule. The petitioners alleged that the EPA failed to provide adequate notice of the approach, and resulting standards, it adopted in the final rule. In holding that the final rule was a logical outgrowth of the proposal, the court noted that "[a]gencies are free – indeed, they are encouraged – to modify proposed rules as a result of the comments they receive. *See also Arizona Pub. Serv. Co. v. EPA*, 211 F.3d 1280, 1300 (D.C. Cir. 2000) (noting that 'the Agency's change of heart … only demonstrates the value of the comments it received'); *Kooritzky v. Reich*, 17 F.3d 1509, 1513 (D.C. Cir. 1994) ('It is an elementary principle of rulemaking that a final rule need not match the rule proposed, indeed must not if the record demands a change.')." 353 F.3d at 951. Given the factual similarities to the arguments advanced by Petitioners, the court's holding is particularly instructive:

> We conclude that the final 2000 Rule, which merely collapses the proposed rule's three categories into two, is a logical outgrowth of the proposed rule. By announcing that it proposed to distinguish between refractory and nonrefractory units, EPA invited comments on both the pros and cons of that distinction. It thus effectively served notice that, if persuaded that the latter outweighed the former,

> the distinction might not survive. Nor did the interested parties misread either the invitation or the stakes involved. Numerous commenters – including two that are among the Industry Petitioners here – filed comments that were critical of the distinction between refractory and nonrefractory units. On the other side, Northeast Maryland's predecessor, WEP, filed comments that supported the distinction. Comments of WEP at 1 (J.A. 2093). Accordingly, we reject Northeast Maryland's contention that the evolution of the rule deprived it of adequate notice and an opportunity to comment. See *Appalachian Power Co.*, 135 F.3d at 816 (finding that a rule was a logical outgrowth where commenters "clearly understood" that a matter was under consideration, since "the agency received comments on [the matter] from several sources").

Id. at 952. Under these circumstances, the court concluded that the agency's change in methodology underlying the final rule was still a logical outgrowth of the proposal.

Similarly, in *Natural Resources Defense Council, Inc. v. Thomas*, 838 F.2d 1224, 1242-43 (D.C. Cir. 1988), the court upheld the EPA's Stack Height Regulation, rejecting an argument by petitioners that the EPA failed to provide adequate notice of its final rule. The proposal contained three separate emission rates for three different sources. In the final rule, the EPA changed to a uniform emission rate subject to certain conditions. As noted at several points throughout this document, the EPA's decisions to adjust certain structural aspects of the proposed Rule, and in turn the calculation of the final standard, are in line with the Court's holdings in both the *Northeast Maryland Waste Disposal Authority* and *NRDC* cases and would therefore constitute logical outgrowths of the proposal.

In *American Coke & Coal Chemicals Institute v. EPA*, 452 F.3d 930 (D.C. Cir. 2006), the court noted that a petitioner "must demonstrate that the agency's violation of the APA's notice and comment procedures has resulted in 'prejudice.'" 452 F.3d at 939. Petitioners there challenged four effluent limitations under the Clean Water Act, alleging that final limitations were not logical outgrowths of the proposed rule. In rejecting the petitioners' claim that the EPA improperly changed its methodology of how it calculated the applicable flow rate, the court stated, "the Institute can show no prejudice as the flow rate in the Final Rule is less stringent than the proposed flow rate, and this difference (all else being equal) resulted in a less stringent limitation across the board." *Id.* at 941. Here, there are several instances in which Petitioners alleged insufficient notice, yet, similar to factual scenario at issue in *American Coke & Coal Chemicals Institute*, the finalized provisions at issue actually benefited Petitioners.

Lastly, in *Chemical Manufacturers Ass'n v. EPA*, 870 F. 2d 177, 201-02 (5th Cir. 1989), the court held that there was no further notice and opportunity for comment required where the EPA "did not supplant its economic-impact study, or replace its original data with completely new and different data, but, in response to industry criticisms, updated and expanded one of several data sources." *See also Community Nutrition Inst. v. Block*, 749 F. 2d 58 (D.C. Cir. 1984); *Solite Corp v. EPA*, 952 F.2d 473, 484-85 (D.C. Cir. 1991). In such instances, such the EPA's updating and expansion of data sources for the CPP, the additional information need to be subject to a new round of notice and comment.

B. Central Relevance

An objection is of central relevance to the outcome of the final rule only if it provides substantial support for the argument that the promulgated regulation should be revised. *See Coalition for Responsible Regulation v. EPA*, 684 F. 3d 102, 125 (D.C. Cir. 2012)

(acknowledging and applying the EPA's interpretation of the central relevance criterion); *North Carolina v. EPA*, 531 F.3d 896 (D.C. Cir. 2008) (holding that a petitioner fails to demonstrate that its objection is of central relevance when the petitioner "vaguely alludes to EPA's incorrect factual assumptions," but "fails to support [its] assertion") (internal quotation omitted); *see also* EPA's Denial of the Petitions to Reconsider the Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202 of the Clean Air Act, 75 FR 49556, 49561 (August 13, 2010).[11] Put another way, an objection is of central relevance to the outcome of the rule if, based on the merit of that objection, the EPA would have reached a different outcome in the rulemaking. Should the EPA deny petitions for reconsideration, "EPA certainly may … provide an explanation for that denial, including by providing support for that decision, without triggering a new round of notice and comment for the rule." *Coalition for Responsible Regulation*, 684 F. 3d at 126.

III. Background

A. Procedural Background

1. CPP rulemaking history

The EPA initiated work on the CPP following a Presidential Memorandum dated June 25, 2013, which recognized the importance of significant and prompt action to address pollutants that contribute to climate change. The Memorandum directed the EPA to complete carbon pollution standards, regulations or guidelines, as appropriate, for modified, reconstructed and existing fossil fuel-fired power plants by June 1, 2015.[12] *See* 79 FR 34830, 34833 (June 18, 2014) (proposed CPP). The Memorandum also directed the EPA to launch the process of developing the guidelines by undertaking a broad effort to engage states, stakeholders and the public. By that time, the EPA had already proposed a related rule for newly constructed fossil fuel-fired power plants, on March 12, 2012 (77 FR 22392).

Pursuant to the Memorandum, the EPA began an extensive outreach program almost a year before issuing the proposed rule in order to engage stakeholders. As the agency explained in the proposal, "the EPA embarked on an unprecedented pre-proposal outreach effort. From consumer groups to states to power plant owner/operators to technology innovators, the EPA sought input from all perspectives." 79 FR at 34845. The EPA hosted numerous teleconferences, conducted 11 public listening sessions, and held meetings with the energy and environment officials in states and tribes, as well as with the full range of stakeholders including leaders in the utility power sector, labor leaders, non-governmental organizations, other federal agencies, other experts, community groups and members of the public. In all, the EPA held over 300 pre-proposal meetings. *Id.*; 80 Fr at 64704. Because of the importance of obtaining pre-proposal input, the EPA delayed the development of the proposal so that it could include features that were responsive to many stakeholder concerns. 79 FR at 34847. The EPA established a pre-proposal, non-regulatory docket to collect the stakeholder input (EPA-HQ-OAR-2014-0020), and received a wide range of ideas and suggestions that helped inform the proposed rule.

[11] See also CAA sections 307(d)(8) and (d)(9)(D)(iii), which likewise apply a "central relevance" criterion to judicial review of alleged procedural errors, requiring that the error be essentially outcome-determinative: "so serious and related to matters of such central relevance to the rule that there is a substantial likelihood that the rule would have been substantially changed" if a procedural error had not occurred.

[12] http://www.whitehouse.gov/the-press-office/2013/06/25/presidential-memorandum-power-sector-carbon-pollution-standards

On January 8, 2014, the EPA re-proposed a rulemaking to establish new source standards of performance (NSPS) for CO_2 emissions from fossil fuel-fired power plants. Standards of Performance for Greenhouse Gas Emissions From New Stationary Sources: Electric Generating Units; Proposed Rule, 79 FR 1430 (Jan. 8, 2014). Pursuant to section 111(a) of the Act, this established the date of January 8, 2014, as the date as of which EGUs already in existence would have to be regulated under a 111(d) plan regulating CO_2.

At the time it began the CPP rulemaking, the EPA already had an extensive base of knowledge about the power sector.[13] Through the outreach process prior to the CPP proposal, and throughout the entire rulemaking, the EPA added to this extensive knowledge, about, among other things, the types of power plants; their design, engineering features, and technologies (e.g., subcritical and supercritical technologies); their ownership arrangements; their fuels; the manner in which they conduct business; the various types of air pollution controls and pollution reduction strategies and how they have been implemented; the nature of, and workings of, the electricity grid and the entities involved in operating it; and many other aspects of the sector. Throughout the rulemaking process, the EPA also further developed its tools for analyzing the power sector, including the Integrated Planning Model (IPM), a computerized program that allows the EPA to model, among other things, the impacts of emission controls. In addition, throughout the rulemaking, the EPA received extensive input from other agencies with expertise in various aspects of the power sector, including, among others, DOE and FERC.

EPA signed the proposed rulemaking on June 2, 2014, a little more than 11 months after the Presidential Memorandum that initiated the rulemaking, and published it in the Federal Register on June 18, 2014. "Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units," 79 FR 34830 (June 18, 2014) (the "Clean Power Plan") (EPA-HQ-OAR-2013-0602).

In the proposal, EPA compiled information about, analyzed, and solicited comment on the various systems of emission reduction that were available for fossil fuel-fired power plants. For example, for coal-fired power plants, EPA developed an extensive record concerning: co-firing, heat rate improvements, generation-shifts to NGCC units, generation shifts to renewable energy, and reduced generation due to demand-side energy efficiency. 79 FR 34858-34876; Mitigation Measures TSD.

EPA also evaluated other control options, including carbon capture and storage (CCS). *See* 79 FR 34876; Mitigation Measures TSD. It should be noted that during this time, EPA decided to re-propose the rulemaking for newly constructed sources, and did so by notice dated January 8, 2014. 79 FR 1430. This rulemaking contained an extensive record on CCS, as well as information on the technology employed by the most recently constructed plants, including subcritical and supercritical technology.

The record for the proposed rulemaking was extensive. It included, among other things, the lengthy preamble for the proposal, detailed technical support documents (TSDs) (including a legal memorandum), and Regulatory Impact Analyses (RIAs), and numerous studies that the

[13] The EPA acquired this expertise through conducting many previous rulemakings for existing and new sources, beginning in the early 1970s, *see, e.g.*, Standards of Performance for New Stationary Sources: Proposed Standards for Five Categories, 36 FR 15704 (Aug. 17, 1971) (identifying fossil fuel-fired steam generators as the very first category of stationary sources for regulation under section 111), and continuing through the present time. The most recent rulemakings concerned NSPS for certain air pollutants, and the air toxics and transport rulemakings, as described in the final Rule, 80 FR 64696-64698.

EPA reviewed in developing the proposal.

The CPP elicited an extraordinary amount of interest across the spectrum of interested parties and members of the general public. The EPA's unprecedented outreach effort continued between signature of the proposal and signature of the final Rule. As stated in the final Rule, the EPA held public hearing sessions in Atlanta, Georgia; Denver, Colorado; Washington, DC; and Pittsburgh, PA, which were attended by more than 2,700 people. The EPA initially provided a 90-day comment period, and then extended it, as requested by stakeholders, to a total of over 165 days. The EPA provided supplemental information during the comment period that responded to early comments, and allowed further comments on that supplemental information. Specifically, On October 30, 2014, the EPA published a notice of data availability (NODA) on three topic areas: emission reduction compliance trajectories created by the interim goals for 2020 to 2029, certain aspects of the building block methodology, and the way state-specific CO_2 goals are calculated. 79 FR 64543 (Oct. 30, 2014). On November 4, 2014, the EPA published a supplemental proposal, "Carbon Pollution Emission Guidelines for Existing Stationary Sources: EGUs in Indian Country and U.S. Territories; Multi-Jurisdictional Partnerships; Proposed Rule, 79 FR 65482 (Nov. 4, 2014). On November 13, 2014, the EPA issued a second NODA, regarding "additional information regarding the translation of emission rate-based CO_2 goals to mass-based equivalents." 79 FR 67406 (Nov. 13, 2014). EPA extended the comment period on the proposed CPP from October 16, 2014, to December 1, 2014.

The docket records nearly 1,000 meetings, calls, presentations, conferences, consultations and other outreach with stakeholders. These post-proposal interactions included more than 300 meetings with state and local stakeholders; about 30 discussions with tribes; more than 450 meetings with industry stakeholders; more than 150 discussions with environmental, environmental justice and scientific stakeholders; and dozens more discussions with conveners, intra-governmental stakeholders, academics, consultants and international parties. In total, the agency received almost 4.3 million comments about all aspects of the proposed rule – more than any rule in the EPA's history – and thousands of people participated in the agency's public hearings, webinars, listening sessions, teleconferences, and meetings all across the country. The agency made many revisions in the final rule in response to these comments. 80 FR 64704/1 – 64707/2.

Many stakeholders expressed appreciation for the EPA's outreach efforts, in many cases calling it "unprecedented." The following is a sample of stakeholders' statements in this regard:

- "Since President Obama announced his climate action plan in June 2013, the Environmental Protection Agency (EPA) has made an unprecedented effort to gather input from stakeholders prior to proposing a rule to regulate greenhouse gases from existing power plants under Section 111(d) of the Clean Air Act. Xcel Energy Inc. appreciates EPA's efforts and its willingness to provide our industry with opportunities to help shape a reasonable and workable Section 111(d) rule. We have provided input to EPA in many forms; our outreach to EPA on Section 111(d) extends back almost three years, well before the President's announcement." Frank P. Prager, Vice President, Policy and Strategy, Xcel Energy Inc., EPA-HQ-OAR-2013-0602-27970.
- "We thank the Environmental Protection Agency for conducting extensive outreach both before and after issuing the proposed rules; for listening to our ideas; and for providing flexibility to the states in the rules and as we develop our implementation plan." Iowa Department of Natural Resources, Iowa Utilities Board, and Iowa

Economic Development Authority, EPA-HQ-OAR-2013-0602-23271.

- "APS appreciates the considerable effort that EPA has put forth in developing the Proposed Rule and the extensive outreach by EPA to assure it develops the best possible rule concerning the carbon intensity of existing sources." Chas Spell, Director, Environmental Policy & Programs, Arizona Public Service (APS), EPA-HQ-OAR-2013-0602-27337.
- "The Department would like to commend the Environmental Protection Agency (EPA) on the extraordinary outreach process its staff undertook to gather input from the various stakeholders. Following President Obama's Climate Change remarks made on June 25, 2013, at Georgetown University, the EPA has welcomed interaction with interested organizations in an unprecedented fashion, including a six month comment period. The Department applauds this level of public engagement, especially with such a challenging complex issue involving environmental and energy policy." Myra C. Reece, Chief, Bureau of Air Quality, South Carolina Department of Health and Environmental Control (DHEC), EPA-HQ-OAR-2013-0602-22584.
- "[The Tennessee Department of Environment and Conservation] recognizes the significant, unprecedented amount of outreach that the EPA had done with regard to the proposed guidelines." Robert J. Martineau, Jr., Commissioner, Tennessee Department of Environment and Conservation, EPA-HQ-OAR-2013-0602-22766. [14]

[14] Similar statements include the following:

- "We applaud EPA for its inclusive stakeholder outreach and public process, both prior to releasing the draft rule and during the public comment period." Ted Michaels, President, Energy Recovery Council (ERC), EPA-HQ-OAR-2013-0602-23386.
- "Nearly one year before releasing the Clean Power Plan, EPA conducted an extensive outreach effort to NACAA and other stakeholders. In terms of process, EPA deserves significant credit for this effort, which has truly been unprecedented in duration and scope. The agency sought input from many groups, especially state and local air pollution control agencies. And those conversations remain ongoing. Further, EPA not only engaged in discussion, it listened carefully to what was said." Stu Clark, Washington, Co-Chair, and Larry Greene, Sacramento, California, Co-Chair, National Association of Clean Air Agencies (NACAA) Global Warming Committee, EPA-HQ-OAR-2013-0602-24085.
- "We appreciate EPA's extensive stakeholder outreach, and the Agency's willingness to consider the new ideas, approaches, and issues provided through this process. Kerry Kelly, Senior Director, Federal Affairs and Amy Van Kolken Banister, Senior Director, Corporate Air Programs, Waste Management (WM), EPA-HQ-OAR-2013-0602-23068
- "In the absence of comprehensive Congressional action to address climate change, we commend EPA for proposing these regulations under its Clean Air Act authority to regulate greenhouse gases as an air pollutant, as affirmed by the Supreme Court. We are particularly appreciative of EPA's unprecedented outreach effort to states and other stakeholders to solicit input in developing this proposal. Mary D. Nichols, Chair, California Air Resources Board et al., EPA-HQ-OAR-2013-0602-27967.
- "Delaware appreciates EPA's unprecedented outreach and engagement with the states and other stakeholders in developing this proposal." Ali Mirzakhalili, Director, Department of Natural Resources & Environmental Control Division of Air Quality, State of Delaware, EPA-HQ-OAR-2013-0602-25414.
- "We once again take this opportunity to commend the EPA for its unprecedented stakeholder outreach, which has culminated in the release of additional information since the drafting of our initial comments." Rob Klee, Commissioner, Connecticut Department of Energy and Environmental Protection, et al., Regional Greenhouse Gas Initiative (RGGI), EPA-HQ-OAR-2013-0602-24208.
- "The EPA has led an unprecedented outreach effort to all stakeholders before the proposed rule was published and throughout the entire comment period. We greatly appreciated the support from the Region 1 staff as well as state specific tools such as the online State Goal Visualizer which enabled states like Rhode

In addition, during the rulemaking, the EPA reviewed much other information about alternatives for control options that is in the public sphere, including, for example, a report by the National Association of Clean Air Agencies (NACAA), "Implementing EPA's Clean Power Plan: A Menu of Options" (May, 2015), which identifies twenty-five approaches to GHG reduction in the electric sector, provides a detailed description of compliance methods for each, and, in many cases, provides information as to the amount of emission reductions available through these approaches.[15]

On August 3, 2015, EPA Administrator Gina McCarthy signed the final CPP, which was published in the Federal Register on October 23, 2015. Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units; Final Rule, 80 FR 64662 (Oct. 23, 2015). The final Rule established an initial deadline for state plans of September 6, 2016, with the option of obtaining an extension of the deadline for states to submit final plans until September 6, 2018.

The record for the final CPP rulemaking was extensive. EPA extensively evaluated each of the three building blocks it finalized as part of the BSER. The record for the final rulemaking included the lengthy preamble for the final rule, a set of detailed TSDs (including a legal memorandum), a multi-volume response-to-comment document, and a comprehensive RIA, in addition to numerous studies conducted by stakeholders and other parties (such as studies concerning reliability) and millions of pages of stakeholder and public comment.

Island to better understand the methodology in setting the state targets. Likewise, the numerous webinars and conference calls further helped the states to understand the proposed plan's concepts and answered many questions. This outreach was the catalyst for many insightful discussions and ideas which ultimately we hope will result in an improved Clean Power Plan." Janet Coit, Director, Rhode Island Department of Environmental Management (RIDEM) and Marion S. Gold, Commissioner, Rhode Island Office of Energy Resources (RIOER), EPA-HQ-OAR-2013-0602-23040.

- The commenter notes "the unprecedented strong outreach and support [EPA] has provided the states since issuing the proposal." Dick Pedersen, Director, Oregon Department of Environmental Quality, State of Oregon, EPA-HQ-OAR-2013-0602-20678.
- "We appreciate the tremendous outreach effort EPA has undertaken in the development of this proposal." Jay Inslee, Governor, State of Washington, Office of the Governor, EPA-HQ-OAR-2013-0602-22764.
- "Nearly one year before releasing the Clean Power Plan, EPA conducted an extensive outreach effort to various stakeholders. The City of Boulder recognizes and appreciates the significant amount of resources EPA directed toward stakeholder outreach during the Clean Power Plan's development." Jonathan Koehn, Regional Sustainability Coordinator, City of Boulder, Colorado, EPA-HQ-OAR-2013-0602-22943.
- "The Parties also appreciate the extensive outreach conducted by EPA concerning the Proposed Supplemental Rule…. The Proposed Supplemental Rule shows that EPA reflected upon some of the concerns expressed by the Navajo Nation…." Ben Shelly, President, The Navajo Nation EPA-HQ-OAR-2013-0602-23309.
- "The EPA issued its proposal after unprecedented public outreach. We applaud the EPA for its outreach efforts and supports the approach put forth in its proposal." Beau Ryan Dingler, Boardmember, Gulf States Renewable Energy Industry Association (GSREIA), EPA-HQ-OAR-2013-0602-22772.
- "The US EPA has conducted unprecedented stakeholder outreach and provided an exceptional amount of time for various organizations to study, examine and submit comments on the rule." Brennan Howell, Director of Clean Energy and Climate Campaigns, Ohio Environmental Council, EPA-HQ-OAR-2013-0602-35984.
- "The EPA issued its proposal after unprecedented public outreach. We applaud the EPA for its outreach efforts and supports the approach put forth in its proposal." Heidi Schoen, Executive Director, Missouri Solar Energy Industries Association, EPA-HQ-OAR-2013-0602-23839.

[15] *See* http://www.4cleanair.org/NACAA_Menu_of_Options, cited in Legal Memorandum Accompanying Clean Power Plan for Certain Issues," at 150-52.

The EPA also signed and published the final rulemaking for newly constructed, modified, and reconstructed power plants at the same time as the CPP. 80 FR 64510 (Oct. 23, 2015). Through that rulemaking, the EPA developed an extensive record on carbon capture and storage, subcritical and supercritical technology, and other aspects of the power sector. This information, together with the stakeholder input and comments the EPA received produced a wealth of information that significantly informed nearly every aspect of the final Rule, including the calculation of uniform emission rates in addition to individual state goals, the streamlined approach to setting up interstate trading programs, the provision of the CEIP as an early action crediting program, the shift in the start of the performance period from 2020 to 2022 in order to give states and sources more time to prepare, the development of interim steps to create a glide path for meeting the CO_2 emission performance rates, the simplified mass-goal setting methodology, and many other improvements in the final Rule.

The agency is firmly convinced that the extensive outreach and engagement led to a more workable rule that will achieve the statutory goal to reduce emissions of harmful CO_2 from these sources. These improvements since proposal have enhanced the likelihood of timely and successful achievement of the CO_2 reduction goals, given the critical importance and urgency of emission reductions in order to address climate change. The changes from the proposal to the final Rule, in the agency's view, are a credit to the quality of input the agency received and the agency's open-mindedness and receptivity to outside input throughout the process. The improvements to the Clean Power Plan from proposal to the final Rule stand as a testament to the vitality of the administrative rulemaking process at the EPA. In this action denying the petitions for reconsideration and administrative stay, EPA has updated the record for the CPP to the present time. As noted above, the EPA is responding to petitions for reconsideration concerning building block 1. EPA did not receive any new information that would call into question the record for building block 1, as included in the CPP. EPA is also responding to petitions for reconsideration concerning building blocks 2 and 3, as well as other aspects of the final Rule; describing the industry trends towards cleaner generation, and in doing so, providing updated information concerning building blocks 2 and 3, *see* Power Sector Trends Appendix; and providing updated information concerning non-BSER measures, including, for example, CCS, as well as information concerning heat rate improvements for NGCC units, *see* non-BSER CPP Flexibilities Appendix. Thus, this denial action itself contains an extensive record.[16, 17]

In addition, the EPA thoroughly developed the requirements, mechanisms, and options for state plans in the preamble and TSD. The EPA also prepared draft model rules for rate-based and mass-based trading programs, as discussed below. Furthermore, the EPA thoroughly considered the potential impacts of the CPP, including on the mix of generation and on the electricity system's reliability, and, in fact, adopted a reliability safeguard, discussed below.

As indicated above, the EPA initiated and completed the CPP rulemaking in about 25

[16] EPA completed this denial action about one year after the petitions were submitted. This period reflects the fact that much of the CPP staff time was primarily focused on developing tools to aid in implementation of the CPP, including development of the CEIP and the draft model rules, providing CPP-related assistance to states and others who requested it, and defending the CPP in court, through the D.C. Circuit's oral argument on September 27, 2016.

[17] It should also be noted that CO_2 controls for fossil fuel-fired power plants are already being implemented in the RGGI states (since 2009) and California (since 2013), as discussed in the rulemaking. 80 FR 64725. This experience significantly deepens the base of knowledge among regulators and the regulated community about controls for CO_2 from power plants and the impacts of those controls.

months. Some stakeholders objected that this period did not allow sufficient time for a well thought-out and fully vetted rule. The EPA recognizes that the timetable was expeditious, but disagrees that it was unreasonable or prevented the agency from assembling information or conducting the kind of thorough and extensive analysis needed to support the rulemaking. As noted above, the EPA provided an unprecedented outreach effort, allowed a lengthy comment period, received and addressed more comments than any rule in the agency's history, and developed a robust record on the measures included in the BSER, as well as on other, non-BSER measures. The timetable was sufficient to accommodate these activities, and thus was reasonable. In addition, the timetable was reasonable in light of the need to regulate emissions from this source category, and in light of scientific assessments cautioning that because of the long-lived nature of CO_2 emissions in the atmosphere, delays in reducing CO_2 emissions will lead to rapid depletion of the CO_2 budget, making achieving any given target, such as the 2 degree target, more difficult with each passing year, as described above and in the Climate Science Update Appendix. At the same time, the expeditious rulemaking schedule allowed the agency to respond to the urgency of achieving emissions reductions while affording states and utilities planning and compliance horizons needed to provide them with substantial flexibility and opportunities to maximize economic efficiency and prudent investment.

2. Related actions

On August 3, 2015, on the same day that she signed the Clean Power Plan, EPA Administrator Gina McCarthy signed the final NSPS rule under section 111(b) for CO_2 emissions from new, modified, and reconstructed fossil fuel-fired power plants. Standards of Performance for Greenhouse Gas Emissions From New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units; Final Rule, 80 FR 64510 (Oct. 23, 2015) (EPA-HQ-OAR-2013-0495). EPA received several petitions for reconsideration of the final NSPS rule, and denied them on May 6, 2016. 81 FR 27442. Petitions for review of both the final NSPS rule and the denial of the reconsideration petitions have been consolidated and briefing is underway in *North Dakota v. EPA*, No. 15-1381 (and consolidated cases) (D.C. Cir.), with EPA's brief having been filed on December 14, 2016.

In response to requests from many stakeholders for the EPA to provide an example of how a state or federal plan could be designed, on October 23, 2015, the same day the final CPP was published, the EPA proposed model trading rules and federal plans for implementing the emission guidelines. In the same notice EPA also proposed amendments to the existing subtitle B implementing regulations for section 111(d), as well as a proposed necessary or appropriate finding for areas of Indian country with affected EGUs. Federal Plan Requirements for Greenhouse Gas Emissions From Electric Utility Generating Units Constructed on or Before January 8, 2014; Model Trading Rules; Amendments to Framework Regulations, 80 FR 64966 (Oct. 23, 2015) (EPA-HQ-OAR-2015-0199). The comment period for the proposals closed on January 21, 2016. The EPA submitted the draft model rules for interagency review pursuant to Executive Order 12866 on November 3, 2016. On December 19, 2016, the EPA withdrew the Model Rules from interagency review and made the information contained in the non-final drafts of the CPP Model Rules preamble and regulatory text available to the public, stakeholders, and states. The EPA also made available drafts of the documents associated with the draft Model Rules (technical support documents addressing leakage of emissions under a mass-trading program and evaluation, measurement, and verification (EM&V) for demand-side

energy efficiency, and a white paper on allowance/credit tracking systems).[18]

The sharing of this information reflects the fact that the EPA has been developing these materials in significant part in response to requests made by a number of states and stakeholders over the past year for information that could assist them in pursuing actions – some pertinent to the CPP and others not directly related to the CPP - to address carbon dioxide emissions from the power sector. For example, in an April 28 letter to Acting Assistant Administrator for the Office of Air and Radiation, Janet McCabe, 14 states, citing a broad range of air quality and energy policy activities and obligations they were undertaking as well as their anticipation of possible eventual compliance with the CPP, specifically requested that the "EPA provide a final model rule or rules." The states also requested "additional information on … tracking systems for allowances or credits; and energy efficiency evaluation, measurement, and verification …." Similarly, many stakeholders requested additional information about addressing "leakage" – which in the CPP is identified as emissions associated with shifting generation to new plants when a state has a mass-based trading program covering only existing power plants. Because these materials are in draft form, a state could not rely on them as meeting CPP requirements. However, these materials make substantial progress toward the design of readily-implementable rate- and mass-based emission trading programs under the CPP, and, thus, can be of assistance to states to the extent they develop their own programs for their own purposes or develop a compliance plan were the Supreme Court stay lifted. These drafts may be especially helpful to states considering the use of emissions trading programs or the expansion of existing trading programs, since one of the chief areas of focus of the draft Model Rules is emissions trading. Similarly, states interested in using or expanding energy efficiency programs might find the material presented in the draft EM&V TSD useful as well.

In the final CPP, the EPA included the CEIP an optional early-action crediting program that states could adopt as a part of their state plans. The EPA recognized at the time of finalization of the CPP that certain aspects of the program would require further development by the agency; therefore, the EPA opened a non-regulatory docket (EPA-HQ-OAR-2015-0734) to request pre-proposal input on the design details of the CEIP. On June 30, 2016, the EPA published in the *Federal Register* a notice of proposed rulemaking, Clean Energy Incentive Program Design Details, 81 FR 42940 (June 30, 2016) (EPA-HQ-OAR-2016-0033). The comment period on this proposal closed on November 1, 2016.

3. *Judicial Review of the CPP*

Pursuant to the judicial review provisions of section 307(b) of the Act, a number of parties, including states, filed petitions for review of the final CPP in the federal D.C. Circuit Court of Appeals on October 23, 2015. Other parties, including other states, intervened in the case on the side of the EPA. See generally *West Virginia et al. v. EPA*, No. 15-1363 (and consolidated cases) (D.C. Cir.). Merits briefing was completed in April 2016. Oral argument before a three-judge panel was originally set for June 2, 2016. However, in a *sua sponte* order issued on May 16, 2016, the court rescheduled the case for oral argument before an *en banc*

[18] *See* https://blog.epa.gov/blog/2016/12/update-on-epas-clean-power-plan-model-rules/ (last visited Dec. 20, 2016). The Model Rules and associated documents remain under development and are subject to further change, re-submittal to OMB, and potentially, finalization under a subsequent administration. As EPA further explained in releasing them, they are deliberative documents that EPA is not required to release and are still working drafts. The agency did not take final agency action. Because these materials are in draft, a state could not rely on them as meeting CPP requirements. However, the agency believes these materials make substantial progress toward the design of readily-implementable rate- and mass-based emission trading programs under the CPP.

panel on September 27, 2016. Oral argument was held, and as of the date of this action, the parties are awaiting the court's ruling.

Many of the petitioners in the judicial case filed applications for the court to stay the CPP until resolution of the litigation. On January 21, 2016, a three-judge panel of the D.C. Circuit Court of Appeals denied the motions to stay the rule and established an expedited briefing schedule. *See West Virginia v. EPA*, No. 15-1363, Order (D.C. Cir. filed Jan. 21, 2016) (per curiam). Petitioners then requested that the U.S. Supreme Court issue a stay of the CPP. On February 9, the Court granted applications for a stay of the CPP pending disposition of the stay applicants' petitions for review in the D.C. Circuit, including any subsequent review by the Supreme Court. *West Virginia, et al.* v. *EPA, et al.*, No. 15A773 (February 9, 2016).

4. International Context of the CPP

Although the Clean Power Plan is an "emission guideline" promulgated under the EPA's section 111(d) statutory authority to regulate emissions of dangerous pollutants from existing sources, and thus is an authorized and lawful exercise of the EPA's statutory authority, the EPA, in the final CPP preamble, explained how the Rule is a part of a larger, coordinated national policy on climate change and identified the international context of that policy. 80 FR at 64699. Since EPA's promulgation of the CPP, there have been a number of significant developments in international efforts to address climate change. Other nations have continued to announce domestic policies and actions to significantly reduce greenhouse gas emissions. One example is China, as former U.S. Special Envoy for Climate Change Todd Stern explained in a declaration included in the docket for this action. Decl. of U.S. Special Envoy Todd Stern, par. 21-25, *West Virginia et al. v. EPA*, No. 15-1363, Doc. No. 1586661 (D.C. Cir. filed Dec. 3, 2015). Other nations have also committed to take significant steps to curb their greenhouse gas emissions. Id at para. 26-30 (citing actions by "all of the world's largest emitters - among them India, Russia, Japan, South Korea, Canada, Indonesia, Mexico, Brazil, Australia, and South Africa," describing actions by Germany, Denmark, United Kingdom, the European Union, India, Brazil, and Mexico, and noting that "more than 180 countries have submitted their plans for addressing climate change, representing 98% of all global greenhouse gas emissions").

These commitments by other nations were undertaken in the context of significant developments in international efforts to address climate change – developments that were supported by almost all nations, including all major emitters. In December 2015, Parties to the United Nations Framework Convention on Climate Change (UNFCCC) adopted the Paris Agreement.[19] The Agreement requires all Parties to prepare and communicate every five years successive "nationally determined contributions" (NDCs) describing emission reduction efforts. Successive nationally determined contributions are expected to represent a progression over time. The Paris Agreement entered into force on November 4, 2016, 30 days after the date on which at least 55 parties to the UNFCCC, accounting in total for at least 55% of total global greenhouse gas emissions, deposited their instruments of ratification, acceptance, approval or accession.[20] The United States submitted its instrument of acceptance of the Paris Agreement on

[19] The Paris Agreement was negotiated under the United Nations Framework Convention on Climate Change (UNFCCC), which the United States ratified in 1992 during the administration of President George H. W. Bush, following advice and consent from the Senate. The UNFCCC, which currently has over 195 Parties, includes the ultimate objective of "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system." UNFCCC, Art. 2.

[20] http://unfccc.int/paris_agreement/items/9444.php.

Sept. 3, 2016.[21] As of January 5, 2017, over 120 Parties to the UNFCCC have ratified, approved, or accepted the Paris Agreement. U.S. Special Envoy for Climate Change Jonathan Pershing explained, in a press briefing, the U.S. role as follows:

> We've worked under the context of the Paris Agreement to bring all countries on board. The United States is currently responsible for much less than 20% of global emissions. We're the second-largest, but nonetheless, by ourselves, we cannot solve the problem, so we chose a pathway of engagement as a global matter, to have all countries participate, and … we, with our colleagues around the world, succeeded. We're in a fundamentally different place after our term than we were coming in.[22]

5. Administrative Petitions for Reconsideration and/or Administrative Stay

The EPA received 38 administrative petitions for reconsideration of the CPP. In addition, the EPA received 22 petitions (some of which were included with the petitions to reconsider) requesting the EPA to administratively stay the CPP until the resolution of judicial review or the completion of the agency's reconsideration process.

The following parties filed petitions for the EPA to reconsider the final Rule without seeking a stay: Alabama Department of Environmental Management (Alabama DEM) (Dec. 22, 2015); American Electric Power System (AEP) (Dec. 22, 2015); the Arkansas Office of the Attorney General (Arkansas) (Dec. 21, 2015); Biogenic CO2 Coalition (Dec. 22, 2015); the Energy Recovery Council (ERC), Biomass Power Association (BPA), and Local Government Coalition for Renewable Energy (LGCRE) (Dec. 22, 2015); the Commonwealth of Kentucky (Dec. 22, 2015); Dairyland Power Cooperative, Madison Gas and Electric Company, We Energies, Wisconsin Power and Light Company, Wisconsin Public Service Corporation, and WPPI Energy (collectively, "Wisconsin utilities") (Dec. 22, 2015); Energy and Environment Legal Institute (EELI) (Dec. 22, 2015); the Energy Recovery Council (ERC) (Dec. 22, 2015); Entergy (Dec. 22, 2015); Hoosier Energy Rural Electric Cooperative, Eastern Kentucky Power Cooperative, and Minnkota Power Cooperative (Jan. 28, 2016); Intermountain Power Agency (IPA) (Dec. 22, 2015); Local Government Coalition for Renewable Energy (LGCRE) (Dec. 22, 2015); Louisville Gas & Electric Company (LG&E) and Kentucky Utilities Company (KU) (Dec. 22, 2015); National Association of Home Builders (NAHB) (Dec. 22, 2015); National Rural Electric Cooperative Association (NRECA) (Dec. 22, 2015); Newmont Nevada Energy Investment LLC and Newmont USA Limited (Newmont) (Dec. 22, 2015); Oglethorpe Power Corporation (Dec. 22, 2015); Southern Company (Dec. 22, 2015); State of West Virginia Office of the Attorney General (West Virginia) (Dec. 22, 2015); State of Wisconsin, Wisconsin Department of Natural Resources, and Public Service Commission of Wisconsin (Wisconsin DNR and PSC) (Dec. 22, 2015); the State of Wyoming (Dec. 22, 2015); and the Utility Air Regulatory Group (UARG) (Dec. 22, 2015).

The following parties filed petitions for the EPA to reconsider the Rule and to administratively stay the Rule: Ameren Corporation (October 28, 2015); Basin Electric Power Cooperative (Oct. 23, 2015); Denbury Onshore, LLC (Dec. 21, 2015); Kansas Department of Health and the Environment (DHE) (Nov. 17, 2015); Mississippi Department of Environmental Quality (DEQ) (Nov. 4, 2015); Mississippi Public Service Commission (PSC) (Dec. 22, 2015);

[21] https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XXVII-7-d&chapter=27&clang=_en.

[22] https://www.state.gov/s/climate/releases/2016/264436.htm

State of Montana Office of the Attorney General (Montana) (Dec. 22, 2015); National Alliance of Forest Owners (NAFO) (Dec. 22, 2015); the State of Nebraska Office of the Attorney General and Nebraska Department of Environmental Quality (Nebraska) (Dec. 22, 2015); the State of New Jersey Department of Environmental Protection (New Jersey DEP) (Sept. 2, 2015); the State of North Dakota Office of the Attorney General (Oct. 23, 2015); NorthWestern Energy (Dec. 22, 2015); Prairie State Generating Company, LLC (Dec. 22, 2015); the State of Texas Office of the Attorney General, Texas Commission on Environmental Quality, Public Utility Commission of Texas, and the Railroad Commission of Texas (Texas) (Dec. 22, 2015); and Westar Energy (Dec. 22, 2015).

The following parties filed petitions for the EPA to administratively stay the Rule: Basin Electric Power Cooperative (Oct. 30, 2015); Peabody Energy Corporation (Aug. 6, 2015); National Mining Association (NMA) (Aug. 3, 2015); UARG (Aug. 24, 2015); a group of Business Associations[23] (Oct. 2, 2015); the State of Texas (Aug. 20, 2015); and the State of West Virginia and 15 other states (Aug. 5, 2015).

B. Scientific Studies

The science regarding the impacts of climate change has continued to advance since publication of the Clean Power Plan. The EPA discusses these developments in the Climate Science Update Appendix. In brief, major assessments have been released by the U.S. Global Change Research Program (USGCRP) and the National Academy of Sciences, as well as the annual State of the Climate report from NOAA. The major assessments demonstrate the continued and, for certain outcomes, increased certainty and likelihood that GHGs significantly impact health and welfare now and in the future. The 2016 USGCRP report, "The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment," particularly lays out the impacts of climate change on the health of Americans. Additionally, global surface temperatures, sea level rise, ice melt, and GHG concentrations continue to rise to record levels.

In addition, scientific assessments have calculated the cumulative carbon emissions that are consistent with a future temperature target that holds the increase in temperatures to no more than 2 degrees Celsius. These assessments have determined that humans have already emitted more than 515 gigatons carbon, compared to a budget of about 1200 gigatons that provides a 50 percent chance of staying below the 2-degree target. To stay below that target with greater certainty, or when accounting for likely increases in forcing from non-CO_2 greenhouse gases, the allowable CO_2 emissions would need to be reduced even further, to as little as 790 gigatons of carbon for a 2 in 3 chance of staying below 2 degrees, including limited growth in non-CO2 greenhouse gases. With global emissions of about 10 gigatons, that implies that somewhere between 1.5 and 4% of the remaining carbon budget for a 2-degree target is being used every year. For a higher temperature, more emissions would be allowed, but there would still be a limited total budget. Therefore, a delay in reducing emissions will lead to the budget being rapidly depleted, making achieving any given temperature target more difficult with each

[23] U.S. Chamber of Commerce, National Association of Manufacturers, National Federation of Independent Business, American Chemistry Council, American Coke and Coal Chemicals Institute, American Iron and Steel Institute, American Foundry Society, American Forest and Paper Association, American Fuel & Petrochemical Manufacturers, American Wood Council, Brick Industry Association, Electricity Consumers Resource Council, Lignite Energy Council, National Oilseed Processors Association, and Portland Cement Association.

passing year.[24]

C. Power Sector Trends Since final CPP

As discussed in the Power Sector Trends Appendix, information, data, and analyses published since the release of the CPP in August 2015 demonstrate that the trends toward low- and zero-emitting energy, upon which the CPP builds, continue unabated, and, in fact, have accelerated since the EPA promulgated the CPP. In this manner, this information reinforces the fact that the CPP is trend-following. Ultimately, this information demonstrates that the state emission targets required by the CPP can be achieved with significantly less impact on the generation mix in the industry, and at much lower cost, than the EPA projected at the time of promulgation.[25]

Specifically, this appendix describes how sources covered by the CPP are well on their way toward meeting the carbon dioxide (CO_2) emission reductions that the EPA projected would occur under the CPP. When the EPA finalized the CPP in August 2015, the agency projected that, by 2030, the power sector would reduce its CO_2 emissions 32 percent below 2005 levels. In 2012, CO_2 emissions from sources covered by the CPP were 19 percent below 2005 levels.[26] By the end of 2015, several months after the CPP was finalized, those sources already had achieved CO_2 emission levels 24 percent below 2005 levels.[27] Indeed, the level of 2015 emissions is roughly equivalent (only 0.05% difference) to the level contemplated by the CPP for 2022—the first year of the compliance period—for all states collectively.[28] For 24 states, emissions from their sources in 2015 were *lower* than the 2022 level. These trends have

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[24] In light of these concerns, EPA moved expeditiously to complete the Rule and has consistently maintained that the earlier that emission reductions can be obtained, the better, from an environmental and public health perspective. *See, e.g.*, 80 FR 64831 (identifying as a purpose of the Clean Energy Incentive Program obtaining early emission reductions in order to accelerate long-term climate strategies).

[25] As explained below and in the Power Sector Trends Appendix, these trends are primarily due to the relative costs of different forms of generation, coupled with electricity demand considerations, and are not due to the CPP itself. This is evident because the CPP was stayed in February 2016, shortly after it took effect. A comparison of Energy Information Administration (EIA) data on reported capacity retirements in the eight months prior to February 2016, and the eight months from February to September 2016 (the latest month for which data is available) shows the following: In the eight months from June 2015 through January 2016, a total of 53 conventional steam units reported retiring, accounting for net summer capacity of 5506.7 MW. EIA, Electric Power Monthly, Table 6.4, Retired Utility Scale Generating Units by Operating Company, 2015 (February 2016), *available at* http://www.eia.gov/electricity/monthly/ In the eight months from February 2016 through September 2016, a total of 46 conventional steam units reported retiring, accounting for 6,567.5 MW net summer capacity. EIA, Electric Power Monthly, Table 6.4, Retired Utility Scale Generating Units by Operating Company, as of September 2016 (November 2016), *available at* http://www.eia.gov/electricity/monthly/. For discussions of the reasons for coal-fired power plant retirements, *see W. Va. v. EPA*, No. 15-1363, Culligan Decl. ¶¶ 7-19 (D.C. Cir. filed Dec. 3, 2015) (included in the docket for this action); Susan Tierney, Power Magazine, Why Coal Plants Retire: Power Market Fundamentals as of 2012 (July 30, 2012), http://www.powermag.com/why-coal-plants-retire-power-market-fundamentals-as-of-2012/.

[26] EPA data show 2,171 million short tons of CO_2 emissions in 2012 from sources covered by the CPP. The CO_2 Emission Performance Rate and Goal Computation Technical Support Document for CPP Final Rule is available at https://www.epa.gov/sites/production/files/2015-11/documents/tsd-cpp-emission-performance-rate-goal-computation.pdf.

[27] EPA data show 2,047 million short tons of CO_2 emissions in 2015 from sources covered by the CPP for the 47 states and 3 Indian Tribes that were covered by the CPP. Data available at Air Markets Program Data, https://ampd.epa.gov/ampd/.

[28] The mass emissions level the CPP contemplated for all 47 states and tribes in 2022 was 2,046 million short tons (Goal Computation Data File, Appendix 5).

continued through 2016: For the period from January through September 2016, power plants reported CO_2 emissions to the EPA that were about 8 percent lower than emissions during the same 9-month period in 2015.[29] These emission trends demonstrate that while the CPP guarantees significant emission reductions by 2030, states and sources are already well on their way to achieving CPP requirements today—6 years before the beginning of the first compliance period in 2022.

This appendix also provides an update on the ongoing power sector trends that have driven these emissions reductions, focusing in particular on recent developments in fuel and technology costs as well as generation shifts. These trends include declines in coal-fired generation and capacity—with no new coal-fired capacity without carbon capture and sequestration (CCS) being added to the grid since 2012—and significant countervailing increases in natural gas-fired generation and capacity. At the same time, renewable energy has continued to be the fastest growing form of utility-scale electric-generating capacity and is expected to account for the largest share of all new capacity in 2016. In addition, electricity demand is only slowly rising, due in part to the continued development of energy efficiency (EE) standards and programs. Low growth in electricity demand (an annual average growth rate of 0.8% from 2010 to 2015 and 0.1% between 2012 to 2015)[30] puts additional economic pressures on older and less-efficient technologies (like many coal-fired plants), which struggle to compete with the newer capacity coming online that generally has lower operating costs. The data show that these shifts in the power sector have been significant. Technological advances in the natural gas industry have led to an abundance of natural gas that is, and is projected to remain, low-cost. The costs of renewable generation have similarly fallen due to technological advances, improvements in performance, and local, state, and federal incentives such as the recent extension of federal tax credits.[31]

The Appendix also discusses the factors that are driving these emission-reducing shifts in the power sector. Natural gas costs have fallen and are projected to remain low; costs of renewable generation have similarly fallen due to several factors, including declines in technology costs, improvements in performance, and local, state and federal incentives (*e.g.*, extension of federal tax credits). Meanwhile, coal has not seen a commensurate reduction in price, and the nation's fleet of coal-fired power plants—91 percent of which were built more than a quarter-century ago—continue to age and therefore experience retirement pressures. The slow pace of electricity demand growth due in part to EE programs puts further pressure on sources of generation like coal that are already becoming less competitive. Those cost trends and other developments have served as the main drivers for pronounced, ongoing changes in the nation's generation mix.

These changes in the generation mix away from coal and toward lower- and zero-emitting generation are significantly more pronounced than the EPA projected when it finalized the CPP.[32] This allows the states to meet their goals and, ultimately, the sources to meet their

[29] Air Markets Program Data, at https://ampd.epa.gov/ampd/.

[30] EIA, Retail sales of electricity.

[31] As part of the 2016 Consolidated Appropriations Act enacted in December 2015 (H.R. 2029), Congress extended the qualifying deadlines for the production tax credit (PTC) and investment tax credit (ITC) for renewable generation technologies. The deadline for PTC-eligible technologies to receive the full production credit was extended by 2 years.

[32] The impact of these trends on the nation's generation mix is significantly greater than the impact of the CPP on the generation mix, which confirms that the CPP is trends following and will not "necessitate[] a radical

standards, with less planning burden, at significantly less cost, and with less impact on the sector.

The appendix reviews recent reports and assessments regarding the extent to which these power sector trends are likely to continue into the future. The materials covered include reports by the U.S. Department of Energy (particularly the U.S. Energy Information Administration); updated power-sector modeling produced by EPA for other air pollution rules; the stated plans and intentions of companies and leaders across the power sector itself; and analyses produced by a wide variety of research organizations, think tanks, and consulting firms.

Specifically, reports and analyses by experts outside EPA indicate that the cost trends discussed in the Appendix will continue. The price of natural gas is expected to remain relatively low for the next 10 to 15 years as improvements in drilling technologies and techniques continue to reduce the cost of extraction. In addition, the coal-fired fleet of power generators is aging, and no new coal-fired generation is being planned. The declining costs of renewable energy technologies, particularly for wind and solar generation, and the extension of tax incentives for these technologies, ensure that renewable energy generation will continue to increase. Many power plant generators have announced that they expect to continue to change their generation mix away from coal-fired generation and toward natural-gas fired generation, renewables, and more deployment of EE measures.

The Appendix also discusses several modeling studies that project future generation mix and emissions *without* the CPP. The bottom-line conclusions of these studies show that many states already have achieved their required CPP reductions through the first several years of the program, even based solely on actions that have occurred within their state (and without reliance on interstate trading). Further, the studies suggest that if states choose to participate in interstate regional trading, it is likely that all states could comply without needing to make any additional CPP-related reductions until the mid-2020s. In addition, these studies show that business-as-usual changes in the generation mix (i.e., changes irrespective of the CPP) will allow from at least one-third to up to more than half of the states to meet their 2030 goals without requiring any further reductions from their sources. The common thrust of these studies' bottom-line conclusions is bolstered by the fact that they arrived at similar conclusions despite using different models and employing different assumptions. Taken together, the bottom-line conclusions of these studies provide robust evidence that the CPP is a trend-following air pollution rule that builds upon actions and developments occurring in the relevant source category.

When all these trends and changes in the power sector are accounted for, the modeling and analysis indicate that the CPP continues to drive some emission reductions, but a lower

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transformation of the U.S. electric generation sector ...." Basin Electric Power Cooperative Pet. 61. To illustrate, when the EPA promulgated the CPP, the EPA projected that generation from coal-fired generators would comprise almost 33% of total generation in 2030 without the Rule, and about 27% to 28% with the Rule (RIA 3-27, Table 3-11). This difference is smaller than the change observed over the 10-year timeframe from 2002 to 2012 when the percentage of the generation mix provided by coal-fired generators declined from 50% to 37% (RIA 2-5, Table 2-2). By the same token, at the time EPA finalized the Rule, EPA projected that natural-gas fired generation would provide 31% of total generation in 2030 without the Rule, and 32% with the Rule; and EPA projected that renewables would provide 18% of total generation in 2030 without the Rule, and 20% with the Rule (RIA 3-27, Table 3-11). These projected shares for coal and natural gas-fired generation without the CPP have already been achieved, in 2015. In addition, the increased percentage share for renewables projected in the final rule (compared to a reference case) was considerably less that the increase already achieved since 2010. As a result, CPP-driven shifts in generation by 2030 can be expected to be correspondingly lesser, given current and projected trends.

amount at a much lower cost than the EPA projected at the time it finalized the CPP. At the time the EPA finalized the CPP, it estimated the highest marginal cost of compliance in any state in 2030 to be $26/ton of CO_2, an average marginal cost of $11/ton of CO_2, and that 7 states would have no marginal costs. The EPA's updated analysis estimated the highest marginal cost of compliance in any state in 2030 to be $17/ton of CO_2, an average marginal cost of $4/ton of CO_2, and that 18 states would have no marginal costs.

In addition, recent analyses show that while states have a number of pathways for implementing the CPP, some pathways—in particular, interstate mass-based trading—have low costs. A number of modeling studies make this clear. For example, modeling by the Bipartisan Policy Center (June 2016) identifies the cost of CPP compliance for the plausible scenario of mass-based state plans with interstate trading at approximately $1 billion per year.[33] Recent modeling by Duke University's Nicholas Institute for Environmental Policy Solutions identifies total policy costs for the U.S. power sector under a scenario of mass-based state plans with interstate trading at approximately $1.9 billion through 2040.[34] The models used in the various studies discussed in the Appendix have different formats and assumptions and analyze different scenarios (trading, no trading, rate-based, mass-based, etc.); as a result, their bottom-line conclusions, taken together, are robust.

These costs are significantly lower than projected by the EPA at the time it promulgated the CPP (based on state rate- or mass-based plans that did not include interstate trading), and generally lower – in some cases, significantly lower – than other EPA rules regulating non-greenhouse gas emissions from fossil fuel-fired power plants, as indicted in the table below. To reiterate, because the models have different modeling formats and assumptions, and analyze different scenarios (trading, no trading, rate-based, mass-based, etc.), their bottom-line conclusions are robust.

Costs of CPP Compared to Other EPA Electric Power Sector Rules

All costs are annualized and are in 2011$, unless otherwise noted by footnote. Additional explanation is in the Power Sector Trends Appendix.

Rule	Costs at 5 years or less (Billions)	Costs at 10 years or less, and more than 5 years (Billions)	Costs at 15 years (Billions)
1979 NSPS			>$9.1 (16 years)
Acid Rain Program	$0.9 - $1.4 (3 years)	$1.7 - $3.2 (8 years)	
NOx SIP Call		$2.7 (9 years)	
CAIR	$3.1 (5 years)	$4.6 (10 years)	$5.7 (15 years)

[33] Bipartisan Policy Center, (June 2016), Modeling the Evolving Power Sector and Impacts of the Final Clean Power Plan, http://cdn.bipartisanpolicy.org/wp-content/uploads/2016/06/BPC-Energy-Clean-Power-Plan-Modeling.pdf.
[34] Martin Ross et al., (July 2016), Ongoing Evolution of the Electricity Industry: Effects of Market Conditions and the Clean Power Plan on States, pp. 23–24, Nicholas Institute for Environmental Policy Solutions, https://nicholasinstitute.duke.edu/sites/default/files/publications/ni_wp_16-07_final.pdf. Projecting costs on a cumulative, not annual, present value basis.

MATS	$10 (4 years)		
CPP-per EPA RIA		$1.0 – $3.0 (10 years, i.e., 2025)	$5.1 – $8.4 (15 years, i.e., 2030)[35]
CPP – per Bipartisan Policy Center			$1 (17 years, i.e. 2032)[36][37]
CPP – per MJ Bradley			$0.775 – $1.4 (15 years, i.e., 2030)[38]
CPP – per Nicholas Institute			$1.9 (cumulative, through 2040)[39]

D. Impact of Power Sector Trends on Significance of CPP

Although these power sector trends mean that at the present time, the amount of emission reductions beyond business-as-usual that the CPP can be expected to provide are fewer than projected at the time the CPP was promulgated,[40] those emission reductions continue to be

[35] The EPA RIA took a conservative view of CPP implementation and required that each state meet its state-specific goal, with flexibility to meet the emission goal on a purely intrastate basis, without employing interstate compliance measures. The RIA projected annual compliance costs in 2030 for a mass-based approach at $5.1 billion and for a rate-based approach $8.4 billion. RIA ES-9.

[36] Bipartisan Policy Center modeled a range of compliance scenarios and found that the system-wide compliance costs (2012$) with the mass-based goals for existing sources is slightly more than $1 billion annually (average for 2022–2032), well below EPA's annual cost estimates in the RIA. Bipartisan Policy Center, Interactive: Impacts of the Final Clean Power Plan, http://bipartisanpolicy.org/clean-power-plan-analysis-interactive/ (view U.S. Average Annual Compliance Costs graph).

[37] Bipartisan Policy Center modeled a range of compliance scenarios and found that the system-wide compliance costs (2012$) with the mass-based goals for existing sources is slightly more than $1 billion annually (average for 2022–2032), well below EPA's annual cost estimates in the RIA. Bipartisan Policy Center, Interactive: Impacts of the Final Clean Power Plan, http://bipartisanpolicy.org/clean-power-plan-analysis-interactive/ (view U.S. Average Annual Compliance Costs graph).

[38] MJ Bradley & Assoc., System Costs, Average Bills, and Emissions (June 2016), http://mjbradley.com/sites/default/files/MJBA_IPM_Results_TotalUS.xlsm. Cost projections provided in 2012$. MJ Bradley projects that in 2030, compliance costs in the state-by-state compliance scenarios range from $775 million to $1.4 billion. *Ibid.* (select June 2016, Total System Cost, and the year 2030; refer to columns Q and R). In mass-based interstate trading scenarios, compliance costs in 2025 range from $2 billion to *negative* $1 billion. *Ibid.* (select June 2016, Total System Cost, and the year 2025; refer to columns S through V). In 2030, the highest compliance cost scenario for mass-based trading is $2.76 billion. *Ibid.* (select June 2016, Total System Cost, and the year 2030; refer to column U).

[39] The Nicholas Institute modeled a variety of scenarios, and it projects that across multiple compliance scenarios, the CPP will have minimal impact on total system costs—in the range of 0.1 to 1.0 percent. Martin Ross et al., (July 2016), Ongoing Evolution of the Electricity Industry: Effects of Market Conditions and the Clean Power Plan on States, p. 1, Nicholas Institute for Environmental Policy Solutions, https://nicholasinstitute.duke.edu/sites/default/files/publications/ni_wp_16-07_final.pdf. Projecting costs on a cumulative, not annual, present value basis. The projection of $1.9 billion is for total policy costs for the U.S. power sector under a scenario of mass-based interstate trading for existing sources and a natural gas price of $4.70/MMBtu in 2030. *Ibid.* at pp. 23–24. In a low natural gas price scenario ($3.60 MMBtu to $3.74/MMBtu between 2020 and 2030), the CPP is nonbinding through the "first few years of the policy." *Ibid.* at p.3. Costs under an existing-only policy case with low natural gas prices are "essentially zero." *Ibid.* at 26.

[40] EPA analyzed and quantified the climate and public health benefits of the Rule at the time of promulgation. In the Regulatory Impact Analysis (RIA) accompanying the Rule, EPA estimated that the Rule would have climate benefits and health co-benefits of $5.1 to $9.7 billion (2011$) in 2020, climbing to $31 to $57 billion (2011$) in

important.[41] Fossil fuel-fired power plants are the largest stationary sources of GHG emissions in the United States, which is, in turn, one of the two largest emitting countries on Earth, behind only China. On a per capita basis or a cumulative basis, U.S. emissions are the highest of any major country. In 2013, total GHG emission from U.S. fossil-fuel fired EGUs was 2,039.8 million metric tons CO_2e. 80 FR 64689. To put that in perspective, CO_2 emissions from fossil fuel-fired EGUs are nearly three times as large as the total reported GHG emissions from the next ten largest emitting industrial sectors covered by the U.S. Greenhouse Gas Reporting Program, combined. *Id.* In 2010, the most recent year for reliable global comparisons of greenhouse gas emissions data, the electric power sector was responsible for approximately 36 percent of U.S. CO_2 emissions, and the U.S. was responsible for approximately 16 percent of global CO_2 emissions. That means that the U.S. electric power sector was responsible for approximately 6 percent of total global CO_2 emissions, which translates into roughly 4.6 percent of total global anthropogenic GHG emissions. *See* IPCC Fifth Assessment Synthesis Report (2014).[42] Compare *Massachusetts v. EPA*, 549 U.S. 486, 524 (2007) (addressing U.S. transportation sector, which alone accounted for as much as 6 percent of total worldwide GHG emissions).

Although reductions at any one source or group of sources will not solve the climate change problem, emission reductions at all sources together make a meaningful difference. As the Council on Environmental Quality (CEQ) recently explained in National Environmental Policy Act (NEPA) guidance on climate change issued this year: "Climate change results from the incremental addition of GHG emissions from millions of individual sources, which collectively have a large impact on a global scale. CEQ recognizes that the totality of climate change impacts is not attributable to any single action, but are exacerbated by a series of actions including actions taken pursuant to decisions of the Federal Government. Therefore, a statement that emissions from a proposed Federal action represent only a small fraction of global emissions is essentially a statement about the nature of the climate change challenge, and is not an appropriate basis for deciding whether or to what extent to consider climate change impacts under NEPA. Moreover, these comparisons are also not an appropriate method for characterizing the potential impacts associated with a proposed action and its alternatives and mitigations because this approach does not reveal anything beyond the nature of the climate change challenge itself: the fact that diverse individual sources of emissions each make a relatively small addition to global atmospheric GHG concentrations that collectively have a large impact. When considering GHG emissions and their significance, agencies should use appropriate tools and methodologies for quantifying GHG emissions and comparing GHG quantities across alternative scenarios." CEQ, Final Guidance for Federal Departments and

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2030 (using mid-range discount rates). RIA ES-21, table ES-8. EPA analyzed climate and health benefits from a number of angles, including showing that the rule would have significant net benefits. *See generally* CPP RIA, at ES-10 – ES-23.

[41] The EPA and other federal agencies use the social cost of carbon (SCC) as "a measure, in dollars of the long-term damage done by a ton of [CO_2] emissions in a given year. This dollar figure also represents the … benefit of a CO_2 reduction…." U.S. EPA, "The Social Cost of Carbon – Estimating the Benefits of Reducing Greenhouse Gas Emissions." https://www.epa.gov/climatechange/social-cost-carbon The SCC provides one method for determining the impacts of emissions from any particular source or group of sources.

[42] IPCC, 2014: *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, *available at* https://www.ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_FINAL_full.pdf. For the 2010 estimate *see id.* 45-46 (Topic 1: Observed Changes and their Causes, 1.2.2: Human activities affecting emission drivers).

Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews, at 10-11 (Aug. 1, 2016). Although this guidance is specifically in regards to environmental impact analysis under NEPA, the same reasoning applies in the context of actions to reduce GHG emissions under the Clean Air Act.

While near-term CO_2 reductions do reflect market trends, the final Rule will ultimately secure meaningful additional reductions, particularly in later compliance years, even under updated economic assumptions. These reductions prevent irretrievable additional CO_2 emissions –"irretrievable" due to fact that once CO_2 is emitted, it stays in the atmosphere for a century or more, adding to cumulative GHG levels and worsening climate change – which consume what scientists describe as the remaining greenhouse gas emission budget.

In addition, section 111(d) is designed to assure that standards are set on existing sources of dangerous pollutants, including carbon dioxide, to guarantee reductions based on what is achievable, and not merely based on what is expedient. CPP Legal Memo, at 18-26. The CPP is needed to secure the trends in emission reduction, so there is no backsliding. Relying on current economic trends alone would not provide a regulatory guarantee of emission reductions. Economic conditions may change, but where a category of sources have already demonstrated that they are capable of meeting an emission limitation based on the BSER, the purpose of section 111(d) is to provide a legal and regulatory guarantee that they continue to do so. Such standards also provide businesses with more certainty.

Further, one of the purposes of the CAA is to protect the public health through assuring uniform federal environmental standards across the nation. The modern CAA came about because Congress recognized that relying on the states alone to pursue air pollution control did not succeed. Thus, one purpose of section 111 is to assure national uniformity, so as to prevent some states from becoming pollution havens while other states impose regulatory costs on polluters. By requiring the EPA to determine the BSER, Congress intended to establish a national baseline for regulated sources. In the Clean Air Act Amendments of 1970, Congress was particularly concerned with "efforts on the part of States to compete with each other in trying to attract new plants and facilities without assuring adequate control of extra-hazardous or large-scale emissions therefrom." H. Rep. No. 91-1146, Reporting on H.R. 17255, p. 893 (Jun. 3, 1970); *Train v. Natural Resources Defense Council*, 421 U.S. 60, 64 (1975) ("The response of the states to ... increasing congressional concern with air pollution was disappointing... . Congress reacted by taking a stick to the States in the form of the Clean Air Amendments of 1970....") As just noted, providing states with an exclusive role in setting standards of performance could lead, Congress found, to pollution havens. Those same concerns apply to existing sources in the utility power sector today. For example, power companies and power system planners typically operate across large regions and make investment decisions across a diverse portfolio of assets that may be located in different states. These decisions often account for differing state and local requirements and incentives—retiring facilities in certain states and building or acquiring facilities in other states. The CPP is structured to provide adequate minimum standards across the nation while still affording states with the flexibility to account for local conditions. CPP Legal Memo at 19.

In addition, the final Rule serves as a check on potentially perverse incentives or perverse outcomes. New, modified, and reconstructed sources in a source category are subject to emission standards under section 111(b) and PSD requirements. In fact, under section 111(b), new source standards of performance are to be reviewed and revised at least every eight years, so that new source standards, in general, may be expected to become more stringent over time,

assuming technological and economic trends justify a new or updated BSER determination. Under this framework, in which standards on new sources may continually tighten, there is an important public interest in ensuring standards are in place on existing facilities. Without such standards, businesses have an incentive to keep in operation older, dirtier, less-efficient facilities, solely for the purpose of avoiding having to replace them with new ones that may be subject to standards under 111(b) or PSD. Section 111(d) is the mechanism by which Congress ensured those standards would be in place for pollutants, like carbon dioxide, from existing sources that may not otherwise be regulated.

E. State Development of Plans

The States' Progress and Trends Appendix attached to this document discusses the progress states made prior to the Supreme Court stay and actions taken by states subsequent to it. These developments show that following promulgation of the CPP, states were coordinating and developing plans. As of the date of the stay, February 5, 2016, 34 states were actively engaging with the EPA on the CPP and had requested and/or participated in technical calls or meetings with the EPA staff on the requirements of the CPP. States' Progress and Trends Appendix at 1. Following the issuance of the stay, several states continued to make progress on their state plans, including California which, on August 2, 2016, became the first state to release for review a draft proposal for complying with the CPP.

As discussed in the Power Sector Trends Appendix, ongoing trends towards coal-fired power plant retirements, expanded use of natural gas-fired generation, and the installation of new renewable energy have occurred with greater magnitude and significantly more quickly than the EPA projected at the time of the Rule. These trends provide further evidence that states are already undergoing significant changes in their energy sector (and, because the Rule has been stayed, these occurrences cannot be attributed to it). Thus, States are already planning to retire coal-fired generation; expand gas generation; install significant amounts of the new renewables; when necessary, conduct additional transmission planning; and conduct associated permitting activities.[43] The amount of additional work attributed solely to implementing the CPP would be less than expected at the time EPA promulgated the CPP. For example, according to several studies, many states have already achieved the reductions the CPP contemplates for their states through the first several years of the program, based on changes in generation that have occurred within their state (and without reliance on interstate trading). Further, the studies suggest that if states choose to participate in interstate trading, it is likely that all states could comply with their CPP requirements without needing to make any additional CPP-related reductions until the mid-2020s. In addition, several studies identify more than one-third to more than one-half as coming into compliance with their 2030 CPP state goals through business-as-usual measures, including some states that are coal-heavy. These trends also reinforce the

[43] It should be noted that it is common for states to undertake permitting actions when their sources implement pollution controls. For example, to install a carbon capture sequestration (CCS) project, the EPA has identified a number of state permits that may be required. These include, among others, (i)-project wide permits such as environmental protection planning permits (i.e., the State equivalent of National Environmental Policy Act permits, such as the California Environmental Quality Act, including an Environmental Assessment or an Environmental Impact Statement, *see* http://energy.gov/nepa/downloads/states-nepa-environmental-planning-requirements); (ii) CO_2 capture permits such as: air permits (i.e., the State equivalent of Title V permits, generally including a permit to construct and a permit to operate); storm water permits, (including construction and operating permits), and wastewater discharge permits (i.e., the State equivalent of National Pollutant Discharge Elimination System permits); (iii) CO_2 transport permits (e.g., pipeline permit to construct/operate; and (iv) injection and storage permits (e.g., storm water permits).

acknowledgement by several states that, outside of submission requirements, they did not need to take any substantive compliance actions during the period of judicial review to meet the compliance deadlines established in the final rule. See Texas at 7; New Jersey at 6; North Dakota at 6; and Nebraska at 16.

F. Compliance by Sources

The CPP provided for a gradual phase-in of requirements. Specifically, on the basis of the record at the time of promulgation, the Rule contemplated that the overall emission reduction from covered sources will be one percent in 2022, and will increase another one to three percent each year thereafter until 2030, as compared to the baseline emission levels projected for 2020 without the Rule. *See* Goal Computation TSD, Appendix 1 & 5; IPM Run Files: Illustrative Compliance Scenarios (EPA-HQ-OAR-2013-0602-36476, and EPA-HQ-OAR-2013-0602-36460); *West Virginia et al. v. EPA*, No. 15-1363, Janet McCabe Decl. 6-9 (D.C. Cir., filed Dec. 3, 2015) (hereinafter "McCabe Decl.") (included in the docket for this action).[44]

At the time of promulgation, the EPA projected that the CPP would have a moderate impact on emissions from fossil fuel-fired power plants. In the Rule, the EPA projected that by 2030, the Rule will achieve a reduction in nationwide, power-plant CO_2 emissions of 16% from 2020 levels. See McCabe Decl. para. 8.[45] Moreover, the EPA designed the CPP so that sources would have a wide range of compliance methods, depending in part on how the states designed their plans, including methods that were not part of the BSER and that were part of the BSER.

Due to recent power sector trends, business-as-usual will allow sources to comply with fewer additional reductions than the EPA had projected at the time the final Rule was issued. With respect to the early years of the 2022-2030 compliance period, as described in the Power Sector Trends Appendix, according to EPA data, CO_2 emissions in 2015 for sources covered by the CPP were 2,047 million short tons.[46] The 2015 emissions level is roughly equivalent to the mass emissions level that the EPA contemplated in the CPP for 2022 (the difference is 0.05%).[47] In addition, 24 States had lower emissions in 2015 than their 2022 first-year annual goal. For 2016, these trends are continuing; for the period from January through September 2016, power plant

[44] States are not required to follow this precise phase-in schedule; rather, states are afforded significant flexibility in determining their sources' compliance dates. The following are the year-by-year emission performance rates (lb/MWh) that EPA projected to gradually phase in the Rule's emission reduction requirements:

Nationwide Glide-path for Reduction Requirements for the Emission Performance Standards

Annual Category-specific Rates											
	2022	2023	2024	2025	2026	2027	2028	2029	2030	Interim	Final
Fossil Steam	1,741	1,681	1,592	1,546	1,500	1,453	1,404	1,355	1,304	1,534	1,305
NGCC	898	877	855	836	817	798	789	779	770	832	771

Goal Computation TSD, at 19.

[45] The EPA also projected a reduction of 32% from 2005 levels, 80 FR 64665, see RIA ES-8, Table ES-4, and 21% from 2012 levels. McCabe Decl. par. 8. The EPA explained that because power plant CO_2 emissions have already been declining for many reasons, and are expected to continue to do so, even without this Rule, our analysis shows a greater reduction in percentage terms from earlier baselines than from later baselines. Id.

[46] These sources include those found in the 47 States and three Indian Tribes that were covered by the CPP (data available at Air Markets Program Data, https://ampd.epa.gov/ampd/). This amount of 2,047 million short tons represents a 24% reduction from 2005 CO_2 emission levels.

[47] The mass emissions level that EPA contemplated in the CPP for 2022 for all 47 States and Tribes was 2,046 million short tons (Goal Computation Data File, Appendix 5).

CO_2 emissions reported to the EPA were down about 8 percent compared to the same 9-month period in 2015.

The EPA's review of several different analytical studies, which account for these recent trends, confirms the EPA's conclusion that the CPP drives few reductions in the early compliance years, and that the CPP's impact varies, depending on the state and the type of state plan. For example, according to several studies, many states have already achieved the reductions the CPP contemplates for their states through the first several years of the program, based on changes in generation that have occurred within their state (and without reliance on interstate trading). Further, the studies suggest that if states choose to participate in interstate trading, it is likely that all states could comply with their CPP requirements without needing to make any additional CPP-related reductions until the mid-2020s. This means that sources in states that have achieved the contemplated reductions would not need to take further action, and sources in other states could comply by purchasing allowances or emission reduction credits. By 2030, according to these studies, sources in about one-third to more than one-half of the states will not need to take further action. Accordingly, the costs of implementing the BSER can be expected to be lower than the EPA projected when it issued the final Rule. At the time of promulgation, the EPA estimated the costs of the three building blocks that comprise the BSER, and EPA determined that the costs for an individual, typically-sized coal-fired power plant to implement the BSER would be similar, on an individual-source basis, to the costs of some other air pollution controls for such a plant. *See* McCabe Decl. ¶ 43 (providing table of costs of CAA rules, including the CPP). Although EPA has not attempted to update those cost figures for the BSER, it is clear that they are lower now. Specifically, lower natural gas prices mean that the costs of implementing building block 2 are lower, and lower costs of renewable energy mean that the costs of implementing building block 3 are lower. Thus, the costs for a typical coal-fired power plant to implement the building blocks are lower than to implement some other air pollution controls.

In addition, in the final Rule, recognizing that sources may comply in part through other, less expensive methods than the building blocks, such as by implementing demand-side energy efficiency measures, EPA also determined the costs of achieving the emission standards. EPA determined that the costs, in the aggregate, would be similar to the costs of other pollution controls for the industry, as indicated in the Power Sector Trends Appendix and the table above. At present, because of business-as-usual generation shifts since promulgation, the overall costs to the industry are significantly less, as also indicated in the Appendix and the table above.

Furthermore, in the final Rule, EPA estimated allowance costs in the case of state plans that allowed mass-based trading programs. As indicated in the Power Sector Trends Appendix, EPA's most recent projections show that allowance prices under the CPP may be significantly lower than EPA anticipated at the time that it finalized the CPP. Specifically, under IPM v5.16, the projected national average shadow price per ton has declined from $11 per ton of CO_2 at the time of the final Rule to $4.[48] Moreover, this modeling did not consider interstate-plan scenarios, which would lead to even lower costs.

With respect to the ability of industry to meet their remaining CPP requirements by the 2030 final compliance deadline, the following should be noted: Compliance with the CPP will require fossil-fuel fired power plants to undertake certain actions. As the EPA made clear in the CPP, depending on the type of state plan (e.g., mass-based or rate-based trading plans), the

[48] See Power Sectro Trends Appendix for more detail and description of the IPM v5.16 modeling that was conducted to inform interstate ozone.

plants have a wide range of choices, and those different choices have different implementation schedules. For example, if the states adopt mass-based emission trading programs, trading programs can be expected to develop, which would allow many sources to comply by purchasing allowances, which is not time-intensive. Among the most time-intensive of compliance choices are the replacement of existing coal-fired power plants with new renewable energy generation, along with any necessary infrastructure development, such as new transmission lines.[49] Such new construction would involve siting and permitting activity. The record for the CPP explains that the CPP compliance period is sufficiently lengthy that sources will have sufficient time to take whatever actions they need to take to comply.[50] In addition, as described in the Power Sector Trends Appendix, the power sector has seen at least as great, and greater, amounts of replacement of coal-fired generation with new renewable generation, as well as greater shifts from coal-fired generation to natural-gas fired generation, in shorter periods of time, than would be necessary to meet the remaining requirements of the CPP between the time that state plans are developed (required no later than 2018) and 2030.

In addition, the integration of more renewable generation into the grid is already ongoing and is occurring without disruption to reliability. In Texas, for instance, ERCOT has stated that it has integrated significant amounts of RE into the grid and deployed new transmission in the past while managing retirements of higher emitting units. ERCOT anticipates that it should be able to continue integrating relatively large amounts of this generation. Power Sector Trends Appendix(citing ERCOT, Analysis of the Impacts of the Clean Power Plan Final Rule Update, October 16, 2015). Similarly, MISO has found that the amount of new renewables and shifting to natural gas anticipated under the CPP at least through the mid-2020s should simply follow existing trends, such that early compliance targets "can be met through existing renewable portfolio standards and coal-to-gas re-dispatch." *Id.* (citing MISO, Analysis of EPA's Final Clean Power Plan Study Report, July 2016).

RESPONSES TO TOPICS

I. Uniform subcategorized rates

Petitioners stated that the proposal expressed emission guidelines in the form of a single

[49] In the final Rule, the EPA provided a compliance period that extended to 2030, longer than any compliance period EPA has provided in a CAA rule for this industry, because of the generation-shifting components of BSER. 80 FR at 64744.

[50] In the CPP record, the EPA determined that application of the potential measure for shifting from fossil-fuel fired generation to cleaner energy sources would not add significant transmission requirements in order to maintain grid reliability, as it is phased in incrementally and capped at reasonable levels. See GHG Mitigation Measures TSD, 4-23; *see also* 80 FR at 64806-10. In addition, the BSER measure for shifting from coal-fired to gas-fired electric generation "applies only to increases in generation at existing [natural gas combined cycle] facilities," "does not contemplate any connection of new capacity to the bulk power grid," and is premised on a gradual implementation schedule that accounts for "additional time to complete potential infrastructure improvements (e.g., natural gas pipeline expansion or transmission improvements) that might be needed to support more use of" such existing facilities. 80 FR at 64798, 64800-01. As noted, due to recent business-as-usual generation shifts in the power sector, less shifting from coal-fired to natural-gas fired generation, and from fossil fuel-fired to renewable generation is necessary to comply with the CPP at the present time than EPA projected and analyzed at the time it finalized the CPP. *See also* Mark Chediak, Bloomberg, Why Coal Burners Don't Totally Hate Obama's Climate Plan (Nov. 13, 2015) (quoting Southern Co. CEO as saying, "'It is arguable that electricity will start to grow again as a response to the [Rule].' . . . Both Southern and AEP own regulated utilities that can recoup spending and make a profit on new investments [as part of Rule compliance] if it's approved by state regulators.").

emission rate goal for each state, which represented the average CO_2 rate of all affected EGUs – coal-fired and natural gas-fired, on a combined basis – in each state after applying the four building blocks to the EGUs. However, according to the reconsideration petitions, the final Rule deviated from the proposal by expressing emission guidelines in the form of two nationally uniform emission rates, derived by applying the building blocks across each of the three interconnects and to each subcategory separately, and then representing the resulting emission rates as they apply to the sources themselves, rather than aggregated by states. The Petitioners recognize that the EPA identifies state-by-state goals in the final Rule, but assert that they are alternative, optional ways to demonstrate compliance and rely on the uniform rate. *E.g.*, Texas 6. (These structural changes to the proposed Rule for calculating the uniform rate and the goals may generally be referred to as the goal-setting methodology.) The Petitioners assert that the regional basis and new methodology for deriving equivalent state goals are changes from proposal. *E.g.*, UARG 2-3; LG&E 1; Southern 3-4, 7; Ameren 15.

The EPA initially proposed state-specific goals established by applying the building blocks to each state. The EPA proposed using an "adjusted output-weighted average CO_2 emission rate that states could achieve on average through application of the building block measures." 79 FR at 34893. (As discussed below, this is the same form used in the final Rule, except at final we applied the weighted average CO_2 emission rates at the subcategory level instead of the state level, per commenters' suggestion). The EPA noted in the proposal that a "main consideration has been to ensure that the proposed goals reflect opportunities to manage CO_2 emissions by shifting generation among different types of affected EGUs." 79 FR at 34894. (As discussed below, this same consideration applies to the use of a similar output adjusted rate metric in the final.) The EPA added, "Accordingly we have constructed the emission rate goals in a manner that is intended to account for these generation quantity-reducing measures by making adjustments to the values used in the emission rate computations." 79 FR at 34894. The EPA identified four building blocks and applied their reduction potential to baseline data on fossil fuel-fired steam and natural gas combined cycle (NGCC) units, adjusting generation and emission rates from each technology to reflect the building blocks. The EPA then averaged adjusted values into a state average for all fossil-fuel fired units based on each state's generation mix. The EPA discussed the form of the goals and took comment, including on the formula, and noted that it was providing a "live" spreadsheet so stakeholders could examine the impacts of alternative BSER scenarios. 79 FR at 34894.

Stakeholders pointed out that this approach created wide disparities among states' goals and was disconnected from the reality of the electricity system, in which electricity flows across state lines, and urged EPA to abandon the state goal approach in favor of a more traditional emission rate approach. 79 FR at 64545, 64549. *See also, e.g.*, RTC 4.2, at 55-56 (comment asserting "imposition of varying, rather than uniform, performance obligations on sources within the same category[] cannot qualify as a BSER-derived standard"); *Id.* at 58-59 (disagreeing with comment that uniform rates based on BSER is not feasible); *see generally Id.* at 48-58 (summarizing comments on disparate treatment of units and requests for more equitable goals).

Accordingly, in the NODA, the EPA took comment on reducing those disparities by applying building blocks 2 and 3 on a regional basis, which would more accurately reflect the interconnected, interstate electricity market. *Id.* at 64547, 64550-52; 79 FR at 34865, 34899. The EPA also took comment on using some type of limiter to prevent building block 2 and building block 3 from achieving overly stringent reductions in coal-fired generation. (As

discussed below, in the final Rule, applying the emission performance rate from the Eastern region to the other two regions functions as a limiter.)

Commenters on the proposal and the NODA (UARG, ACC, AF&PA, API, etc.) said that the BSER must be applied to *source categories* not to *states* consistent with section 111, noting that (i) uniform rates are consistent with previous 111(d) regulations, which, according to the commenters, support subcategorized, nationally applicable unit-by-unit standards based on fuel and technology; and (ii) uniform rates create better policy by sending the same signal/incentive to a generating technology regardless of location. Some commenters said 111(d) requires a uniform, nationwide standard for the same source category set in 111(b). *See, e.g.*, Int'l Bhd. of Boilermakers Comments 3, 8-12, EPA-HQ-OAR-2013-0602-22562; State of New Jersey Technical Comments 3-4, 7, EPA-HQ-OAR-2013-0602-22758; Texas Comm'n on Envtl. Quality Comments 15-16, EPA-HQ-OAR-2013-0602-23305; RTC 4-1.

In the final Rule, having identified the BSER (i.e., the building blocks), the EPA quantified the degree of emission reduction achievable under that system for two subcategories of sources: steam units (generally, coal-fired) and natural gas-fired units (generally NGCC units). 80 FR at 64663. To do so, the EPA applied the BSER to 2012 baseline data and quantified, in the form of CO_2 emission rates, the reductions achievable for each subcategory in 2030 in each of three regions (rather than each state) which the EPA based on the Interconnections in which electricity generation is managed.[51] *Id.* at 64738. The EPA then established the least stringent of the three calculated regional rates as nationally uniform performance rates ("uniform rates") for each subcategory: 771 pounds of CO_2 per megawatt-hour (lb. CO_2/MWh) for gas-fired units, and 1,305 lb. CO_2/MWh for steam units. *Id.* at 64742, 64961 (Table 1). These uniform rates are effective emission rates, incorporating adjustments to actual rates to credit sources' ability to implement generation-shifting measures as a pollution-control strategy. To enhance state planning flexibility, the final Rule translates the uniform rates into equivalent state-specific emission goals for 2030 (like those EPA had proposed), expressed in terms of both the rate of emissions per unit of energy production ("rate-based goals") and the total mass of emissions ("mass-based goals"). *Id.* at 64820. The final Rule then gives each state two overarching options for its plan: simply apply the uniform rates to all sources within the state, or otherwise meet either the equivalent rate-based or mass-based state-specific goals. *Id.* at 64832-37. Within the latter category of options, states can assign emission standards for particular plants that depart from the uniform rates, so long as the equivalent state goals are met. The final Rule thus does not require any particular amount of reductions by any particular source at any particular time.

The uniform rates are a logical outgrowth of the noticed regional approach. In the final Rule, the EPA applied building blocks 1, 2, and 3 to the steam-generating units in each of the three regions, and applied building block 3 to the natural gas-fired generating units in each of the three regions. This was an expansion of the geographical scope of the calculation made in the proposal – which had looked only to how the building blocks could be applied within each state – but we took comment on that change in scope in the NODA. This resulted in uniform rates within each region for each of those two subcategories. But rather than setting different rates for different regions, the EPA gave all three regions—and thus all states and sources—the

[51] Electricity across the continental United States is transmitted and distributed through three physically interconnected networks: the Eastern Interconnection, the Western Interconnection, and the Texas Interconnection, which each act like a single machine. Id. at 64692.

benefit of the least-stringent rates calculated in any region. For example, the EPA gave the steam-generating unit rate of 1,305 lb CO_2/MWh for sources in the Eastern Interconnection to the sources in the Western Interconnection and ERCOT Interconnection. 80 FR at 64738.[52] Thus, the uniform nationwide rates for each subcategory were simply a more lenient application of the regional approach that the EPA took comment on, and one that further reduces disparities between comparable units in different regions—addressing the EPA's and commenters' concerns. *Id.* at 64736-37. Moreover, the idea of using a limiter was discussed in the NODA for comment, and the EPA derived the uniform rates by, in general, using the Eastern Interconnection as a limiter.[53]

The approach in the final Rule also effectuates the proposal's commitment to flexible, cost-effective compliance, 79 FR at 34859; 79 FR at 64549, by creating a surplus of achievable emission-reduction opportunities available for all states and sources. 80 FR at 64742. The uniform rates thus fall squarely within the D.C. Circuit's recognition "that an agency must be able to respond flexibly to comments and need not provide a new round of notice and comment every time it modifies a proposed rule." *Fertilizer Inst.*, 935 F.2d at 1311; *see Pers. Watercraft Indus. Ass'n v. Dep't of Commerce*, 48 F.3d 540, 543 (D.C. Cir. 1995). Furthermore, the final Rule's subcategory-specific uniform rates are consistent with longstanding practice under section 111. 80 FR at 64737; 79 FR at 34894 (noting that the Proposal varied from the EPA's typical practice by using state-specific rates "rather than nationally uniform emission rates"); *compare, e.g.*, 42 FR 55796 (Oct. 18, 1977) (111(d) rulemaking for sulfuric acid production units) *and* 61 FR 9905 (Mar. 12, 1996) (111(d) rulemaking for municipal solid waste landfills). The EPA's proposal to set state-specific goals based on a single, blended rate for both coal- and gas-fired units was a departure from previous rulemakings. This alone made it foreseeable, and indeed, commenters actually foresaw, that the EPA might modify its novel proposed approach in response to comments and revert to more traditional source- and subcategory-specific uniform rates.

It is true that in the proposal, the EPA stated that it was not proposing a nationally uniform rate, 79 FR at 34894, but this statement was designed to clarify what the EPA was specifically proposing at that time (the state-by-state goals approach), and *was* not intended to preclude any other approach. The EPA did not state that it would not finalize the uniform rate approach, in contrast to its statement that it would not finalize CCS as the BSER. 79 Frat 34857. As noted earlier, the D.C. Circuit has recognized that in choosing the form of a standard, the agency necessarily invites comments on foreseeable alternative, and even opposite, forms for that standard. *See Ne. Md. Waste Disposal Auth. v. EPA*, 358 F.3d 936, 952 (D.C. Cir. 2004); *Ariz. Pub. Serv. Co. v. EPA*, 211 F.3d 1280, 1299-300 (D.C. Cir. 2000); see also *Long Island Care at Home, Ltd. v. Coke*, 551 U.S. at 175 (citing *Ariz. Pub. Serv.*).

Here, the fact that the EPA might return to its traditional approach to the emission guidelines was entirely foreseeable, especially because the EPA "invite[d] comment on all aspects of the proposed form of the goals," 79 FR at 34895, and specifically sought comment on regional approaches. 79 FR at 64547, 64550-52. In fact, numerous commenters urged uniform rates, as noted above, and the EPA explained in the preamble that comments were the basis for

[52] EPA explains this in more detail below.

[53] For the gas-fired subcategory in the years 2022-2026, the Texas Interconnection rate is the limiting rate. 80 FR 64730 n.374.

the change to the uniform rates.[54] "[I]nsightful comments may be reflective of notice and may be adduced as evidence of its adequacy." *Horsehead Res. Dev. Co. v. Browner*, 16 F.3d 1246, 1268 (D.C. Cir. 1994).

In addition, as explained in the preamble, the subcategorized rates in the final Rule are a result of applying the proposed methodology and just stopping one step earlier (i.e., not immediately averaging the fossil steam and NGCC rates together to form a state goal).

Thus, ultimately, the subcategory rates simply reflect the methodology used at proposal, but with enhancements based on comments and on stakeholders' expressions of their desire for additional flexibility. 80 FR at 64812. Subcategory rates result from the same methodology as the proposed state goal rates, except that the application of that methodology stops one step early, and thus does not include averaging the fossil steam and NGCC rates together as done at proposal. These final emission rates follow a similar logic to that of the BSER quantification at proposal, but simply keep emission performance rates separate for fossil steam and NGCC instead of immediately blending them together into a single value for all affected EGUs.[55] 80 FR at 64811. States still have the option of developing state plans to meet state goals. To reiterate, the uniform subcategory rates are a commenter-suggested enhancement, not a substitution for proposed compliance metrics.

Petitioners also fail to demonstrate that the alleged procedural errors are of central relevance. Petitioners have not identified any specific objections to the EPA's decision to adopt subcategory-specific uniform rates based on the least-stringent regional rates—let alone "new and different criticisms which the agency might find convincing." *Fertilizer Inst.*, 935 F.2d at 1311 (quotation omitted). Nor could they. Petitioners supported the establishment of source-specific rates, and the EPA's decision to apply the least-stringent regional rate to all sources inures to Petitioners' benefit. Thus, there is no prejudice to Petitioners and no "serious" error. *Cf. Am. Coke & Coal Chems. Inst. v. EPA*, 452 F.3d 930, 939, 941 (D.C. Cir. 2006) (finding no prejudice under the Administrative Procedure Act where an unnoticed change "resulted in a less stringent limitation").

First, the final Rule allows states to demonstrate compliance with their CPP obligations using the same type of state emission rate goal as had been proposed. They thus retain the benefits of the state goal, including flexibilities in how they meet the goal Petitioners are therefore not prejudiced by expanding the state's options for complying with the rule by imposing the uniform rates on their sources. Under the final Rule, achieving compliance with the state goal serves as the equivalent of complying with the subcategory rates. Adequacy of notice and reasonableness of adopting CPP emission requirements for sources

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[54] The EPA stated that based on comment, the BSER determination and its expressions as subcategory rates take into account the interconnected nature of the grid (80 FR 64674). The EPA made this change based on two concerns by commenters regarding the proposal, which were that the proposal "1) … would potentially create different incentives for the same generating technology class depending on the state in which the generator was located, and 2) … deviated from EPA's previous 111(d) regulatory guidelines by not providing technology-specific standards of performance" 80 FR 64811. The EPA added that a regionalized approach [to establishing] the BSER better reflects the interconnected nature of the grid and that nationally uniform emission rates create greater parity among reduction goals for states and increase the ability of states and affected EGUs to coordinate emission reduction strategies. 80 FR 64742.

[55] In the final Rule methodology, after determining the two subcategory rates, EPA then applies the two rates to the inventory in each state to determine each state's rate-based interim and final goals. In general, those goals are blended, that is, they combine the two subcategory rates, in the same manner that the proposal's state rate-based goals were blended. In the final Rule methodology, as in the proposed Rule methodology, the EPA converts each state's rate-based goals to a mass-based goals as an alternative means of compliance.

A. Requirements on states vs. requirements on sources

1. Summary of Petitions

According to the petitions to reconsider, in the proposal, the EPA expressed the emission guidelines in the form of state-by-state emission rate goals, which represented the average CO_2 rate of all affected EGUs in the state after applying the 4 building blocks. The Petitioners added that the EPA stated that the building blocks must be implementable by states. According to the Petitioners, the final Rule expresses the emission guidelines in the form of two nationally uniform emission rates, derived by applying the building blocks to sources in each subcategory in the aggregate in regions, as opposed to the states. According to the Petitioners, the EPA identifies state-by-state goals in the final Rule, but they are an alternative, optional way to demonstrate compliance. Petitioners allege that with the final Rule's uniform emission performance rates, the EPA shifted from focusing on state actions to source actions, that this change was not noticed, and further that the change is significant because the final CPP expects sources to do what is needed to comply (including generation shifting), instead of states having the flexibility of meeting their goals through a range of actions. Petitioners assert that this shift reduces flexibility in the CPP. *See, e.g.*, UARG 2-3, Ameren 11-12.

2. Response

The changes from the proposal to the final rule were adequately noticed, as described in the preceding section concerning the uniform subcategorized rates. In addition, as discussed below, Petitioners do not correctly characterize the proposal or final Rule and their objections are not well-founded. As a result, they provide no basis for the EPA to revise the final Rule and, for that reason, their claims lack central relevance.

Section 111(d) authorizes the EPA to issue emission guidelines that impose requirements only on states, not sources, in the form of a requirement to submit state plans that include standards of performance applicable to the states' affected sources that, in turn, reflect the application of the BSER. Thus, section 111(d) contemplates that the affected sources may apply or implement the BSER to achieve their standards of performance, and does not contemplate that the state will apply the BSER. Further, section 111(d) contemplates that the EPA's requirements (i.e., the obligation to submit a state plan that meets certain requirements) apply directly to the states, not the sources. The EPA adhered to this approach in both the proposed and final rulemaking. Specifically, in the proposal, the EPA applied the four building blocks to the inventory of emissions from the affected sources in each state to determine each state's CO_2 emission performance goal, and required that each state submit a plan to achieve its goal. Thus, in the proposal, contrary to Petitioners' incorrect characterizations, the EPA applied the building blocks to the affected sources' emissions, not to the states. In addition, contrary to Petitioners' incorrect characterizations, the basis for the proposal was that sources would take action to reduce their emissions, in accordance with the state plan requirements.

In the final Rule, the EPA continued to apply three of the four building blocks to the affected sources' inventory of emissions to determine each region's uniform emission rate for each subcategory, and based on those rates, determined the uniform nationwide subcategory rates, and then applied those nationwide rates to determine each state's goals.[56] In addition, the EPA laid out options for states to use in developing requirements for the affected sources, including adopting the uniform national subcategory rates as the standards of performance, or

[56] The EPA determined not to finalize building block 4, demand-side energy efficiency.

other standards that meet the state goals, or less stringent (or no) requirements under the state measures approach.[57] In this manner, compared to the proposal, the EPA revised the methodology for determining the emissions performance level for the state plans, and provided additional flexibility to the states, but maintained the same requirement that the state submit a state plan. Thus, contrary to Petitioners' incorrect characterizations, the basis for the final Rule is that sources will take action to reduce their emissions, in accordance with the state plan requirements. However, the final Rule did not, by establishing uniform rates for the subcategories, impose requirements on sources. Rather, the state must impose the standards of performance (or adopt the state measures approach), and the state may use the uniform rates as the standards, or adopt different standards that, in total, achieve the state's goals. Thus, the final Rule is consistent with the proposal and with section 111(d), and also continues to provide extensive flexibility to the states.

The EPA's solicitation of comment in the proposal on what to include in the BSER encompassed the issue of whether measures could be included in the BSER if only the state could implement them. 79 FR at 34887-34888. In fact, some commenters commented on this point, and stated that the BSER must be limited to actions that sources can take. *See, e.g.*, RTC 1.10.1, at 139. In the final Rule, the EPA limited the BSER to measures that sources could implement, which had the effect of limiting the BSER and therefore the potential amount of the emission reduction that the EPA would require in the emission guidelines. As the EPA explained, section 111(a)(1) limits the BSER to actions the sources can take. (Of course, to achieve their goals, states could still take steps themselves to reduce emissions, such as through the state measures approach, instead of requiring sources to do so.) As a result, this change both was adequately noticed and is not of central relevance because, since it is mandated by the provisions of section 111(a)(1), there is no basis to change it and Petitioner has not offered any. In addition, it does not disadvantage Ameren or any of the other Petitioners.

B. Lack of focus on unit-specific characteristics

1. Summary of Petitions

Petitioners stated that the nationally applicable rates disregard unit-specific characteristics such as the technology employed, facility's age, and remaining useful life. West Virginia 2.

2. Response

The EPA is denying this petition to reconsider because the commenter had adequate opportunity to raise its objections during the comment period. In the proposal, the EPA applied the building blocks to each state's EGU emissions inventory, and did not consider unit-specific characteristics. Accordingly, the Petitioner's objection would apply as well to the proposal.

In addition, the objection provides no basis for the EPA to revise the final rule and, as a result, lacks central relevance. This is because the EPA determined that all existing sources, regardless of their location, type (including whether they use supercritical or subcritical technology), fuel use or age, could implement the BSER and thereby achieve the uniform subcategorized rates, and the EPA set the requirements for state plans accordingly. 80 FR at 64723. The EPA also afforded the states flexibility to accommodate individual sources, such as through the adoption of a trading program that limits the obligations of sources with short

[57] Under the state measures approach, a state may adopt state law requirements on entities other than affected sources, such as demand-side energy efficiency measures, which reduce emissions from affected sources. Those state law requirements would not be federally enforceable.

remaining useful lives to acquire credits or allowances for only their remaining period. The states also remain free to make source-specific adjustments in requirements, as long as they meet their state plan requirements. In addition, the fact that ongoing energy sector trends have significantly alleviated state and source burdens in complying with the final Rule further indicates that these petitions to reconsider lack central relevance.

II. Regionalization

A. Introduction

The EPA is denying the petitions for reconsideration related to the regional application of the building blocks and the regions that the EPA selected in the final rule. Petitioners had adequate opportunity to comment. In addition, the petitions are not of central relevance because they do not provide any information that could lead EPA to revise the final Rule.

The EPA received Petitions related to these issues from the following parties: NorthWestern Energy; Southern Company; AEP; Ameren Corporation; UARG; Westar Energy; Wyoming; Kentucky; LG&E and KU Energy; Montana; Basin Electric Power Cooperative; Prairie State; Kansas DHE; North Dakota; New Jersey DEP; and Texas.

In the proposed Rule, the EPA's goal-setting methodology focused on in-state resources. In calculating the emission reduction levels for building blocks 2 and 3, the EPA considered the affected EGUs and the ability to implement the building blocks within each state.[58] However, while the EPA had an in-state focus in calculating the proposed BSER, we included aspects of regionalization in the proposal. For example, while the EPA calculated building block 2 based upon the ability of all affected steam EGUs in a state to shift generation to affected NGCC units in the state, the proposal also suggested that a regional approach to building block 2 was possible, under which generation from fossil fuel-fired steam units within a region is shifted to NGCC units within the region. 79 FR at 34865 ("We invite comment on whether the regional or state scenarios should be given greater weight in establishing the appropriate degree of re-dispatch to incorporate into the state goals"), 34899 ("given the interconnected nature of the power sector and the importance of opportunities for shifting generation among EGUs, we considered whether goals should be set on a multi-state basis reflecting the scope of existing regional transmission control areas"). Additionally, while the proposal based the building block 3 methodology on in-state resources, the EPA utilized regional groups of states for the development of the building block 3 "best practices RPS scenario," 79 FR at 34867, which relied "on a regional application of state RPS commitments." 79 FR at 34869. The EPA thus proposed to set state renewables targets based upon an average of state RPS requirements across certain regions. 79 FR at 34866-34869.

We also note that, throughout the rulemaking process, the EPA focused on the interstate nature of the electricity grid. For example, in the proposal, the EPA stated that we believed "that the diverse range of measures encompassed in the four building blocks allows states and sources to take full advantage of the inherent flexibility of the current regionally interconnected and integrated electricity system so as to achieve the CO_2 goals while continuing to meet the demand for electricity services in a reliable and affordable manner." 79 FR at 34836. The EPA also noted that "The interconnected nature of the electric system is an important part of our reasoning." 79 FR at 34885. In the proposal, the EPA stated, "The EPA has considered other approaches to setting goals. In particular, given the interconnected nature of the power sector

58 The proposed Rule calculated building block 1 levels on a national basis. Additionally, the EPA did not finalize building block 4 and therefore we do not discuss it further here.

and the importance of opportunities for shifting generation among EGUs, we considered whether goals should be set on a multistate basis reflecting the scope of existing regional transmission control areas. We also considered whether goals should be set on a state-specific basis, but regional rather than state-specific evaluations should be used to assess the estimated opportunities to reduce utilization of the most carbon-intensive EGUs by shifting generation to less carbon-intensive EGUs." 79 FR at 35899. The EPA then requested comment on "whether, and if so how, the EPA should incorporate greater consideration of multi-state approaches into the goal-setting process...." *Id*.

In the Notice of Data Availability (NODA), the EPA clearly indicated that we were contemplating a regional approach to setting goals. We requested comment on the regional use of both NGCC and renewables in goal setting. The NODA noted stakeholder suggestions that "the states could take credit for renewables developed in other states if they were attributable to state policies such as RES programs," and "that state targets could be developed by defining regional RE targets, then assigning shares of those regional targets to individual states within the region." 79 FR at 64547. The NODA also stated that the proposal "invited comment on whether building block 2 should be applied on a regional basis, under which generation from fossil fuel-fired steam units within a region is shifted to NGCC units within the region. 79 FR at 34865, 34899. The EPA is noting this idea to alert commenters to the fact that it might be another possible mechanism for addressing stakeholders' concerns about the disparity of the impact of building block 2 between states that have already invested significantly in developing NGCC generation and those that have not." 79 FR at 64547.

In the NODA, the EPA stated that "Under this approach, regional availability of NGCC generation would be considered rather than just in-state availability of NGCC generation in setting building block 2 targets." 79 FR at 64550. The NODA explained that the EPA could structure a regional approach on the basis used in the proposed RIA – six regions whose borders are informed by regional transmission organizations (RTOs) and North American Electric Reliability (NERC) regions. 79 FR at 64551 (citing 79 FR 34865 n.142). The EPA stated that there could also be another regional structure that could address stakeholder concerns that "building block 2 has little or no effect on certain states with large amounts of coal-fired generation and limited excess NGCC capacity." *Id*. The EPA sought comments on the appropriate regional structure. *Id*.

In the NODA, the EPA also indicated that we were considering a "different way to align state goal setting and state compliance through adjusting the state goal-setting method." 79 FR at 64547. The EPA explained that some stakeholders had suggested "that state targets could be developed by defining regional RE targets, then assigning shares of those regional targets to individual states within the region. We believe this idea lies beyond the scope of the June 18, 2014 proposal; thus, we are sharing this idea more broadly and requesting comment on this idea...." 79 FR at 64547. The EPA stated that there could be a regionalized approach that "could group states into regions; aggregate RE generation potential across states within each region; and then reapportion the aggregate identified RE generation to individual states according to criteria that assume regional RE development in which parties in multiple states participate, regardless of the specific state where the generation occurs." 79 FR at 64551. The EPA requested comment on this idea. 79 FR at 64547.

The EPA also requested comment on potential regions for the building block 3 methodology. The NODA stated that the regional approach could be informed by the "NERC regions, FERC Planning Regions, RTOs, current regional renewable energy credit tracking

systems, or some other approach." 79 FR at 64551 (citations omitted). The EPA specifically referenced NERC regions and included a citation to a NERC regional map that included two of the three regions utilized in the final rule – the Western Interconnection and the Texas Interconnection.[59] 79 FR at 64551. The EPA then sought comment on these regional structure considerations.

B. Notice

Multiple Petitioners assert that there was no notice in the proposed rule that the EPA would establish nationally applicable rates based upon three regions. *See, e.g.*, NorthWestern Energy at 5; AEP at 3; Kentucky at 3; Southern Company at 3; UARG at 3, 7; Basin Electric Power Cooperative at 14; Kansas DHE at 5, North Dakota at 3, New Jersey DEP at 8, Texas at 6, Westar Energy at 4. EPA is denying these petitions to reconsider. Petitioners had adequate opportunity to comment.

Ameren Corporation states that, in the proposed rule, the EPA applied national assumptions for three of four building blocks and then applied those assumptions to the sources within each state to set the state's goal. Ameren Corporation at 15. It states that, in the final Rule, the EPA divides the United States into the three interconnections - the Eastern Interconnection, Western Interconnection, and the Texas Interconnection - to determine achievable emission reductions. Ameren Corporation states that for "building blocks 1 and 2, the possible reductions were calculated by source subcategory for coal-fired and NGCC units. The EPA then applied regionally-achieved rates in all of the three building blocks to the coal and gas-fired plants within each subcategory and region, and then chose the most readily achievable rate for each category as BSER." Ameren Corporation at 15.

Prairie State asserts that the EPA used a more state-focused approach in the proposed rule and "in contrast, the final rule uses a 'regional approach' for all building blocks." Prairie State at 9. Prairie State states that as a result "Illinois went from an approximately 33% reduction in CO_2 emissions to an approximately 42% reduction, making it one of eight states with the strictest percentage of CO_2 emission reductions." *Id.*

Southern Company states that instead of applying the four building blocks to each state's existing sources, the EPA changed focus in the final rule and that the final rule's "average performance rates" are not a logical outgrowth of the proposal. Southern Company at 4; *see also* Basin Electric Power Cooperative at 1, Wyoming at 4. Southern Company asserts that the EPA "admitted that its new interconnection-focused analysis was one of the most significant changes made in the Final Rule," Southern Company at 8-9 (citing 80 FR 64673), and that the EPA "merely suggested the possibility of a regional analysis, not an interconnection-based approach, and EPA failed to provide nearly enough details to foresee what the agency eventually finalized." Southern Company at 15.

Southern Company also asserts that the new regional approach gives a new context to concerns it expressed in comments regarding ancillary services and therefore the EPA should provide an opportunity for further comment. Southern Company at 12 (citing Southern Company comments at 108-14 as an example).

In similar fashion, Montana alleges that "changes in the final rule in fact violate the Administrative Procedure Act because they are not a logical outgrowth of the proposed rule, and our State could not have reasonably anticipated the changes which were implemented in the final rule." Montana at 1. The state asserts that "[u]nder the final rule, the starting point for the

59 NERC regional map available at http://www.nerc.com/AboutNERC/keyplayers/Pages/Regional-Entities.aspx.

emissions rate target was established by using an energy mix in one of the three national grids (the eastern grid). This emissions rate target was then further reduced by applying a combination of: re-dispatching coal to natural gas and renewable energy potential at a national level." *Id.* at 2. Kansas DHE, New Jersey DEP, and North Dakota all refer to the application of the building blocks across the three interconnections in the final rule as a "novel approach [that] was not contemplated in the proposal." Kansas DHE at 5; *see also* North Dakota at 3, New Jersey DEP at 8. Texas describes the regional application of the building blocks utilized in the final Rule and states that the "new procedures and outcomes of setting the emission performance standards are significantly different than what was proposed and were not reasonably anticipated. Neither Texas nor the public could meaningfully comment on these changes, which are fundamental to the rule." Texas at 6.

Westar Energy describes the state-by-state application as proposed and concludes that in the final rule "[r]ather than determining the state goals based on what is feasible within each state, EPA set state goals based on nationally applicable performance standards of 1,305 lbs CO_2/MWh for coal and oil-fired EGUs and 771 lbs CO_2/MWh for NGCC units. The EPA established these standards based on super-regional analyses involving the generation fleets of numerous states." Westar Energy at 3. Westar Energy further claims that "[n]othing in the Proposal presaged that EPA would impose nationally applicable, and unachievable, standards on EGUs and NGCCs. There was no mention in the Proposal of using regional interconnects as a basis for developing nationally applicable, as opposed to state-specific, standards." Westar Energy at 4. Westar Energy alleges a lack of notice on this change and stated that "[h]ad EPA provided notice of these critically important changes, Westar would have submitted comments addressing the appropriate boundaries of EPA's authority under the Act and the arbitrary and capricious nature of Kansas's emission reduction obligations." However, Westar Energy did not provide any additional information in its petition for reconsideration in that regard.

LG&E and KU Energy LLC specifically note that the final rule changed from the state-by-state application of building block 3 to determine the renewables available in each state to the application of building block 3 regionally, assuming that renewables within the region can replace generation or offset emissions of sources within that region. LG&E and KU Energy LLC at 1-2. Prairie State and AEP each point out the changes in state goals between the proposal and final rule. Prairie State at 9-10, AEP at 15.

Basin Electric Power Cooperative states, "In the Final Rule, EPA abandoned the State-by-State approach used in the Proposed Rule for determining the amount of generation that could be re-dispatched from steam generating units to existing NGCC units under building block 2 in favor of an approach that assumed generation from steam generating units could be re-dispatched across broad regional interconnections. This change is significant for the many States that have little or no NGCC capacity—including Wyoming and North Dakota, where the affected EGUs owned by Basin Electric are located." Basin Electric Power Cooperative at 13.

Ameren Corporation also asserts that the EPA is claiming that the NODA provided notice of potential changes from the proposal to the final rule in the goal setting methodology, but that it did not have sufficient time to comment and that the EPA ignored requests to extend the comment period. Ameren Corporation at 7. It further asserts that the EPA requested comment on a "complex 'techno-regional' analysis, but that there was not enough time to understand what the EPA was suggesting before the comment deadline and therefore there was not sufficient notice and comment." Ameren Corporation at 7. Ameren Corporation states that it predicted "in its December 1, 2014, comment that the NODA approach, if followed to its

conclusion, would result in a fundamentally changed rule." Ameren Corporation at 20. UARG stated, "[i]n its October 2014 NODA, the Agency solicited comment on whether to use a regional approach for developing target generation levels under Building Blocks 2 and 3, but it never hinted that it was considering applying the BSER to EGUs on a regional basis. In fact, the NODA's discussion strongly suggested that even if EPA adopted regional Building Block 2 and 3 targets, it would reapportion those targets among the states for state-level application of the BSER". UARG at 7 (citing 79 FR 64551). Ameren Corporation also stated that the EPA did not give enough time to comment on the NODA. Ameren Corporation at 7.

We disagree that Petitioners did not have notice of and the opportunity to comment on the regions that the EPA selected and the regional methodology utilized in the final rule. Beginning with the proposed rule, the EPA emphasized that the interconnected nature of the electricity system was an important factor in how we determined BSER.[60] Commenters also pointed out the importance of the EPA understanding the regional nature of the electric system, noting the three interconnections. *See, e.g.*, National Rural Electric Cooperative Association at 57-58 (EPA-HQ-OAR-2013-0602-33118), Edison Electric Institute at 272-273 (EPA-HQ-OAR-2013-0602-23224).

In the proposal, the EPA indicated that we were considering other methodologies for setting the section 111(d) goals. For example, the EPA requested comment on whether building block 2 should be applied on a regional basis under which generation from fossil fuel-fired steam units within a region is shifted to NGCC units within the region. 79 FR 34865, 34899. Additionally, the proposal set state renewables targets based upon an average of state RPS requirements across certain regions. 79 FR 34866-34869. In order to calculate building block 3, the EPA utilized groups of state regions for the development of the "best practices RPS scenario." 79 FR 34867. Therefore, as early as the proposed rule, Petitioners had the opportunity to comment on whether and, if so, how the EPA should include multi-state approaches and regional evaluations in the goal-setting methodology, as well as what regions the EPA should use for those regional evaluations.

In the NODA, the EPA further emphasized that we were considering a regional methodology for goal setting and discussed the potential regions we might select. In fact, we specifically referenced the NERC regions and included a citation to a NERC regional map that included two of the three regions that we utilized for the final rule goal-setting methodology – the Western Interconnection and the Texas Interconnection. 79 FR 64551.[61] The EPA then sought comment on these regional structure considerations. Based upon the proposal and NODA, Petitioners had the opportunity to comment on whether the EPA should select a regional methodology, what that regional methodology should be, and what regions the EPA should utilize. Petitioners had notice that the EPA was considering multiple regions and that the EPA was specifically considering the Western Interconnection and the Texas Interconnection as regions. Given that the EPA offered two of the three interconnections as potential regions in the NODA, it was logical to consider that we would select the three interconnections as the three regions in the final rule. The Petitioners had the opportunity to comment on these regions and provide information regarding the regions that the EPA selected for the final rule BSER methodology. Additionally, given that the NODA specifically focused on a regional

[60] The EPA also noted that, "The interconnected nature of the electric system is an important part of our reasoning." 79 FR 34885.

[61] NERC regional map available at http://www.nerc.com/AboutNERC/keyplayers/Pages/Regional-Entities.aspx.

methodology for building blocks 2 and 3, the EPA's use of a regional methodology to calculate building block 1 was foreseeable considering the regional approach for the other two building blocks.[62] Additionally, we note that the proposed rule proposed to calculate building block 1 on a national rather than state-specific basis. Therefore, commenters had notice and opportunity to comment that this building block would not be applied on a state-specific basis. We disagree with Petitioners' assertions that we did not provide enough time to analyze and comment on the information in the NODA. First, the EPA did allow sufficient time to comment on the proposed rule and NODA. As we stated in the RTC, "The EPA provided adequate notice as required under section 307 of the Clean Air Act of issues related to the treatment of regional programs in the proposal, the November Supplemental Proposal, the November NODA and the supporting TSDs, including the TSD titled "Translation of the Clean Power Plan Emision [sic] Rate-Based CO_2 Goals to Mass-Based Equivalents." The extensive and thoughtful comments filed on these issues is evidence that the issues were adequately noticed." RTC Section 1.10.9, Response 6. Second, Petitioners still have not enumerated any additional information that they would have provided the EPA if we had extended the final Rule comment deadline.

We also disagree with Southern Company that it did not have notice and opportunity to comment on potential ancillary services concerns that it asserts could arise with a regional goal-setting methodology. As Southern Company itself notes, it had the opportunity to comment on issues surrounding ancillary services based upon the proposal and the NODA. As noted above, the EPA provided notice and opportunity to comment on our plan to utilize a regional approach for the final Rule goal-setting methodology as well as the potential regions that the EPA would select. Therefore, Southern Company had the opportunity to comment on the new context for its concerns regarding ancillary services.

Finally, multiple comments indicate that the proposal and NODA did provide stakeholders with notice and comment opportunity on the regional approach. *See, e.g.*, Response to Comments (RTC), EPA-HQ-OAR-2013-0602-37106, Section 3.2.9, Comment 7; Section 3.3.6, Comment 12, Section 3.3.10, Comment 40. For example, commenters stated that it is essential that the EPA regionalize the building block 3 methodology because electricity is generated, consumed, and transmitted a regional basis. CPP Response to Comments, Section 3.3.10, Comment 40.[63] Stakeholders also suggested that there is a disconnect between intra-state renewables used in goal setting but inter-state renewables allowed for compliance. 79 FR 64547. For additional comments, see the comments cited below in which commenters objected to the regional approach on grounds that it might make the goals more stringent.

C. Central Relevance

Several Petitioners, including North Dakota, New Jersey DPE, Kansas DHE, Texas, Montana, and Westar Energy, generally allege inadequate notice with regard to the regional application of the building blocks. As more fully described above, we do not agree that Petitioners did not have adequate notice and opportunity to comment on these issues. Additionally, these Petitioners failed to indicate any additional information that they would have

[62] Objections specifically concerning the regionalization of Building Block 1 are addressed below, in section V.B.1.

[63] *See, e.g.*, EverPower Wind Holdings, Inc., EPA-HQ-OAR-2013-0602-22991, at 1 (stating, "EPA should adopt the alternative (technical and economic) renewable energy Building Block 3 approach included in a June 2nd Technical Supporting Document, with the modification detailed in the October 28th Notice of Data Availability (NODA) to calculate the economic renewable resource potential on a regional instead of a state-by-state basis. The regionalized NODA technical and economic approach is vastly superior to the other proposed methods for calculating renewable energy's contribution for state targets.").

provided the EPA. An objection is of central relevance to the outcome of the final Rule only if it provides substantial support for the argument that the promulgated regulation should be revised. Petitioners have not provided the EPA with any additional information, much less any that would have resulted in us reaching a different outcome. Therefore, Petitioners have failed to raise an objection that is of central relevance with regards to the regional application of the building blocks and therefore we deny their Petitions for Reconsideration on those grounds as well.

AEP states that using the three interconnections for the building blocks "obscures important differences among the states, but then allocates responsibility for achieving the standards to the states, largely based on the amount of electricity generated by affected sources within each state in a single baseline year." AEP at 3. According to the Petitioner, this method first obscures state differences and then "elevates state-specific factors in way that, as a practical matter, eliminates the possibility for states to develop individual plans that can achieve compliance." AEP at 3. It further states that the EPA does not have legal authority under CAA section 111(d) to design emission guidelines that cannot be implemented at the state level. *Id.* Basin Electric Power Cooperative states that the EPA must establish that sources in a state can implement the BSER in that state. It alleges that sources in Wyoming and North Dakota cannot do so due to lack of NGCC in those states. Basin Electric Power Cooperative at 17-18.

We disagree with Petitioners' assertions. First, CAA section 111(d) does not provide that sources must be able to achieve their emission limits only by taking action that implements the BSER in their own state. The EPA's record makes clear that each type of source, no matter where it is located – including, in each state – can achieve its subcategory's uniform emission rate by implementing BSER. For example, in a state with a rate-based plan, each source can acquire emission reduction credits (ERCs) by investing in lower-emitting generation, whether in-state or out-of-state. In a state with a mass-based trading plan, each source can achieve its emission limit by acquiring allowances or reducing generation, and therefore emissions.

Second, the final Rule provides states and sources with significant flexibility in how they meet the emission reduction requirements. As a result, even if it were necessary that states be able to achieve their goals solely by their sources taking action in state, states could do so. In general, in states with rate-based plans, sources could reduce utilization and then procure ERCs to meet their emission performance rate. In states with mass-based plans, sources can meet their requirements by reducing utilization. Additionally, in the Non-BSER CPP Flexibilities Appendix, EPA includes information about the extent to which sources and states can comply through co-firing, CCS, and demand-side energy efficiency. Based on the record at the time of the final Rule, virtually all states would comply with their goals if their sources took some combination of those actions. In addition, all states have some RE capacity within their borders. *See* Proposed GHG Abatement Measures TSD at 4-2 ("Every state in the union is producing electricity from renewable resources…."). By developing those in-state renewables, in combination with co-firing, CCS, and demand-side energy efficiency, each state could comply with its goal. Additionally, a state can design a plan that takes a state measures approach that adopts "particular types of energy measures that would lead to reductions in emissions from its EGUs." 80 FR 64783. The state could then refrain from imposing requirements on affected EGUs, providing its plan includes a "backstop of federally enforceable standards on affected EGUs." 80 FR 64827. We included significant flexibility in how states design state plans precisely because those states are best situated to account for the unique characteristics of the sources in their states. The fact that recent trends towards cleaner generation mean that states

need to achieve significantly fewer emission reductions to achieve their goals further confirms that if a state chooses to achieve its goal only through in-state actions, it may do so.

Finally, the EPA's design of the emission guidelines is entirely consistent with our legal authority under CAA section 111(d). As we stated in the final Rule, "by establishing and operating through uniform performance rates for the two subcategories of sources that can be applied by states at the individual source level and that can readily be implemented through emission standards that incorporate emissions trading, these final guidelines align with the approach Congress and the EPA have consistently taken to regulating emissions from this and other industrial sectors, namely setting source-level, source category-wide standards that individual sources can meet through a variety of technologies and measures." 80 FR 64675. Because AEP and Basin Electric Power Cooperative have not provided any information that changes our assessment that states have ample options to design state plans that will achieve compliance, they have not explained how their concerns are centrally relevant and we deny reconsideration on this issue.

Kentucky states that the final Rule does not adequately explain why the EPA chose the three interconnections as the regions or what other regions the EPA considered and rejected. Kentucky at 3. We disagree with Kentucky that the EPA did not explain why we chose the three interconnections as the regions; the final rule comprehensively discusses this decision. 80 FR 64739-64741. First, we stated that our choice of the three interconnections aligns our regulations with the reality of the interconnected electricity system. 80 FR 64739. Second, we noted that we also considered whether we should instead use interconnection subregions such as those used for various operational and planning activities, but decided against it because "Interconnection planning and management follows the NERC functional model, which defines subregional areas and regional entities within each interconnection for the purposes of balancing generation with load and ensuring that reliability is maintained. While a variety of organizations plan and operate these subregions, those activities always occur in the context of the interconnections, and the subregions cannot be operated autonomously. The need to maintain common frequency and stable voltage levels throughout the interconnections requires constantly changing flows of electricity between the planning and operating subregions within each interconnection." 80 FR 64739. Third, the EPA determined that we did not need to reduce the scale of the regions due to potential transmission constraints. 80 FR 64741. Finally, the EPA also considered whether the smaller geographic scales "on which affected EGUs may typically engage in energy and capacity transactions necessitate evaluating the emission reductions available from the building blocks at scales smaller than the interconnections." 80 FR 64741. The EPA determined that we did not need to utilize smaller geographic scales because, among other things, electricity trading occurs throughout the interconnections, resulting "in interconnection-wide changes in flow that are managed in real time." 80 FR 64741. Kentucky has not provided us with any new information that would have changed our determination regarding the regions we selected in the final rule. For example, Kentucky has not persuasively explained why the interconnections are not reasonable selections as the regions, what other options there are, why those other options would be reasonable, and what the significance of the change would be. In addition, the precise shape of the regions has become less adversely impactful for many states because the business-as-usual shift to cleaner energy has significantly reduced the amount of emission reductions that state plans must achieve to meet state goals. For example, as noted in the States' Progress and Trends Appendix, several studies project that Kentucky will be able to meet its 2030 state goals, as a matter of business-as-usual, without

having to make additional reductions, and, as a result, would not be prejudiced by the shape of the regions. *See* States' Progress and Trends Appendix at State Level Compliance with CPP Interim Targets and Goals Section. Because Kentucky has not explained how its concerns are centrally relevant, the EPA is denying reconsideration on this issue.

As more fully described above, Southern Company asserts that the new regional approach gives a new context to concerns it expressed in its comments regarding ancillary services. We disagree that Southern Company did not have notice and opportunity to comment on this issue. Additionally, Southern Company has not provided us with any additional information to indicate what this new context is or why it would change the regions or regional approach that we selected in the final rule. The EPA has provided flexibility to ensure that needed resources (e.g., resources that provide ancillary services) can continue to operate, for example, by purchasing ERCs in rate-based states or allowances in mass-based states. Southern Company has not provided us with any new information that would have changed our determination with regard to the use of regions to calculate the final emission reduction requirements nor the regions that we selected. Therefore, Southern Company has not explained how its concerns are centrally relevant and we deny reconsiderations on this issue.

Southern Company also argues that the EPA does not have the energy sector expertise necessary to undertake the regional analysis in the final Rule. Southern Company at 13-14 (citing *Delaware Department of Natural Resources v. EPA*, 785 F.3d 1, 15 (D.C. Cir. 2014) (internal quotations omitted)). We do not agree. Southern Company misconstrues the Court's decision in *Delaware Department of Natural Resources v. EPA*. In that case, the Court perceived that the EPA relaxed Clean Air Act section 112 environmental controls for the *specific purpose* of furthering grid reliability, but in the Court's view, failed to respond to public comments raising reliability concerns or consult with FERC. In contrast, in developing the final Rule here, the EPA performed our core function of limiting pollution to protect human health and the environment and properly considered, among other things, "energy requirements," as instructed by Congress. 42 U.S.C. § 7411(a)(1). Also, unlike in *Delaware*, in this instance the EPA engaged in extensive consultation with FERC, DOE, grid operators, utilities and other stakeholders prior to making any judgments relating to "energy requirements"; responded to their comments; and set up a process to work with FERC and DOE to continue to monitor reliability issues. 80 FR 64671, 64693-64694, 64706-64707, 64800, 64874-64881. Additionally, we note that we relied upon the expertise of the Energy Information Administration and the National Renewable Energy Laboratory in setting the final emission reduction requirements, utilizing their data to inform our analysis. Southern Company has not explained how its concerns are centrally relevant and the EPA is denying reconsideration on this issue.

We also note that Southern Company raises some specific concerns regarding the regional aspects of building block 1 and 3 that we address in the Building Block sections. Southern Company at 14-16.

Prairie State notes that industry works on a regionally-interconnected basis, but that each state must individually comply. Prairie State at 9. We are denying this objection because Prairie State could have raised it during the comment period, as the EPA solicited comment on the regional approach. In addition, it is not centrally relevant because the EPA has explained how sources in each state are able to achieve their standards of performance – and therefore each state is able to meet its goals – by implementing the BSER. Sources are able to take multiple actions to comply with the final rule emission reduction requirements, such as investing in new renewable energy either in their own or other states.

Several Petitioners allege that they had no notice of the EPA's decision to apply the building blocks on a regional basis or of the resulting changes in states' CO_2 emission goals. LG&E and KU Energy LLC assert that the application of building block 3 on a regional basis results in much greater emission reduction requirements for EGUs in Kentucky. LG&E and KU Energy LLC at 4. Petitioners state that these issues are centrally relevant and that EPA did not provide notice and opportunity to comment. LG&E and KU Energy LLC at 2. Kentucky notes that the building block 3 levels in particular change dramatically in the final Rule. Kentucky at 2, 3. UARG states that the regional application of the building blocks results in changed stringency from the proposal. UARG at 8. As noted above, Petitioners had notice of the EPA's regional application of the building blocks as well as the range of regions that the EPA was considering for selection in the final Rule. They therefore also had notice that the performance rates could become more stringent for some states and less stringent for other states under a regional methodology. 79 FR 64545. Furthermore, while states' emission goals changed between the proposed and final Rule, the final Rule's emission reduction requirements are achievable by all sources in both subcategories. Additionally, in the final Rule, we used the least stringent of the three interconnections to set the subcategorized emission performance rates, creating considerable headroom in how we calculated the emission performance rates to ensure achievability. Petitioners have not raised issues of central relevance with regard to the EPA's application of a regional approach or the three regions that the EPA chose. We respond to specific issues pertaining to the building block 3 methodology in the Building Block 3 section.

Wyoming asserts that the EPA's analysis was really conducted on a national level, resulting in performance rates that are much more stringent for "outlier states." Wyoming at 4. The state further claims that a region "ordinarily denotes a much smaller subset of this country" and that the EPA's use of a purportedly national perspective "glosses over regional differences and has the practical effect of punishing states that are outliers." Wyoming at 4. We disagree with Wyoming's assertions. The EPA conducted our BSER analysis on a regional, rather than national level, using the three interconnections as regions. Our methodology benefited Wyoming because we chose the least stringent region to set the emission reduction requirements.[64] Petitioners had notice that the EPA was considering a regional approach to calculating the building blocks. As explained above, they therefore had notice that the stringency of states' performance rates could change under a regional methodology. Additionally, we disagree with Wyoming that the three interconnections do not qualify as regions because they are too large. We included a comprehensive explanation in the final Rule, described above, as to why we selected the interconnections as the appropriate regions to utilize in our final rule goal-setting methodology. *See* 80 FR 64739-64741. We note that "stakeholders have expressed concern about the discrepancy between setting targets based on in-state renewable assets or resources while allowing other states that import renewable energy to count

[64] "[T]he CO_2 emission performance rate applicable to a given source subcategory in all three interconnections reflects the emission rate achievable by that source subcategory through application of the building blocks in the interconnection where that achievable emission rate is the highest (*i.e.*, least stringent)." 80 FR 64730. "Specifically, the annual CO_2 emission performance rates applicable to steam EGUs in all three interconnections are the annual emission rates achievable by that subcategory in the Eastern Interconnection through application of the building blocks. Similarly, the annual CO_2 emission performance rates applicable to stationary combustion turbines in all three interconnections are the annual emission rates achievable by that subcategory in the Texas Interconnection for years from 2022 to 2026, and in the Eastern Interconnection for years from 2027 to 2030, through application of the building blocks." 80 FR 64730 n.374.

certain amounts of that generation toward their compliance." *See* 79 FR at 64545. Accordingly, in the NODA, the EPA took comment on reducing those disparities by applying the building blocks on a regional basis, which more accurately reflects the interconnected, interstate electricity market. *See Id.* at 64547, 64550-64552; *see also* 79 FR 34865, 34899. Finally, we note that, while Wyoming claims that the interconnections are too large to be considered a region, NERC itself includes both the Western Interconnection and Texas Interconnection as regions.[65] Wyoming had the opportunity to comment on the EPA's regional approach and has not provided us with any information of central relevance. Therefore, we deny Wyoming's reconsideration petition on this issue.

UARG states that, by regionally applying the building blocks, the EPA changed how sources can comply with the final rule, reducing flexibility and unfairly burdening states "with obligations that cannot be met by actions within those states." UARG at 3. We disagree that the regional application of the building blocks decreases compliance flexibility in the final Rule. As discussed above, nor do we agree that the regional application of the building blocks burdens states to the extent that they cannot meet the emission reduction requirements fully within the state. The EPA described in great detail the specific steps that particular sources may take to implement generation-shifting measures as a pollution-control strategy for purposes of complying with state-adopted emission standards. 80 FR 64731-33, 64796, 64804-06; *See also* Legal Memorandum Accompanying Clean Power Plan for Certain Issues at 137-48. UARG had the opportunity to comment on the EPA's regional approach and has not provided us with any information of central relevance. Therefore, we deny UARG's reconsideration petition on this issue.

Basin Electric Power Cooperative states, "EPA's stringency determinations for the building blocks are flawed for three reasons. *First*, they are not based on an assessment of what individual affected EGUs can achieve or even what can be achieved on a State-by-State basis but, rather, are based on a determination of what affected EGUs can on average achieve either nationally or across the three electricity interconnections. *Second*, the stringency levels reflect artificial, overly optimistic assumptions regarding the potential operation of NGCC and renewable generating resources across the country or regional inter-connections, and those assumptions are inconsistent with the actual historical operation and development of these resources." Basin Electric Power Cooperative at 15. We disagree with Basin Electric Power Cooperative's assertions. The EPA reasonably concluded that all types of affected EGUs can implement the building blocks and comply with the emission reduction requirements. In addition, there is no basis to Basin Electric Power Cooperative's claim that the EPA must provide a specific demonstration that every individual source can comply with the uniform rates. In setting section 111 guidelines, the EPA is not required to "perform repeated tests on every plant operating within its regulatory jurisdiction." *Nat'l Lime Ass'n v. EPA*, 627 F.2d 416, 433-34 (D.C. Cir. 1980). Instead, the EPA is just required to give "due consideration" to "the possible impact on emissions of recognized variations in operations and some rationale … for the achievability of the promulgated standard given the tests conducted and the relevant variables identified." *Id.* at 434. The EPA met this requirement. The EPA determined that "all types and sizes of affected EGUs in all locations are able to undertake the actions described as the BSER, including investor-owned utilities, merchant generators, rural cooperatives,

[65] *See* NERC regional map available at http://www.nerc.com/AboutNERC/keyplayers/Pages/Regional-Entities.aspx. NERC refers to the Western Interconnection as WECC and the Texas Interconnection as TRE.

municipally-owned utilities, and federal utilities."[66] 80 FR 64736. The EPA also explained the actions sources can take to implement the building blocks. Legal Memorandum at 137-148. We discuss the individual building block methodologies in the sections on each building block, but in general, the EPA based each building block on historically observed performance of the measure. Thus, we disagree with Basin Electric Power Cooperative's assertions that the stringency of the emission reduction requirements is artificial or based upon overly optimistic assumptions. Basin Electric Power Cooperative has provided no additional information that is centrally relevant. Therefore, we deny its reconsideration petition on this issue.

As discussed above, Petitioners had adequate notice and opportunity to comment with regard to the EPA's regional application of the building blocks and the regions the EPA utilized in the final rule. We respond individually to the substantive assertions that the Petitioners make above. None of the Petitioners established that their objections are of central relevance to the outcome of the final rule. For these reasons, the EPA concludes that these petitions for reconsideration fail to demonstrate that reconsideration is warranted or appropriate under Section 307(d)(7)(B). Therefore, we deny reconsideration on this issue.

D. Application of Building Blocks 2 and 3 in the Western and Texas Regions

1. Summary of Petitions

Petitioners stated that the EPA ignored the fact that if we had calculated the regional subcategory emission rates by applying building blocks 2 and 3 to the inventory of emissions in the Western and Texas regions to the full extent (e.g., 75 percent application of building block 2), it would reduce coal-fired EGU generation in those regions to a significant extent and thus result in significantly lower subcategory emission rates. Although the EPA did not take that approach, and, in general, instead gave the Western and Texas regions the benefit of the less stringent Eastern Interconnection rates, Petitioners stated that these possible impacts demonstrate that the building block approach is unreasonable. Basin Electric Power Cooperative at 21-22.

2. Response

As discussed in the uniform rate section above, the EPA provided notice of the regional of application of the building blocks. Accordingly, Petitioners had sufficient notice to comment that a regional approach could result in stringent emission limits for coal-fired EGUs. As noted elsewhere, some Petitioners did make those comments. In addition, in identifying the regional approach for comment in the NODA, the EPA solicited comment on whether a limiter would be necessary in order to avoid applying the building blocks to an extent that resulted in unduly stringent emission rates. In the final rule, the EPA adopted a limiter approach by applying the least stringent regional emission rate to all the regions. Thus, the EPA was cognizant of and addressed the impacts of the full application of the building blocks in the Western and Texas regions.

Moreover, as noted, the EPA did not apply the building blocks in the Western and Texas Interconnection regions to calculate their emission rates in the manner postulated by Petitioners. Instead, the EPA gave those regions the benefit of the less stringent Eastern Interconnection rates. Petitioners postulate that the EPA could have taken the approach of giving each region a more stringent emission rate based on the full application of the building blocks in that region, but the EPA disagrees that this hypothesized approach means that identifying the building

[66] For example, in numerous places in the record, the EPA discussed rural electric cooperatives.

blocks as the BSER is inherently unreasonable. As discussed elsewhere, the building blocks are a "system of emission reduction." Whether they qualify as the "best" system of emission reduction that is "adequately demonstrated" depends on cost, energy considerations, and other factors. Those factors inform the extent to which the sources can be expected to apply the building blocks. The same is true for other pollution controls. For example, in the NSPS for new coal-fired power plants, the EPA identified partial carbon capture (16-23 percent capture), and not full capture (90 percent capture), as the capture component of the carbon capture and storage BSER. The EPA based this distinction on the respective costs of partial and full capture. 80 FR 64596. The fact that if new sources applied full capture CCS, the cost would be greater than what the EPA identified as the BSER does not mean that CCS is inherently unreasonable as the BSER. Partial CCS is reasonable. The same is true with the EPA's application of the building blocks to the emissions inventory in the regions to determine the emission rates. The building blocks, as the EPA applied them to calculate the uniform subcategory emission rates, and as sources may apply or implement them to achieve their standards based on those rates, are reasonable. For these reasons, Petitioners' objection would not result in the EPA revising the final rule, and as a result, they are not of central relevance.

E. Impact of NGCC regionalization

At proposal, the EPA discussed the ability of incremental natural gas-fired generation identified in building block 2 to replace higher emitting fossil generation both within and outside of the state where the incremental generation occurs due to the interconnected nature of the grid. 79 FR 34865. We took comment on all aspects of the building blocks and their application in the state goal calculation. We also invited comment on whether building block 2 should be applied on a regional basis, under which generation from fossil fuel-fired steam units within a region is shifted to NGCC units within the region. 79 FR 34865.

In the NODA, the EPA revisited and highlighted this idea to provide notice that this may be one mechanism to address concerns with the proposal about the disparity in state goals between states that had already invested heavily in NGCC capacity (and thus had greater building block 2 potential at proposal) and those that had no such NGCC capacity (and thus no potential in proposal). 79 FR 64547. The EPA noted that, under this revised approach, NGCC replacement availability would be assessed on a regional basis reflecting the interconnected nature of the grid, and not limited to state boundaries. The EPA invited comment on the regionalization and use of the regions (including the regional structure identified at proposal for RPS estimates) or some alternative regional structure. In addition to highlighting this mechanism and its outgrowth from stakeholder feedback, the EPA also highlighted its potential to remedy one of the greater initial concerns with the proposal regarding the disparity in state goals. The EPA invited comment on both this mechanism and its technical viability.

Finally, the proposed EPA State Goal Computation TSD described all the calculations, provided underlying data, and included an active Excel workbook. The EPA noted that the "workbook has the data and formulas embedded for the state goal calculations. Therefore, a commenter suggesting an adjustment to a building block assumption or any historic state-level data can replace the current assumed values with the suggested amount and see the resulting state-level goal under such assumptions."[67] This plug-and-play tool not only provided increased

[67] State Goal Computations TSD at 21, available at https://www.epa.gov/sites/production/files/2014-06/documents/20140602tsd-goal-computation.pdf. The Excel workbook, which is separately docketed as EPA-HQ-OAR-2013-0602-0255, is also available at https://www.epa.gov/sites/production/files/2014-06/20140602tsd-state-goal-data-computation_1.xlsx.

transparency and demonstration of state goal calculations, but it also empowered commenters to test the impact on state goals of different assumptions. For instance, an interested stakeholder could simply replace the proposed renewables value for any state with the alternative renewables value, and the state goal would have automatically recalculated for them at a higher or lower value. Therefore, not only could stakeholders have reasonably anticipated the changes to the state goals as they were discussed in the record, they could have also estimated the magnitude of the impact of such changes with tools that the EPA also made available (both in the docket and on the website).

F. Summary and Examples

Given the robust discussion of alternative approaches to the building blocks and the explicit recognition that changes to state goals were possible, the EPA fully met the notice and comment requirements. The state goals provided in the proposed rule were based on one proposed methodology, but the proposed rule and NODA identified several other methodologies for calculation and application of the generation-shifting measures. Accordingly, states were able to anticipate that their goals might change, including being significantly tightened, if the alternative methodologies were selected.

The proposal provided notice that the EPA was considering alternative values for available amounts of renewable energy, and also requested comment on several alternative goal calculation methods and factors. 79 FR 34869-34870. The NODA indicated that the EPA was considering different "regionalized" approaches for measures for shifting generation from fossil fuel-fired power plants (mostly coal- and gas-fired) to renewable generators, to reflect the interconnection of the grid. 79 FR 64551-64552. The NODA also discussed the possibility that states whose proposed goals did not include shifting generation from steam generators (mostly coal-fired) to natural gas combined cycle power plants because there were no natural gas units in the state could still have some "minimum generation" shift applied to reflect the regional nature of the grid and the natural gas resources available in neighboring states. 79 FR 64549-64550. This put states on notice that the assumptions regarding the application of the generation-shifting measures might change, and that states in regions with significant renewable energy potential or states without natural gas units might see an increase in stringency of their final goals.

As noted above, the EPA provided interactive workbooks to allow commenters to explore alternatives such as these using a "plug-and-play" feature that calculated state goals using alternative assumptions.[68] Commenters could have plugged in assumptions for just the most significant alternatives that the EPA highlighted for discussion in the proposal and NODA and then could have observed state goals that would automatically reflect the new assumptions. Examining adjustments to assumptions consistent with the range of alternatives discussed in the proposal and NODA would have made clear that the potential final goals for individual states could have been materially more stringent than the proposed state goals; in fact, such examination would have shown potential final state goals that were more stringent than the actual final rate-based state goals. For example, by changing just two values in the Appendix 1 workbook from the proposal's Goal Computation TSD, a commenter could have assessed the

[68] The EPA discussed the workbook in the Goal Computation TSD for the proposed rule: "The above-referenced workbook has the data and formulas embedded for state goal calculations. Therefore, a commenter suggesting an adjustment to a building block assumption or any historic state-level data can replace the current assumed values with the suggested amount and see the resulting state-level goal under such assumptions." State Goals Computations TSD at 21 (June 2014).

simultaneous impact on the potential final state goal for North Dakota from adopting a regional approach to building block 2, adopting the alternative RE values discussed for building block 3 in the proposal, and treating RE and EE as replacing fossil steam generation on a MWh-for-MWh basis under building blocks 3 and 4 in the same way that increased NGCC generation replaces fossil steam generation on a MWh-for-MWh basis under building block 2. Specifically, to show the impact of these changes on the proposed state goal for North Dakota, the value for coal generation in cell M36 of the worksheet would be reduced to 12,610,123 MWh,[69] and the value for 2029 RE in cell AD36 of the worksheet would be increased to 9,587,379 MWh.[70] When these changes are made, the worksheet automatically computes corresponding changes in the state's total emissions from affected sources and computes an updated state goal for 2029 (and 2030). With these assumptions, the value in cell BB36 of the worksheet would show a 2030 state goal for North Dakota of 1,183 lb CO_2/MWh net, significantly more stringent than the state's proposed 2030 goal of 1,783 lb CO_2/MWh net and also more stringent than the state's actual final rate-based 2030 goal of 1,305 lb CO_2/MWh net.

Further, stakeholders demonstrated the ability to estimate the effects of various data changes on the stringency of the proposed state goals. Some commenters that requested changes to the data used to calculate the proposed state goals provided estimates of what the state goals would be if their requested data changes were made.

For example, the state of Utah commented that a natural gas plant that EPA treated as an existing unit in the state goal calculation should have been treated as under construction, and

[69] The value entered in cell M36 is North Dakota's 2012 coal generation of 28,186,691 MWh (cell F36) minus three distinct reduction amounts: (i) a 4,452,698 MWh reduction representing North Dakota's share of the regional reduction in coal generation under a regionalized approach to building block 2; (ii) a 9,587,379 MWh reduction representing the impact of MWh-for-MWh replacement of fossil steam generation by the incremental RE generation for North Dakota under the alternative RE approach for building block 3; and (iii) a 1,536,491 MWh reduction representing the impact of MWh-for-MWh replacement of fossil steam generation by incremental EE under building block 4. The 4,452,698 MWh reduction for building block 2 is computed as the product of North Dakota's 2012 coal generation of 28,186,691 MWh (cell F36) times the regional 15.8% fossil steam generation reduction percentage for the proposed North Central region (Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, North Dakota, South Dakota, and Wisconsin). The regional 15.8% reduction percentage, in turn, can be computed from data in the same worksheet by, first, multiplying the region's total NGCC nameplate capacity of 20,584 MW (regional sum of column J) by 8,784 hours per year (for 2012) and a 70% capacity factor to determine the region's target annual NGCC generation of 126,565,669 MWh; then subtracting the region's total 2012 NGCC generation of 61,488,627 MWh (regional sum of column G) to determine the regional increase in NGCC generation of 65,077,043 MWh, which is offset by an equal decrease in regional fossil steam generation because of MWh-for-MWh replacement; and finally dividing the regional decrease in fossil steam generation by the region's total 2012 fossil steam generation of 411,953,932 MWh (regional sum of columns F and H) to determine the regional reduction percentage. The 9,587,379 MWh reduction for building block 3 is determined as described below in the next footnote. The 1,536,491 MWh reduction for building block 4 is the product of North Dakota's 2012 electricity sales (grossed up for delivery losses) of 15,822,199 MWh (cell AP36) times the state's 2029 EE potential, expressed as 9.71% of 2012 electricity sales (cell AN36).

[70] The amount entered in cell AD36 is the incremental RE for North Dakota under the alternative RE approach discussed in the proposal and can be computed from data in the "Alternative RE Approach Data File" worksheet, available at https://www.epa.gov/sites/production/files/2014-06/20140602tsd-proposed-re-alternative-approach.xlsx. Specifically, the 9,587,379 MWh amount is computed as the state's total 2029 RE generation of 17,339,118 MWh (RE worksheet cell BN37) minus the state's total qualifying 2012 RE generation of 7,751,739 MWh (sum of RE worksheet cells F37 through I37). Note that for this illustration, incremental RE generation is entered in cell AD36 in order to produce a goal value comparable to, and more stringent than, the final rate-based state goal. If total RE generation were entered in cell AD36 instead, the illustration would produce a lower (i.e., nominally more stringent) goal value comparable to, and more stringent than, the proposed state goal.

estimated that this change would have the effect of increasing the state's 2030 rate goal by 46 lb/MWh (EPA-HQ-OAR-2013-0602-23100).[71] Utah also estimated how the stringency of its 2030 rate goal would change with a baseline of three years or five years, or with a change to the amount of renewable energy included in the state goal calculation, or with adjustments to the NGCC capacity factor assumption; in each case, the state indicated the estimated revised state goals resulting from these changes.[72]

As a further example, the state of South Dakota estimated the effect on its 2030 rate goal of using a 2010 or 2005 baseline instead of the proposed 2012 baseline, indicating in its comments that these alternative baselines would result in revised state goals of approximately 1,148 and 1,627, respectively (EPA-HQ-OAR-2013-0602-31796).[73]

III. "Beyond the Fence Line"

A. Primary Objections

The petitions to reconsider stated that building blocks 2 and 3 (i.e., generation shifting) are unlawful because section 111(d) and (a)(1) limit the BSER to measures that can be applied at the source (i.e., integrated into the design and operation of a source), and do not authorize "beyond the fence line" or "outside-the-fenceline" measures. *See e.g.*, Kansas 4, 6; Mississippi DEQ, 1-2. Petitioners also stated that including generation shifting as part of the BSER requires regulation of non-emitting sources, which is unlawful under section 111(d). *See* Wisconsin PSC, 1-2; Ameren, 25.

The petitions for reconsideration are denied with respect to these issues. These issues were clearly noticed in the proposed rule—for which the agency took extensive public comment—and EPA addressed these issues and comments at length in the final Rule.[74] *See* 80 FR 64758-64787; Legal Memorandum, 7-11, 88-129, 148; and EPA's Responses to Public Comments, Ch. 1A-1C. In fact, these issues are among the "core legal issues" in *West Virginia v. EPA*, No. 15-1363 (D.C. Cir.). *See* Opening Brief of Petitioners on Core Legal Issues, pp. 41-61, *West Virginia v. EPA*, No. 15-1363 (D.C. Cir.), Doc. #1610010. In any case, as discussed in the final Rule and in litigation, generation-shifting is a permissible "system of emission reduction," and the record is clear that the EPA evaluated the proper factors under section 111(d)(1) and (a)(1) in determining that building blocks 2 and 3 comprise the "best" system that is "adequately demonstrated," taking into account, among others, the amount of emission

[71] See pages 7-8 in the Energy Strategies Memorandum attachment to Utah's comment letter (EPA-HQ-OAR-2013-0602-23100).

[72] See pages 3-6 in the Energy Strategies Memorandum attachment to Utah's comment letter (EPA-HQ-OAR-2013-0602-23100).

[73] See pages A-1, A-2 in Attachment A in South Dakota's comment letter (EPA-HQ-OAR-2013-0602-31796).

[74] Ameren Corporation mistakenly claims that the EPA fundamentally changed its interpretation of the BSER between proposal and final to focus on measures that a source's owner or operator can implement. Ameren, 12-14. First, Ameren has not identified a fundamental change in interpretation. The EPA's proposal recognized that "EGU owners and operators may effectuate ... measures directly or indirectly ...." Proposed Rule Legal Memorandum, 74; 79 FR 34917 ("We are proposing that affected entities in an approvable state plan may include: An owner or operator of an affected EGU"). This view is consistent with the final Rule where the EPA recognized that the BSER is limited to measures that can be implemented by an affected source (and not, for example, measures that can only be implemented by a state or other governmental entity). 80 FR 64762. Second, this view is also consistent with industry comments that section 111 standards must be "based on measures those sources can implement" as a result of actions taken by "an individual source's owner." UARG Comments on the Proposed Clean Power Plan, 18-19. Thus, to the extent that the EPA's interpretation was refined between proposal and final, it was a logical outgrowth of the proposed rule and adequately noticed to industry petitioners.

reductions and costs. 80 FR 64718-64758 (discussion of legal requirements for the BSER), 64758-64787 (discussion of certain aspects of the BSER). Because Petitioners fail to raise any new grounds for revisiting these issues, their petitions are denied.

It should also be noted that recent power sector trends confirm the EPA's conclusions that generation-shifting qualifies as the BSER. As discussed above and in the Power Sector Trends Appendix, following the EPA's finalization of the CPP, coal-fired power plants have continued to replace their generation with lower-emitting generation and thereby reduce their emissions. This is true for the industry as a whole: coal-fired generation has fallen and existing NGCC generation and new renewable generation have increased in significant amounts. This is true as well for many individual power plants. For example, the Power Sector Trends Appendix identifies numerous plants that have replaced coal-fired generation with new renewable generation, and numerous plants that have plans to do so. As a result, as also described in that Appendix, CO_2 emissions from power plants have fallen.

Moreover, as also described in the Power Sector Trends Appendix, because of reductions in the costs of natural gas and new renewable generation, the costs of building blocks 2 and 3 have fallen. Because of the shifts in generation that have recently occurred, and the consequent reduction in emissions, the remaining amount of generation-shifting that would result from implementation of the building blocks to achieve the CPP emission limits is significantly lower, and therefore less impactful on the power sector, than EPA projected at the time of the final Rule. In addition, the ability of individual power plants to take action to implement generation-shifting – such as by investing in new renewable generation – has been further confirmed. For all these reasons, the recent trends confirm EPA's conclusion that building blocks 2 and 3 are an "adequately demonstrated" system of emission reduction, taking into account, among others, cost and energy considerations.

Many of the same reasons, coupled with the fact that while advances have been made in CCS technology, as described in the non-BSER CPP Flexibilities Appendix, no other technology or method for reducing emissions has emerged that achieves reasonable amounts of emission reductions more cost-effectively than generation-shifting, confirm the EPA's conclusion that building blocks 2 and 3 are the "best" of the adequately demonstrated systems of emission reduction.

For all the reasons discussed in the record and here, and on the basis of the record in the CPP, as updated by this reconsideration action, the EPA concludes that it would be unreasonable not to include building blocks 2 and 3 as part of the BSER.[75]

[75] It bears emphasizing that limiting the BSER to building block 1 measures would be unreasonable and contrary to the CAA. The BSER underlying the final Rule is a combination of the three building blocks that, when implemented, result in an achievable and significant degree of CO_2 emission reductions from the utility power sector. 80 FR 64663; *see also id.* at 64924 (projecting, by 2030, a 32% reduction in CO_2 emissions from 2005 levels). One of the factors that EPA must consider under section 111 is an assessment of the amount of emission reductions that can be achieved through applying a system of emission reduction. *See* 80 FR 64721 (discussing *Sierra Club v. Costle*, 657 F.2d 298, 326 (D.C. Cir. 1981)). Excluding building blocks 2 and 3 would severely undercut the projections expected by 2030; in fact, reductions from building block 1 alone would be grossly insufficient to address the public health and environmental impacts from CO_2 emissions and limiting the BSER to efficiency measures might actually "exacerbate the insufficiency of the emission reductions." 80 FR 64787; *see also id.* at 64748 (expressing concern "that implementation of building block 1 in isolation not only would achieve insufficient emission reductions ... but also has the potential to result in a 'rebound effect.'"). Thus, in light of the significant CO_2 emission reductions attributable to building blocks 2 and 3, it would be unreasonable to limit the BSER to building block 1 measures alone. 80 FR 64727 ("heat rate improvements are a low-cost option that fit the criteria for the BSER, except that they lead to only small emission reductions for the source category.").

Petitioners quote statements from the EPA and other Administration officials to question the EPA's basis for identifying generation shifting as part of the BSER. However, these statements by no means call into question the record support, cited immediately above, that grounds the final rule in the proper factors. In addition, petitioners take the quoted statements out of context and do not correctly characterize them. For example, Basin Electric Power Cooperative attempts to attribute Administrator McCarthy's testimony on the proposed rule as an "acknowledgment that the final Rule 'is not about pollution control,'" Basin Electric Power Cooperative Petition, 62 (quoting the EPA's Proposed Carbon Pollution Standards for Existing Power Plants: Oversight Hearing Before the S. Comm. on Env't & Pub. Works, 113th Cong. (2014), "Proposed CPP Senate Oversight Hearing Transcript"). Administrator McCarthy's statement concerned the proposed rule, not the final Rule, but more importantly, the Petitioner takes her statement out of context and thus mischaracterizes its meaning. In response to a question about states' roles and ability to continue their own climate change programs under the CPP, the Administrator explained that states "get to design their own compliance strateg[ies]" and that the CPP allows states to decide what they want to invest in to achieve the Rule's emission reduction goals. Proposed CPP Senate Oversight Hearing Transcript at 33. She further explained that the CPP thus creates investment opportunities, *e.g.*, in renewable energy and more efficient electricity generation, that can have economic benefits beyond those stemming directly from emission reductions. *Id.* The Administrator's statement that "[t]his is not about pollution control" clearly refers to her discussion of these additional benefits that may inform states' potential investment decisions, not about the proposed CPP as a whole. For these reasons, this statement does not undermine the extensive record supporting the EPA's determination of the best system for reducing CO_2 from affected sources pursuant to CAA section 111.

B. Other Objections

1. Non-emitting sources

Petitions for reconsideration objected that including generation shifting as part of the BSER requires the EPA to regulate non-emitting sources. *See, e.g.*, Ameren Petition for Reconsideration, p. 25.

Petitioners had the opportunity to raise this objection because the issue was raised by the proposal. In addition, this objection is not of central relevance because it is incorrect. Basing the BSER in part on generation shifting does not require the EPA to regulate non-emitting sources. As indicated in the final rule, sources may implement building block without any EPA regulation of renewable generators or any other entities. 80 FR 64827.

2. Sources and BSER

A petition for reconsideration objected that the EPA did not demonstrate that each source can implement the BSER. This petition stated that the EPA determined BSER, including each building block, on an average, region-wide basis, not an individual-source basis. This petition also noted that the EPA acknowledged in a TSD that some plants may be unable to "achiev[e] performance equal to region-level assumptions for a given technology…." CO_2 Emission Performance Rate and Goal Computation TSD at 6. This petition also noted that trading will not facilitate compliance because the CPP does not create a trading program or require that it be allowed under individual state plans, and therefore is not adequately demonstrated; and because the CPP creates barriers to development of trading, including precluding rate to mass trading. In addition, this petition objects that trading was not adequately

noticed. Basin Electric Power Cooperative 16-17.

The EPA is denying this petition to reconsider. Petitioner did not claim inadequate notice that the EPA did not demonstrate that each source can implement the BSER and, in any event, the EPA provided adequate notice because (i) the same issue was present in the proposed national approach for building block 1, the state-by-state approach for building blocks 2 and 3 (which did not focus on individual source), and (ii) as discussed elsewhere, the EPA did provide adequate notice of the region-wide approach. Moreover, as noted elsewhere, commenters did comment on the region-wide approach.

In addition, this objection is not of central relevance because it does not provide any information that would lead the EPA to revise the rule. The EPA explained that each source can implement the BSER. 80 FR 64731-64733 (detailing actions that individual affected EGUs could take to apply or implement the building blocks), 64787-64811 (discussing each building block); Legal Memorandum, 137-48. This is consistent with the EPA's statements in the goal computation TSD. In the goal computation TSD, the EPA explained that "[i]n making adjustments to region-level data, the EPA is simply identifying the BSER *reductions* that can be achieved *on average* at the regional level relative to baseline level." Goal Computation TSD, 6 (emphasis added). EPA also noted that by aggregating unit-level data, "EPA is not making any assertions about specific units or plant capability" and "recognize[d] the uniqueness and complexity of individual power plants, and is aware that there are site-specific factors that may prevent some EGUs from achieving *performance equal to region-level assumptions* for a given technology." *Id.* (emphasis added). This recognition corresponds to the EPA's identification of efficiency improvements as part of the BSER (i.e., building block 1) and does not imply that individual sources are incapable of implementing the BSER.

In the GHG mitigation measures TSD, the EPA explained that building block 1 is based on a determination of the overall efficiency improvements that would result if coal-fired units "operat[ed] more consistently" with some of the better heat rates they demonstrated under similar operating conditions. GHG Mitigation Measures TSD, Docket ID No. EPA-HQ-OAR-2013-0602-37115, at 2-45—2-49. The EPA did not assume that every coal-fired unit would achieve the same degree of efficiency improvements as some plants already operate at or near their "benchmark" performance levels. *Id.* In other words, while every coal-fired unit could be expected to implement efficiency improvement measures, the EPA did not assume that every unit would achieve the same degree of improvement based on technologies already implemented. Building block 1 is discussed in further detail below.

Trading is also discussed below.

IV. Building Block 1

A. Introduction

The EPA is denying all petitions for reconsideration as they relate to "building block 1." For the reasons stated below, the petitioners raising objections to building block 1 issues either had adequate opportunity to comment, or the petitions themselves are not of central relevance because they do not provide any information that could lead the EPA to review the final Rule, or both.

Building block 1 consists of measures that reduce CO_2 emissions by improving the heat rate of coal-fired steam generators. Specifically, these measures increase the efficiency with which the EGU converts fuel to electric energy, thereby reducing the amount of fuel needed to produce the same amount of electricity (and consequently lowering the amount of CO_2

produced as a byproduct of fuel combustion).[76]

In the proposed rule, the EPA determined that deployment of untapped Building Block 1 measures achieve an average of 6% heat rate improvement from coal-fired EGUs in the United States. We based this figure on two components: 4% improvement from best practices, and an additional 2 percent improvement from equipment upgrades.

With respect to best practices at proposal, the EPA determined that a 4% improvement was possible based on a two-part, unit-specific statistical methodology that looked at the variability of heat rates that individual units had actually achieved in the recent past. The foundation of the EPA's first statistical approach was an analysis of the variability of each EGU's gross heat rate, which was accomplished in large part by grouping over 11 million hours of real-world operating data (spanning 11 years, from 884 coal-fired EGUs) by similar ambient temperature and capacity factor (*i.e.*, hourly operating level as a percentage of nameplate capacity) conditions. In addition, the EPA conducted a second statistical analysis using the same data, but that was based on the difference between an EGU's average gross heat rate and its best historical gross heat rate performance. The results of running the second statistical analysis gave the EPA confidence in the results of the first, which found 4% heat rate improvement potential.

With respect to equipment upgrades at proposal, the EPA determined that an additional 2 percent improvement from "equipment upgrades" could be achieved, based on studies indicating that such improvement was feasible at low costs. Combined with the 4 percent potential from best practices, this resulted in an overall heat-rate improvement potential of 6 percent.

The EPA received extensive comments on all aspects of its building block 1 approach. These comments led the EPA to improve upon the proposal in several ways, although they did not change the EPA's fundamental approach.

In the final Rule, the EPA conservatively determined that, depending on the interconnection region, implementation of building block 1 measures could improve heat rate at coal-fired EGUs by an average of 2.1–4.3 percent. As in the proposal, the EPA used a multi-part, unit-specific statistical methodology that compared each EGU's performance against its own historical performance in lieu of directly comparing an EGU's performance against other EGUs with similar characteristics. As in the proposal, this method effectively controlled for the characteristics and factors of an EGU that typically remain constant over time (*e.g.*, size, altitude, etc.). The final methodology used three statistical approaches based on refinements of the two approaches utilized at the proposal stage. Although each of these approaches provided an independently reasonable way to estimate the potential for heat rate improvements by EGUs in each region, the EPA conservatively based its final determination for each region on the value for that region supported by all three approaches. Based on comments, and in order to be highly conservative, the EPA did not include an additional 2 percent improvement potential based solely on equipment upgrades, even though further low-cost improvements from equipment upgrades are certainly available.[77]

The BSER for the final rule was based on a combination of the building blocks as applied to coal-fired EGUs in the Eastern Interconnection. Accordingly, as a practical matter, the stringency of building block 1's contribution to the BSER was reduced by nearly one-third between proposal and final, from 6.0 to 4.3 percent.

The EPA received petitions directed at building block 1 from the following parties:

[76] *See* 80 FR at 64787.

[77] *See* 80 FR at 64792.

American Electric Power (AEP); Ameren Corporation (Ameren); Basin Electric Power Cooperative (Basin); Southern Company (Southern); Nebraska; New Jersey; Wyoming; and a joint petition submitted by the Wisconsin Department of Natural Resources and the Public Service Commission of Wisconsin ("Wisconsin DNR and PSC").

These petitioners' arguments with respect to building block 1 are organized by topic below, along with the EPA's responses.

B. General objections regarding the Building Block 1 methodology

Several petitioners object to aspects of the methodology the EPA used to determine building block 1's contribution to the BSER. As described below, petitioners either had notice of these aspects of the building block 1 methodology at proposal, or their objections are not of central relevance to the final Rule, or both.

1. Regional Approach to Building Block 1

Objections

Five petitioners object to various aspects of the EPA's decision to calculate building block 1 on a regional basis.[78]

Some of these Petitioners assert that they had no notice that the EPA would change from a national to a regional approach, and thus had no opportunity to comment.[79]

Others offer substantive criticism of the regionalized approach. Southern Company contends that, by evaluating the stringency of building block 1 on a regional level, the EPA produced "disproportionate impacts across regions, specifically penalizing coal units in the Eastern Interconnection compared to similar units in the Western Interconnection and ERCOT."[80] Accordingly, Southern recommends that the EPA use the least stringent regional result for building block 1 for inclusion in the BSER.[81]

The Wisconsin DNR and PSC begin their criticism from the premise that the BSER must be "widely achievable across the utility sector."[82] According to the Wisconsin agencies, this means that each state must be able to meet the source category emission limits within its

[78] AEP at 4; Ameren at 15; Basin Electric Power Cooperative at 15–16; Southern at 14; Wisconsin DNR and PSC at 2–3. In addition, Wyoming also objected to EPA's decision to calculate building block 1 on a regional basis, albeit because of the impacts that decision has on the uniform rate. *See* Wyoming at 4–5. Wyoming's petition for reconsideration on this issue is denied for the reasons given above in section I regarding the uniform rates, as well as for the reasons given below in section VIII.B regarding headroom. Wyoming's erroneously compares its "initial overall rate" (*i.e.*, without applying any building blocks), to the emission rate for the Eastern Interconnection EGUs adjusted downward 4.3% (*i.e.*, applying building block 1 only). *Id*. The "practical result," Wyoming concludes, "is that the final 6% reduction [Wyoming] was asked to meet in the Proposed Rule nearly doubled in the Final Rule." *Id*. at 5. Wyoming's comparison between estimated heat rate improvement potential of Wyoming sources, and estimated heat rate improvement potential of Eastern Interconnection sources is one of apples-to-oranges. As discussed below in section VIII.B, EPA applied all three building blocks to each regional interconnection independently, and then adopted as the BSER the interconnection with the least stringent resulting emissions rate. It is that overall uniform emissions rate, not the individual building blocks comprising it, that EPA used to set state goals. For states like Wyoming that are outside the Eastern Interconnection, use of the Eastern Interconnection's resulting emissions rate to set the BSER results in substantial compliance headroom.

[79] AEP at 4; Ameren at 15 (final rule used a "different 'regional approach'"); Southern at 14 (calling the approach "unanticipated").

[80] Southern at 14.

[81] Southern at 14.

[82] Wisconsin at 2 (citing *Nat'l Lime Ass'n v. EPA*, 627 F.2d 416 (D.C. Cir. 1980)).

own utility system.[83] Wisconsin thus asserts that the EPA's decision to include within the BSER "the most stringent of its three regionally-derived goals" for Building Block 1 is an example of the EPA ignoring what is "most broadly achievable" within each state.[84]

Basin criticized the Building Block 1 methodology for assessing heat rate improvement on a regional average basis rather than "based on an assessment of what individual affected EGUs" can achieve.[85] Basin notes that, by using an average, there are "necessarily" some EGUs that "will not be able to achieve those levels," including some of Basin's "relatively new" EGUs, some of which were optimized prior to 2012.

Responses

As an initial matter, the petitioners have not demonstrated that they lacked adequate notice in regards to the regionalization of building block 1. For all the reasons given above in section III.B, the proposed rule and NODA gave petitioners notice and an opportunity to comment on whether the EPA should select a less-than-national methodology, which sub-national regions the EPA should utilize, and the EPA's explicit proposal to use interconnections as regions for at least some BSER-setting purposes. Although the NODA focused on a regional methodology for building blocks 2 and 3, it was foreseeable that a logical outgrowth could be to calculate the average potential for regional emissions reductions on an entirely regional basis.

Furthermore, as noted in the final Rule, several commenters criticized the EPA's proposed approach of assessing heat rate on a nationwide basis. Numerous commenters suggested that the EPA narrow the geographic scope of our analysis, generally identifying a state-by-state approach as a preferred alternative. Some commenters expressly suggested that the EPA analyze Building Block 1 on a regional level. For example, the Electric Power Research Institute (EPRI) commented that "[r]egional or state-specific data should be used as a basis for estimating potential heat rate improvements" instead of a nationwide assessment.[86] The Pennsylvania Public Utility Commission criticized the EPA's proposed approach to building block 1 for, among other things, not taking into account "regional considerations" or using regional data "rather than sole reliance on national averages for all states," and urged an approach that considered "the impact of regional load factors" on heat rate improvement.[87] The EPA responded to these comments in the final Rule preamble,[88] in the Response to Comments document,[89] and in the GHG Mitigation Measures Technical Support Document supporting the final Rule.[90]

With respect to the petitions making more specific, substantive criticisms of the EPA's decision to use the same interconnection-based regions for calculating Building Block 1 that it used for determining the other building blocks comprising the BSER, the EPA denies those petitions for the additional and independent reasons that these objections are not of central

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[83] Wisconsin at 2. See below for EPA's response to objections by the States of Missouri, Nebraska, and Wisconsin that the coal-fired EGUs in their states are incapable of improving heat rate by an average of 4.3%.
[84] Wisconsin at 2–3 & n.4.
[85] Basin Electric Power Cooperative at 15.
[86] Comments of EPRI, Docket ID No. EPA-HQ-OAR-2013-0602-21697, at 3.
[87] Comments of the Pennsylvania Public Utility Commission, Docket ID No. EPA-HQ-OAR-2013-0602-24099, at 32, 35.
[88] *See, e.g.*, 80 FR 64788, 64792–93.
[89] *See, e.g.*, RTC Chapter 3A at 450.
[90] *See, e.g.*, Greenhouse Gas Mitigation Measures Technical Support Document, Docket ID No. EPA-HQ-OAR-2013-0602-37115 (hereinafter "GHG Mitigation TSD"), at 2-6.

relevance to the outcome of the Rule. Nor have petitioners demonstrated in several instances that these more specific, substantive objections were impracticable to raise during the public comment period.

With respect to the assertions of Southern Company and the Wisconsin DNR and PSC that the EPA should have based the building block 1 component of the BSER on the region with the lowest heat-rate improvement potential, the EPA already explained in the final Rule it was important to use the same scope of analysis for determining each building block comprising the BSER so that the final BSER was "representative of the characteristics and opportunities" actually available within each region.[91] Had the EPA developed a BSER that mixed and matched building blocks from different regions, the BSER would not have accurately characterized the possible emission reductions in a real interconnection region.

Furthermore, Southern Company is incorrect that non-Eastern EGUs are "penalized" by the final Rule's use of a BSER that includes the Eastern Interconnection's potential for heat rate improvement. The BSER is used to set emission guidelines, expressed in the form of a uniform emission rate. The EPA's assessment of heat rate improvement potential is a means of achieving that end; it is not a heat-rate improvement mandate. Far from being penalized, translating the BSER into a national uniform performance rate gives non-Eastern EGUs a compliance advantage, as the national rate is based on EGUs with more limited capabilities for emission reductions.[92] By choosing the BSER from the region with the least opportunities for emission reductions, the EPA did in fact establish a BSER that is widely achievable across the utility sector, just as the Wisconsin DNR and PSC assert that the EPA must.

The Wisconsin DNR and PSC further assert that building block 1 should have been calculated on a state-by-state basis. The EPA received identical comments on the proposed Rule, and responded directly in the preamble, noting that (1) a regionalized approach to building block 1 aligned with the other building blocks (as explained above), and (2) that a regionalized approach provided a "more representative average" than would likely be obtained had the EPA used a state-by-state approach to determining building block 1 potential. For that reason by itself, the Wisconsin DNR and PSC petition for reconsideration is denied on this point for failure to demonstrate that it was impracticable to raise the issue of state-by-state analyses for building block 1 during the public comment period.

Similarly, the EPA received comments nearly identical to Basin's present assertion that the EPA should have calculated building block 1 on a unit-by-unit level.[93] For that reason alone, the EPA denies Basin's petition for reconsideration on this point for failure to demonstrate that it was impracticable to raise the issue of unit-by-unit analyses for building block 1 during the public comment period.[94]

Furthermore, the EPA explained why such an approach would not be reasonable or appropriate, given that (1) site-specific engineering studies or other unit-by-unit analyses are not

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[91] 80 FR 64793.

[92] 80 FR 64792–93.

[93] These include comments like those from Basin asserting that some of its EGUs were already "optimized" prior to 2012. EPA responded to comments like this by refining its methodology by using each EGU's performance in 2012 as a baseline to measure its past performance against. *See* GHG Mitigation TSD at 2-26. This refinement had the benefit of ensuring that any actions an EGU undertook to improve heat rate would be credited in the analysis, provided the EGU actually maintained those improvements in 2012. *Id*.

[94] For a further discussion of this aspect of Basin's petition, see the discussion below with regards to building block 2.

available to the EPA; (2) only a small number of site-specific case studies are available in the public literature; (3) the EPA development of a comprehensive, unit-by-unit heat rate improvement study of nearly 900 coal-fired EGUs would be unnecessarily costly ($50,000 to $100,000 to study each EGU, almost $50 to $100 million total) and time-consuming (three to four years to complete) given the broader goal-setting purpose of this rulemaking;[95] (4) such an analysis would not be a necessary predicate for states to develop emission standards; (5) such an analysis was not a necessary predicate for EGUs to comply with state-developed emission standards; (6) the EPA's proposed and finalized methodology already relied on individualized, unit-by-unit hourly performance, and did so in a way that provided conservative and reasonable regional estimates of heat rate improvement potential; (7) our conservative methodology was actually more lenient than what would be expected from a more precise unit-by-unit analysis because we did not account for the full range of best practices and equipment upgrades available at individual EGUs; (8) the EPA's proposed and finalized methodology relied on data similar to what would be used in any site-specific heat rate improvement engineering studies, and (9) the requisite EGU-specific detailed design and operation information is not consistently available for all the factors that influence heat rate.[96] Based on all of the above, the EPA reasonably concluded that it would finalize a building block 1 approach that used the same comprehensive dataset that the EPA had used at the proposal, in order to reasonably and conservatively estimate potential heat rate improvement in each region. The record as a whole—including, among other things, the dataset, the various studies that the EPA considered, and the different methodologies that EPA considered—is robust and fully addresses the complexities of the units. Basin offers no new information to undermine any of the above and, accordingly, does not offer an objection of central relevance to the outcome of the final Rule.

Additionally, Basin's assertion that some of its EGUs are incapable of improving their heat rate by 4.3 percent fundamentally misunderstands how the BSER works. The EPA received numerous comments describing the heat rate improvement potential at specific EGUs,[97] evidencing that it was not impracticable to raise such objections during the public comment period. Furthermore, on the merits, these comments are beside the point. There is no requirement that every EGU improve its heat rate by 4.3 percent. As described in the final Rule preamble, no affected coal-fired EGU is required by the Rule to improve heat rate by any

[95] A 3–4 year timeframe is also unreasonable in light of the fact that the EPA was able to begin and complete this extensive rulemaking in 25 months, as discussed in section III.A. *supra*. That is, a reconsideration time period that would take longer than that is unreasonable in light of the fact that EPA fully aired the issues and control options, received extensive input from stakeholders and the public, and developed a robust record on the issues and the BSER (and non-BSER) control options (including the record for this reconsideration denial action), as well as in light of the time-sensitive need to address CO_2 emissions from this, the highest-emitting source category, to minimize depleting the remaining carbon budget, as discussed *supra*.

[96] *See, e.g.*, 80 FR 64793; GHG Mitigation TSD at 2-26. It should also be noted that EPA has promulgated numerous control requirements under the CAA for this industry since 1971, *see* "Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971," 36 FR 24875 (Dec. 23, 1971), but, in light of the large number and variety of generation units, EPA has never attempted to gather source-specific information of that type for other rules. The case law is clear that such an approach is not required for setting section 111 emission guidelines: EPA is not required to "perform repeated tests on every plant operating within its regulatory jurisdiction." *Nat'l Lime Ass'n v. EPA*, 627 F.2d 416, 433–34 (D.C. Cir. 1980). Rather the appropriate test is whether EPA gave "due consideration" to "the possible impact on emissions of recognized variations in operations and some rationale … for the achievability of the promulgated standard given the tests conducted and the relevant variables identified." *Id.* at 434.

[97] *See, e.g.*, RTC Chapter 3A at 459–76.

amount. Rather, the potential for heat rate improvement is used to determine a uniform CO_2 emission performance rate—in the case of affected steam EGUs, that rate is 1,305 lbs/net MWh. If a hypothetical EGU was already at 1,305 lbs/net MWh, the EGU would not have to improve its heat rate by 4.3 percent—it would have to do nothing. Basin's misunderstanding is evidenced by the fact that it refers to the emission guidelines as the "selected performance rates."[98] Emission guidelines are not performance rates. States use emission guidelines to set the performance rates, and as noted above states have flexibility to apportion the industry-wide average among sources according to each source's capabilities. In any event, the EPA responded to these misunderstandings in the final Rule preamble, further evidencing that it was not impracticable to raise the objection during the public comment period, and that the objection would not have been of central relevance to the outcome of the Rule. [99]

As explained above, the final Rule considered and rejected identical or similar substantive comments to those raised by the Petitioners. Accordingly, these objections—which present no novel information—are not of central relevance to the outcome of the Rule. Given that the EPA received essentially identical comments on the proposed Rule, Petitioners have further not demonstrated that it would have been impracticable for them to raise any of their objections to the regionalization of building block 1 during the public comment period. Accordingly, the petitions for reconsideration as to the regionalization of building block 1 are denied.

2. The EPA's Statistical Methodology for Evaluating Building Block 1 Potential

In addition to the regionalization issue discussed immediately above, four petitioners object to various aspects of the EPA's methodology for determining the heat-rate improvement potential of the EGUs in each region.[100] For the reasons stated below, these petitions for reconsideration are denied with respect to the objections they raise concerning the EPA's building block 1 methodology.

New Jersey

New Jersey's petition for reconsideration of this issue merely asserts without elaboration that the state "did not have an opportunity to comment on the new assumptions for heat-rate improvements for coal plants...." [101] Because New Jersey does not identify what "new assumptions" the EPA purportedly did not give notice of, the state has not demonstrated that it was impracticable to raise this objection during the public comment period. Furthermore, because New Jersey makes no specific objection, its unspecified criticism of unidentified "new assumptions" is not of central relevance to the Rule. For those two independent reasons, the EPA denies New Jersey's petition to reconsider on this issue.

AEP

AEP broadly claims that the EPA adopted "changes to [its Building Block 1] methodology," and that the public was not given the opportunity to "evaluate the accuracy of the data inputs, models, or results," as they did on the proposal.[102]

Because AEP does not specify what "data inputs, models, or results" were new as a result of purported changes to the EPA's building block 1 methodology, AEP fails to actually

[98] Basin Electric Power Cooperative at 16.
[99] *See, e.g.*, 80 FR 64790 & n.641.
[100] AEP at 4; Ameren at 14; New Jersey at 8; Wisconsin DNR and PSC at 5 n.12.
[101] New Jersey at 8.
[102] AEP at 4.

raise any objections to the substance of the final Rule. Accordingly, as a threshold matter, these objections are not of central relevance to the Rule, and AEP's petition for reconsideration on this issue is therefore denied.

EPA also disagrees, however, that it adopted changes to its methodology that it would have been impracticable to comment on, as discussed in more detail below with respect to Ameren's petition for reconsideration of the building block 1 methodology. For example, while AEP claims that it had no opportunity to evaluate the "accuracy of data inputs," in fact the data used for the EPA's statistical methodology at proposal were identical to the data used in the final Rule,[103] and the EPA received numerous comments on the data.[104]

Ameren

Ameren makes an overall objection similar to AEP's, but is more specific with regard to identifying aspects of the final methodology that it contends it did not have an opportunity to comment on.[105] Specifically, Ameren appears to contend that, unlike the proposal, (1) the EPA "developed criteria" for the final Rule that used 168 "bins" based on ambient temperature and capacity factor; (2) the EPA's analysis involved application of a "consistency factor" to each EGU's data; and (3) the EPA compared its estimated improved heat rate for each EGU to each EGU's actual heat rate to determine what that EGU "could have achieved" between 2002 and 2012, using the "false premise that theory [sic] 'a coal unit is a coal unit is a coal unit.'" According to Ameren, because the EPA failed to provide affected sources with an opportunity to comment on its "new heat rate calculation," Ameren and other companies "are unable to determine whether this calculation is supportable or not."

First, Ameren's reconsideration petition on the underlying methodology of building block 1 does not offer any substantive objection to the final Rule.[106] Accordingly, it contains no objections of central relevance to the Rule's outcome and is thus denied on that independent basis. Ameren asserts, for example, that post-proposal changes to the methodology meant that "companies are unable to determine whether this [final] calculation is supportable or not,"[107] but offers no new information to undermine that calculation.[108]

Second, Ameren is incorrect that it did not have an opportunity to comment on these aspects of the building block 1 methodology. For the reasons given below, commenters had notice of all the aspects of building block 1's methodology that Ameren identifies—either directly, or as a logical outgrowth of the proposed Rule. Accordingly, Ameren's petition for reconsideration of the underlying methodology of building block 1 is independently denied for failure to demonstrate that it was impracticable to raise these objections during the public comment period.

Data bins. One of the statistical approaches that comprised the EPA's proposed building block 1 methodology grouped hourly EGU heat rate data into a "12 by 14 matrix of 168 bins" based on the ambient temperature and capacity factor corresponding to each hour of data.[109] The

[103] *See, e.g.*, 80 FR 64788 ("As in the proposal, these analyses used the 11-year dataset of EGU hourly gross heat rate data from 2002 to 2012").

[104] *See, e.g.*, Comments of Southern Company at 83, Docket. ID No. EPA-HQ-OAR-2013-0602-22907 (discussing the 2002–2012 study period).

[105] *See* Ameren at 14.

[106] Ameren's objections regarding the regionalization of Building Block 1 are discussed separately, above.

[107] Ameren at 14.

[108] Ameren's objections with regard to achievability in Missouri are discussed separately, below.

[109] Proposed GHG Abatement TSD at 2-3 to 2-31.

final building block 1 methodology used the same "168 capacity-temperature bins (12 X 14)" to analyze the same data.[110] The criteria determining the bins for both the proposal and final Rule's statistical approach were identical. Members of the public had ample opportunity to comment on the bins, and in fact did.[111]

Consistency factor**.** The same proposed statistical approach that binned hourly heat rate data was used to evaluate heat rate variability among EGUs as an indication of whether EGUs had "potential for broadly applicable efficiency improvements" that could reduce GHG emissions.[112] After binning and assessing the variability of data in each temperature-capacity bin, the EPA evaluated what the resulting heat rate would have been for each EGU operating within that temperature-capacity range if it had operated slightly more consistently with some of its better performing hours. As the EPA explained in the final Rule, this analysis is "based on the principle that a coal-fired EGU following best practices should be able to consistently operate closer to the demonstrated and achievable benchmark heat rate."[113] The degree to which the EGU should be able to adjust its worst-performing hours closer to its best performing hours is the "consistency factor." Although the EPA did not call it a "consistency factor" at proposal, it evaluated a range of such factors from 10 to 50 percent, ultimately deciding on 30 percent as a matter of engineering judgment.[114] Several organizations commented on the EPA's proposed consistency factor as both too stringent and not stringent enough,[115] leading the Agency to finalize an approach that fittingly used standard deviation (a statistical measure of variability) as a commonsense tool for making the consistency adjustment.[116] The fact that several commenters criticized the EPA's proposed consistency factor is further evidence that Ameren has not demonstrated that it was impracticable to raise its (unelaborated) objection during the public comment period. Furthermore, the consistency factor that the EPA ended up applying ranged from a 37.1% adjustment to a 38.4% adjustment depending on the interconnection—values squarely in the 10–50% range at proposal and only a slight change from the proposed consistency factor of 30%.[117]

Comparing each EGU to itself. The EPA's use of statistical approaches that compared each EGU's recent historical performance to data from the same EGU was not a new approach adopted in the final Rule. In the proposed Rule's binning approach, to compare for numerous factors that do not change over time, the EPA only directly compared any given hour of EGU data to some of the best data from the same EGU operating under similar temperature/capacity conditions.[118] The EPA received public comments on this decision, for example, suggesting that the EPA make adjustments to reflect upgrades already implemented at coal-fired EGUs. The EPA responded to these comments in the final Rule by refining its methodology to use each

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[110] GHG Mitigation TSD at 2-40.

[111] *See, e.g.*, Comments of Pennsylvania Coal Alliance, Docket ID No. EPA-HQ-OAR-2013-0602-23825 at 28–29; Comments of Arizona Electric Power Cooperative, Docket ID No. EPA-HQ-OAR-2013-0602-22972 at 18.

[112] Proposed GHG Abatement TSD at 2-1.

[113] GHG Mitigation TSD at 2-46.

[114] Proposed GHG Abatement TSD at 2-31 to 2-32 & tbl. 2-12; GHG Mitigation TSD at 2-46.

[115] *See, e.g.*, Comments of FirstEnergy, Docket ID No. EPA-HQ-OAR-2013-0602-24943 at 7–8 (criticizing EPA's proposed 30% consistency factor); Comments of Environmental Defense Fund, Docket ID. No. EPA-HQ-OAR-2013-0602-23140 at 132 (describing EPA's proposed 30% consistency factor as "far more conservative" than the technical literature, resulting in estimate heat rate improvements "substantially lower" than other analyses).

[116] GHG Mitigation TSD at 2-46 to 2-47.

[117] GHG Mitigation TSD at 2-49 & tbl. 2-6.

[118] Proposed GHG Abatement TSD at 2-30 to 2-3.

EGU's performance in 2012 as a baseline to measure its past performance against.[119] This refinement had the benefit of ensuring that any actions an EGU undertook to improve heat rate during the 2002–2012 study period that was maintained in 2012 would be accounted for in the analysis.[120] Simply put, Ameren had ample opportunity to submit comments on the EPA's decision to compare each coal unit against itself and thus has not demonstrated that it was impracticable to raise its undefined objection during the public comment period.[121]

Wisconsin DNR and PSC

In a footnote, the Wisconsin agencies assert that the EPA's methodology does not account for the fact that some coal units will be required to stay online for reliability purposes, but will be operating at lower capacities—thereby making it more difficult to achieve the building block 1 heat rate improvement rate.[122]

The EPA denies the Wisconsin DNR and PSC's petition for reconsideration on this issue. First, Wisconsin DNR and PSC have not demonstrated that it was impracticable to raise this objection during the public comment period. Several commenters in fact did raise objections concerning projected capacity factor decreases on the efficacy of Building Block 1 measures.[123] Accordingly, we deny the Wisconsin DNR and PSC's petition for reconsideration as to this issue for failure to demonstrate that it was impracticable to raise the objection during the public comment period.

Second, as a substantive matter, this objection would not have been of central relevance to the Rule's outcome. For the reasons given in this document with respect to this petition's assertions regarding reliability, we disagree that Wisconsin DNR and PSC's assertions constitute a problem for EPA modeling. The EPA's modeling predicted that annual capacity factors for the coal-fired EGUs operating in 2030 will be higher than for coal-fired EGUs in 2012, including in the Eastern Interconnection where Wisconsin is located.[124] Furthermore, building block 1 does not establish "heat rate improvement goals" that sources or states must "achieve." Building block 1 estimates the heat rate improvement potential of each region in a percentage form, which is then applied against the average emission rate for each region as one step in developing a region-specific effective emission rate that reflects the BSER. Sources must achieve their standards of performance, which are set by the state in state plans and need not be uniform. The final Rule provides substantial flexibility for states in developing standards of performance (including with plans that account for reliability-critical units), and also includes substantial flexibility for sources to meet their respective standards of performance. One major flexibility is the ability to engage in trading, which can be a more cost-effective means than heat-rate improvements for sources like those described in the petition to reduce their emissions.

Furthermore, annual capacity factor has little to do with the efficiency of an EGU (hence why the EPA's building block 1 analysis uses *hourly* capacity factors.) Annual capacity factor is

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[119] GHG Mitigation TSD at 2-26.

[120] GHG Mitigation TSD at 2-26.

[121] To the extent Ameren's statement that the EPA employed the "false premise that 'a coal unit is a coal unit is a coal unit,'" is intended to address a different issue, it is insufficiently clear what Ameren's objection is on this point — and thus the petition is rejected as to this issue for failure to demonstrate that it was impracticable to raise the objection during the public comment period.

[122] Wisconsin DNR and PSC at 5 n.12.

[123] *See, e.g.*, Comment of the Georgia Environmental Protection Division, EPA Docket ID No. EPA-HQ-OAR-2013-0602-23715, at 5 ("Capacity factors associated with coal-fired generation are likely to decline even more as the Clean Power Plan is implemented" as a result of the other building blocks).

[124] GHG Mitigation TSD at 2-57 to 2-58 & tbl. 2-52.

simply the annual electricity generation divided by annual generating capacity. An EGU could have an annual capacity factor of 50 percent if, for example, it either (A) operates at 50 percent capacity for 24 hours per day, 365 days per year, or (B) operates at 100 percent capacity for six months straight, and then is shut down for six months. Despite having identical annual capacity factors, all else being equal an EGU operating under scenario B is likely to have more efficient operations than an EGU operating under scenario A. Wisconsin DNR and PSC's petition for reconsideration provides no context on this point.

Accordingly, because Wisconsin DNR and PSC provide no new information in footnote 12 of their petition for reconsideration, their petition on this point is thus independently denied for lacking central relevance to the outcome of the Rule.

C. Requests concerning building block 1 achievability for specific states

The EPA received four petitions for reconsideration contending to various degrees that the EPA should have evaluated building block 1 on a state-specific basis.[125] For the reasons given below, the EPA denies all four of these petitions with respect to these issues.

1. Achievability on a state-by-state basis in general

Generally speaking, Basin Electric Power Cooperative contends that it would have been preferable for the EPA to establish building block 1 "on a State-by-State basis."[126] The Wisconsin DNR and PSC similarly contend that, "EPA cannot require the state to meet limits that are based on actions which are not achievable in Wisconsin."[127]

Neither Basin Electric Power Cooperative nor the Wisconsin DNR and PSC have demonstrated that it was impracticable to raise this general objection during the public comment period. Nor could they have, given that numerous commenters contended that the building block 1 should be analyzed on a state-wide basis.[128] The EPA considered and responded to these comments in the final Rule, reasonably concluding that a state-specific approach would "not fully reflect the interconnected nature of the system within which affected coal-fired EGUs operate."[129] Neither Basin nor the Wisconsin DNR and PSC offer any new information to undermine the EPA's determination. Accordingly, we deny the petitions of Basin and the Wisconsin DNR and PSC on this issue both for failure to demonstrate that it was impracticable to raise this issue during the public comment period, and because the objection is not of central relevance to the Rule.

2. Achievability specifically as to Missouri

Ameren contends that, in general, Missouri units are "more efficient than other units in the eastern interconnect," making it "harder for Missouri to achieve the 4.3% reduction associated with Building Block 1."[130] According to Ameren, had it been able to comment on the 4.3 percent figure, it "could have made determinations about whether 4.3% reduction rate is

[125] Basin Electric Power Cooperative at 15 (general objection); Ameren at 15 (Missouri); Nebraska at 7–9; Wisconsin DNR and PSC at 6.
[126] Basin Electric Power Cooperative at 15.
[127] Wisconsin DNR and PSC at 6; *id*. at 2 ("each state must be able to meet the source category emission limits within their own utility system").
[128] *See, e.g.*, Comments of Tennessee Department of Environment and Conservation, EPA-HQ-OAR-2013-0602-22766 at 12.
[129] 80 FR 64792–93; *see* GHG Mitigation TSD at 2-6 (responding that the "highly interconnected nature of the electricity system" makes a regional analysis more appropriate).
[130] Ameren at 15.

achievable for the Missouri fleet."[131]

Ameren has not demonstrated that it would have been impracticable to submit comments regarding the achievability of a 4.3 percent reduction rate for the Missouri fleet during the public comment period. To the contrary, a group of Missouri utilities including Ameren submitted a statement to the EPA during a pre-proposal stakeholder forum in Jefferson City, Missouri, arguing that the Missouri-wide potential for heat rate improvements was "one percent or less," not 2–5 percent as the EPA's preliminary analysis suggested.[132] That ability to submit comments on the potential for heat rate improvement in Missouri continued into the public comment period. An association of Missouri utility customers cited Ameren documents in its comment letter, noting that Ameren "believes only a 1% to 2% [heat rate] improvement on average would be realizable, and only at great cost."[133] Furthermore, as discussed above, the building block 1 methodology was properly noticed. Because Ameren has not demonstrated that it was impracticable to raise the achievability of building block 1 as to Missouri during the public comment period, its petition for reconsideration on that issue is denied.

Furthermore, such an objection would not have been of central relevance to the final Rule. The final Rule does not require a 4.3 percent heat rate improvement in Missouri. Building block 1 is merely one component of the overall BSER, which is used to establish emissions guidelines for sources and develop the national uniform rate. To the extent that Missouri units are more efficient than other units in the Eastern Interconnection, they have a head start on achieving the uniform rate. They are not required to "achieve" a further 4.3 percent reduction. This is the same error made in Basin's petition for reconsideration of the regionalization of building block 1, which is explained above in that section. Accordingly, even had Ameren commented that a 4.3 percent heat rate improvement was not achievable in Missouri, the EPA would have dismissed the comment as incorrect and not of central relevance to the final Rule. For that additional reason, Ameren's petition for reconsideration on the achievability of building block 1 in Missouri is independently denied.

3. Achievability specifically as to Nebraska

The state of Nebraska reiterated its public comment that a 6 percent improvement is "not feasible at Nebraska power plants," and asked the EPA to reconsider whether 4.3 percent is "actually achievable" in Nebraska.[134] According to Nebraska, utilities are required by state law to deliver "least-cost, reliable electricity," and have thus already implemented "most if not all achievable heat rate improvements at existing facilities."[135]

Nebraska has not demonstrated that it was impracticable to submit comments regarding the achievability of a 4.3 percent heat rate. Nebraska DEQ itself submitted comments stating, "Heat rate improvements of 4–6% are not achievable at Nebraska coal-fired power plants."[136] These comments from Nebraska also made the identical points regarding Nebraska electric utility laws and the claims that Nebraska EGUs have already implemented "most if not all

[131] Ameren at 15.
[132] Statement of Paul Ling on behalf of Missouri Utilities, "Re: Missouri Utilities General Principles Discussed at EPA's Clean Air Act Section 111(d) Stakeholder Forum," EPA-HQ-OAR-2013-0602-37138 at 5.
[133] Comments of Missouri Industrial Energy Consumers, EPA-HQ-OAR-2013-0602-23641 at 6 (citing Ameren Transition Plan).
[134] Nebraska at 7 (citing comment letters from Nebraska Department of Environmental Quality and the Nebraska Attorney General).
[135] Nebraska at 8–9.
[136] Comments of Nebraska DEQ, EPA-HQ-OAR-2013-0602-22533, at 4.

achievable heat rate improvements at existing facilities."[137] Because Nebraska submitted substantively identical comments during the public comment period, it has not demonstrated that it was impracticable to raise these issues during the public comment period. For that reason, we deny Nebraska's petition for reconsideration as to the achievability of bBuilding block 1 in Nebraska.

Furthermore, such an objection would not have been of central relevance to the outcome of the Rule. First, for the reasons stated immediately above with respect to Ameren's similar Missouri-based claims, Nebraska's present objection is based on a misunderstanding of building block 1's role within the CPP. The final Rule does not require a 4.3 percent heat rate improvement from EGUs in Nebraska. Additionally, the EPA responded to comments like those from Nebraska DEQ regarding state utility regulations that incentivize or in some cases require EGUs to undertake heat rate improvement efforts.[138] Critically, the EPA discussed extensive technical literature showing that—notwithstanding these and similar laws—substantial opportunities still abound for EGUs to implement cost-effective heat rate improvements across the industry.[139] These duplicative objections present no new information to change the EPA's conclusion, and are thus not of central relevance to the outcome of the final Rule.

4. Achievability specifically as to Wisconsin

In addition to the Wisconsin DNRs and PSC's general objection regarding the state-specific focus of building block 1, discussed above, the Wisconsin state agencies also objected to building block 1 with regard to achievability in Wisconsin. Specifically, the Wisconsin DNR and PSC contended that the EPA improperly assumes that "an average of 4.3 percent heat rate improvement can be applied to all coal plants in the Eastern Interconnection," but that the Wisconsin coal fleet cannot achieve that average heat rate improvement. Wisconsin conducted its own assessment, which concluded that its fleet "could achieve only a 2.3 percent heat rate improvement," and that even this figure is over-optimistic because coal units are likely to have lower heat rates under the final Rule due to cycling and dispatch constraints.[140]

For the same reasons given above with respect to the similar petitions of Ameren and Nebraska, Wisconsin has not demonstrated that it was impracticable to raise these objections during the public comment period. Indeed, the Wisconsin DNR submitted substantively similar comments that heat rate improvement potential in Wisconsin "may be limited to less than 2.3% (on average) for the Wisconsin coal-fired fleet."[141] Accordingly, Wisconsin has self-evidently failed to demonstrate that it was impracticable to raise objections regarding the feasibility of a 4.3 percent heat rate improvement during the public comment period. For that reason, we deny the Wisconsin DNR and PSC's petition for reconsideration on this issue.

Furthermore, such an objection would not have been of central relevance to the outcome of the final Rule. First, for the reasons stated immediately above with respect to Ameren's and Nebraska's similar claims, the Wisconsin DNR and PSC's present objection is based on a misunderstanding of building block 1's role within the CPP. The final Rule does not assume that Wisconsin EGUs can improve heat rate by 4.3 percent. It assumes that EGUs in the Eastern Interconnection as a whole can improve heat rate by 4.3 percent on average, and then uses that

[137] Comments of Nebraska DEQ, EPA-HQ-OAR-2013-0602-22533, at 4.
[138] *See, e.g.*, 80 FR 64791–92.
[139] *See* GHG Mitigation TSD at 2-16 to 2-22.
[140] Wisconsin DNR and PSC at 6.
[141] Comments of Wisconsin DNR, EPA-HQ-OAR-2013-0602-23541 at pt. 2, p. 3.

figure to establish a national uniform performance rate. This approach does exactly what Wisconsin's comments requested by effectively "giv[ing] credit" for actions already taken to improve emission performance.[142] With respect to Wisconsin's concerns about the impacts of cycling and dispatch constraints on the achievability of heat rate improvements, the EPA already evaluated that issue in response to similar comments and found it to be without merit.[143] Because the Wisconsin DNR and PSC's petition for reconsideration presents no new information, it would not have been of central relevance to the outcome of the final Rule. We deny this aspect of the petition for that independent reason.

V. Building Block 2

A. Introduction

As part of determining the BSER, the EPA conducted a thorough analysis of the measures referred to as building block 2. These generally involve substituting electric-power generation from lower-emitting gas units for generation from higher-emitting steam plants. 80 FR 64728-29. The EPA received petitions related to Building Block 2 from the following parties: AEP; Basin Electric Power Cooperative; Prairie State Generating Company, LLC; Southern Company; Kansas DHE; the State of Nebraska; New Jersey DEP; the State of North Dakota; Wisconsin DNR and PSC; and the State of Wyoming.[144] EPA is denying these petitions to reconsider related to building block 2. Petitioners had adequate opportunity to comment. In addition, the petitions are not of central relevance because they do not provide any information that could lead EPA to revise the final rule.

At proposal, the EPA determined that replacing generation at higher-emitting EGUs with generation at lower-emitting EGUs was a technically feasible CO_2 emissions reduction strategy. 79 FR 34862. The EPA examined the design capabilities and availability of NGCC units, determining that although most NGCC units have historically been operated in intermediate-duty roles for economic reasons, they are technically capable of operating in base-load roles at much higher annual utilization rates. *Id.* The EPA conducted an extensive review of the historical use and technical capabilities of NGCC units and concluded that there existed "strong evidence that increasing the utilization rates of existing NGCC units to 70 percent, not in every individual instance but on average, as part of a comprehensive approach to reducing CO_2 emissions from existing high carbon-intensity EGUs, would be technically feasible." Id at 34863. The EPA then applied this utilization rate to create proposed state by state goals that incorporated the increment of emission reductions commensurate with an annual utilization rate for the state's NGCC units of up to 70 percent, on average across all the NGCC units in the state. *Id.* at 34866. The EPA took comment on the proposed 70 percent utilization rate, as well as a less stringent 65 percent rate, and a more stringent 75 percent rate. *Id.*

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[142] *See* Comments of Wisconsin DNR, EPA-HQ-OAR-2013-0602-23541 at pt. 2, p. 3.

[143] *See* GHG Mitigation TSD at 2-57 to 2-58 & tbl. 2-52.

[144] Several Petitioners raised the issue of changing the application of building block 2, along with the other building blocks, from a state-by-state assessment to a regional/national assessment based on the three interconnections. This issue is addressed in Section IIaddressing the regional approach. Additionally, several Petitioners raised the order in which the building blocks, including building block 2, were applied to calculate the uniform rates. This issue is addressed in Section VII addressing additional BSER issues including the order of the building blocks. Several Petitioners raised the issue that building block 2 and building block 3 were not modelled together. This issue is also addressed Section VII addressing additional BSER issues. Finally, Wyoming raised general building block 2 issues addressed in this Section. Wyoming's specific claims with regard to "headroom" and ordering are addressed in Section VII addressing additional BSER issues.

In the final rule, the EPA based the contribution of building block 2 to its emission guidelines on a gradual shifting of generation from existing fossil steam to existing NGCC within each of three designated regions up to a maximum NGCC utilization of 75 percent on *a net summer basis*, limited by historical growth rates. 80 FR 64795. The EPA noted that it had received numerous comments stating that the use of net summer capacity was a far more meaningful and reliable metric than nameplate capacity (used at proposal) and observed that "[a]n annual utilization rate of 75 percent on a net summer basis is similar to the Proposed Rule's consideration of 70 percent utilization on a nameplate basis." *Id.* at 64799. Additionally, the EPA noted that generation shifting was not only supported by technical and design capabilities of NGCC units, but, was consistent with trends in the industry, noting that "generation from NGCC EGUs in 2012 reached over four times the level of NGCC generation in 2000, while generation from coal and oil/gas steam EGUs decreased by around one third." *Id.* at 64795.

In determining that the 75 percent utilization rate was achievable, and part of the BSER, the EPA comprehensively considered numerous relevant factors, including: (1) the availability of mechanisms to shift generation between steam and gas units, and the feasibility of increasing gas utilization to the EPA's assumed rates; (2) the amount and timing of generation shift from existing steam to gas units that is reasonable; (3) reliability, infrastructure, natural gas supply, and transmission planning concerns; and (4) costs. *See generally* 80 FR 64795-803; Mitigation TSD, Chapter 3; RTC 3.2; compare with 80 FR 64720-22 (factors the Court has identified as generally relevant to BSER determination). After thoroughly examining these factors, the EPA adopted a conservative rate of gas utilization in comparison to its analysis. The EPA determined that the potential to shift generation via building block 2 is entirely consistent with existing economic dispatch protocols. 80 FR 64796. Further, in response to comments, the EPA established that building block 2 does not reflect achievement of the 75 percent average capacity factor at the start of the interim period, "but instead reflects a glide path of increases in NGCC utilization over the interim period." *Id.* at 64798. The record supports the EPA's analytical approach and conclusions concerning the degree of emission limitation that can be obtained through building block 2 measures.

At the time of the final rule industry trends supported the application of building block 2. The EPA observed that "[s]ince at least 2000, fossil fuel-fired generation has been shifting from coal and oil-fired EGUs to NGCC units, both as a result of construction of additional NGCC units, and also as a result of dispatch of pre-existing NGCC units at higher capacity factors." 80 FR 64795. Since the record for the CPP closed, industry trends have accelerated and continue to support the ability of the NGCC fleet to increase utilization and substitute for electric-power generation from higher-emitting steam plants at the rates relied upon in the Rule.[145] For example, 2015 "marked the first time on record that the average capacity factor of [NGCC] plants exceeded that of coal steam plants" and the NGCC fleet's capacity factor "has risen steadily from an average of 35% in 2005 to more than 56% in 2015… many of these units operated in the 50%-80% range in 2015. In 2005, [NGCC] units commonly operated at capacity factors lower than 30%."[146] In addition, as noted above, various studies identify more than one-third and up to more than one-half of the states as coming into compliance with their 2030 CPP state goals through business-as-usual generation shifts,

[145] A more detailed analysis of recent industry trends is available in the Power Sector Trends Appendix.
[146] EIA Article- Average utilization for natural gas combined-cycle plants exceeded coal plants in 2015 (April 4, 2016), available at: http://www.eia.gov/todayinenergy/detail.php?id=25652#.

including some that at present are coal-heavy.

B. General Building Block 2 Petitions

Several Petitioners simply generally refer to building block 2 as a basis for reconsideration. Kansas DHE, New Jersey DEP and North Dakota all identically stated that the EPA revised the building blocks "without giving the public an opportunity to comment on the changes" including its assumptions regarding "dispatch rates for natural gas plants." Kansas DHE at 4-5; New Jersey DEP at 8; North Dakota at 3. Southern Company stated that the performance rates established via building block 2 "cannot be continuously achieved by existing NGCC units" and that the "EPA's national average performance standard was derived from an application of the building blocks that Southern Company did not have any opportunity to review and provide comment on." Southern Company at 7. These Petitioners did not provide any additional information that they claim they would have provided had they been afforded an additional opportunity to comment (an opportunity they claim to have been deprived of).

These general claims misstate the facts in regards to notice, in particular, the petitions note "new" and "material changes" in NGCC utilization/dispatch rates from the proposal to the final rule. *See* Kansas DHE at 4-5; New Jersey DEP at 8; North Dakota at 3; and Southern Company at 7. In addition, these generally stated petitions do not provide any additional data based upon which the agency could determine that the objection is of central relevance to the rule. Regarding notice, the Petitioners here had ample notice to comment on building block 2 and it was not impracticable to raise their expressed concerns with "dispatch rates"[147] during the comment period. The proposal and the final rule contain nearly identical utilization rates for NGCC units. At proposal, the EPA assumed a utilization rate of 70 percent based on *nameplate capacity* and requested comment on this assumption, as well as requesting comment on two alternative utilization rates (one less and one more stringent). 79 FR 34866. In the final rule, based on numerous comments, the EPA assumed a utilization rate of 75 percent based on *net summer capacity*. 80 FR 64795. The EPA noted that "[a]n annual utilization rate of 75 percent on a net summer basis is similar to the proposed rule's consideration of 70 percent utilization on a nameplate basis." *Id.* at 64799. Therefore, the change in utilization rate between proposal and final rule is more a change in the terminology or metric used than a change in the technical assumptions regarding achievable levels of utilization themselves. For example, if a hypothetical rule relied on the boiling point of water and identified it as 212° Fahrenheit at proposal, and, due to comments that Celsius was the preferable metric in the scientific community, utilized 100° Celsius in a final rule; one could not argue that there was inadequate notice that the boiling point of water would be used or argue that its assumed value had changed significantly from proposal to final rule. This change in terminology did not significantly change the actual assumptions incorporated in the final rule with regard to NGCC utilization rates, therefore, the Petitioners were provided adequate notice of the assumed building block 2 utilization rates deemed achievable in the final rule.

In addition, these Petitioners have not provided any additional information they claim would have been provided if they had been able to comment on the Final Rule's building block 2 utilization rates. The EPA conducted a thorough analysis to determine the achievability of this building block and these Petitioners have not provided, or attempted to provide, information to

[147] For purposes of this response EPA assumes that the references by New Jersey DEP, Kansas DHE, and North Dakota to assumed dispatch rates on which building block 2 achievable reductions are calculated is a reference to the NGCC utilization rates or capacity factors assumed in building block 2 and will treat this terminology interchangeably.

counter that analysis in any way. In addition, the assumed level of NGCC utilization has become increasingly modest because the recent business-as-usual shift to cleaner energy, as described above and in the Power Sector Trends Appendix, has reduced the impact of the CPP on the generation mix of the industry than EPA anticipated at the time of promulgation. Therefore, in addition to being denied because these Petitioners were provided adequate notice as described above, the general petitions for reconsideration with regard to building block 2 are denied as they do not establish an objection that is of central relevance to the rule.

For these reasons, the EPA concludes that these generally stated petitions for reconsideration regarding building block 2 fail to demonstrate that reconsideration is warranted or appropriate under Section 307(d)(7)(B).

C. Specific Building Block 2 Petitions (Technical Feasibility)

In addition to the above generally stated requests for reconsideration regarding building block 2, several petitioners filed more specific requests for reconsideration with regard to building block 2. For the reasons described below, the EPA is denying these petitions to reconsider. Petitioners had adequate opportunity to comment. In addition, the petitions are not of central relevance because they do not provide any information that could lead the EPA to revise the final Rule.

1. The State of Nebraska

The state of Nebraska characterized the 75 percent utilization rate in the final rule as "a 5 percent increase from the proposed utilization rate of 70 percent." Nebraska at 9. The Nebraska petition further stated that, as it noted in comments on the proposal, it was infeasible to increase its NGCC utilization to 75 percent. *Id.* As a preliminary matter, Nebraska's assertion that the final rule represents a 5 percent increase in the utilization rate from the proposal is factually inaccurate. The 5 percent change (70 percent to 75 percent), as described above, is due to a change in metric (nameplate capacity to net summer capacity), not an actual change in the assumed technical utilization capability of NGCC units. In regards to notice, Nebraska clearly had notice to comment on the proposed and final utilization rates. Nebraska's sole substantive rationale to support reconsideration in regards to building block 2 quotes its comments submitted on the proposal. *Id.* Having provided the comments to the EPA based on the proposed rule, Nebraska cannot claim that it had inadequate opportunity to provide those same comments on the final rule. As Nebraska has not established that it was afforded inadequate notice or that it could not raise comments during the public comment period (in fact relying on its submitted comments), its request for reconsideration in regards to the building block 2 utilization rate must be denied.

Further, were the EPA to consider the merits of Nebraska's request it must also be denied on the basis that the EPA acted reasonably in this regard and Nebraska has failed to establish that its objection is of central relevance. Nebraska's submitted comments state only that "Nebraska does not have adequate natural gas supplies or pipeline infrastructure" to meet the assumed utilization rate. *Id.*; *see also* Nebraska Department of Environmental Quality Comments on Clean-Power Plan at 4 (EPA-HQ-OAR-2013-0602-23583). Nebraska does not provide any specific analysis that building block 2 is infeasible and does not address the analysis the EPA conducted regarding building block 2 achievability, gas supply, and pipeline infrastructure. *See* Mitigation TSD, Chapter 3 at 3-15 to 3-19. The substance of Nebraska's request for reconsideration does not provide any additional information that would have changed the outcome of the final rule. In addition, the assumed level of NGCC utilization is increasingly modest for states because of the recent business-as-usual shift to cleaner energy, as

described above and in the Power Sector Trends Appendix, evidences that the CPP will be less impactful on the generation mix of the industry than EPA anticipated at the time of promulgation. Therefore, in addition to being denied as Nebraska was provided adequate notice as described above, Nebraska's petition for reconsideration with regard to building block 2 is denied as it does not establish an objection that is of central relevance to the final Rule.

2. AEP

AEP noted the change in assumed NGCC utilization rate for building block 2 from 70 percent nameplate capacity to 75 percent "net demonstrated capacity", stating that "the public was not afforded the opportunity to comment on the derivation of the 75% capacity factor or able to evaluate the inputs and methodology that EPA applied." AEP at 4. Additionally, AEP, without citation, noted that "entities that design, manufacture, construct, operate, and regulate NGCC generating units submitted comments…that extensively critique[s] EPA's original building block 2 analysis." *Id.* at 5. AEP stated that these "entities" highlighted constraints that would prevent the NGCC fleet from achieving the proposed 70 percent capacity factor. *Id.* AEP concluded that "the public should be afforded the same opportunity to evaluate the methodology the EPA employed in the final rule." *Id.* As noted above in the response to the general building block 2 petitions, the change from 70 percent nameplate capacity to 75 percent net summer capacity was one of metrics and terminology, rather than significantly increasing or decreasing the assumed utilization rate of NGCC units or the methodology and analysis which supported that determination. Additionally, the change to net summer capacity factor was made at the behest of numerous commenters. This change, and the others noted by AEP regarding building block 2, were logical outgrowths of the proposed rule and were suggested by commenters, and, thus, parties were provided adequate notice via the proposal. AEP itself cites comments on the proposal to support its assertions regarding building block 2 as constructed in the final rule. AEP's reliance on comments to the EPA based on the proposed rule as support for its assertions in regard to the final rule's building block 2 assumptions is further evidence that AEP cannot claim that it had inadequate opportunity to provide those same comments in regards to the final rule. As AEP has not established that it was afforded inadequate notice or that it could not raise comments during the public comment period (in fact relying on submitted comments), its request for reconsideration of the building block 2 utilization rate must be denied.

Further, were the EPA to consider the merits of AEP's request it must also be denied on the basis that the EPA acted reasonably in this regard and AEP has failed to establish that its objection is of central relevance. AEP does not provide, or make any attempt to provide any additional information to dispute the EPA's conclusions in the final rule regarding the availability, design capability, infrastructure and supply of natural gas on which the EPA determined that building block 2 constituted part of the Best System. *See generally* 80 FR 64795-803; Mitigation TSD, Chapter 3; RTC 3.2 (EPA-HQ-OAR-2013-0602-37106). AEP, in its petition states that the public should be afforded additional opportunity to evaluate the methodology employed in the final rule, conceding that it is not providing any actual new information to support its claim that the final rule should be revised. In addition, the assumed level of NGCC utilization is increasingly modest for states because of the recent business-as-usual shift to cleaner energy, as described above and in the Power Sector Trends Appendix, evidences that the CPP will be less impactful on the generation mix of the industry than EPA anticipated at the time of promulgation. Therefore, in addition to being denied as AEP was provided adequate notice as described above, AEP's petition for reconsideration with regard to building block 2 is denied as it does not establish an objection that is of central relevance to the

rule.

3. Basin Electric Power Cooperative

Basin Electric Power Cooperative argued in its petition for reconsideration that the building block 2 NGCC stringency level (75 percent net summer capacity factor) is not technically feasible. Basin Electric Power Cooperative at 20-21. Basin Electric Power Cooperative's critique focuses on the Integrated Planning Model (IPM) utilized by the EPA to demonstrate implementation of the building block's assumed utilization rate. Basin Electric Power Cooperative states that the IPM model utilizes simplifying assumptions which do not match real-world dispatch curves or constraints on coal-unit operations, citing an Energy Ventures Analysis, Inc. (EVA), study attached to its petition as the basis for its conclusion. *See* EVA Evaluation of EPA Final Clean Power Plan Building Block Methodology. Basin Electric Power Cooperative, and the EVA study, state that the results of the IPM modeling show that increased utilization of existing NGCC units cannot be achieved without a reduction in utilization of newly constructed more efficient NGCC units. *Id.* at 21. Additionally, Basin Electric Power Cooperative alleges that the EPA improperly relies on what can be achieved at an NGCC unit on average, rather than at an individual unit. Basin Electric Power Cooperative at 16-17.

Basin Electric Power Cooperative makes no claim that it would have been impracticable to raise its concerns regarding IPM modelling during the public comment period. The proposed rule, similar to the final rule, employed IPM modelling as one of many supporting factors for its determination regarding achievable NGCC utilization rates. At proposal, the EPA stated its building block 2 assessments were supported by "analysis that has been conducted using [IPM]. IPM is a multi-regional, dynamic, deterministic linear programming model of the U.S. electric power sector that the EPA has used for over two decades to evaluate the economic and emission impacts of prospective environmental policies." 79 FR 34864. In fact, Basin Electric Power Cooperative alleged similar issues in regard to IPM in its comments on the proposed rule regarding RE, stating: "[a]s such, use of the IPM modeling does not provide any basis for establishing that the goals calculated under the alternative approach can actually be achieved in the real world." Basin Electric Power Cooperative Comments at 62 (EPA-HQ-OAR-2013-0602-23574). Basin Electric Power Cooperative's claims, and those expressed in the EVA study, regarding the inability of IPM to account for "real world" factors and failure to match "real-world dispatch curves" would have been present in both the proposal and final IPM modelling assumptions. The EVA study provided by Basin Electric Power Cooperative cites the IPM Power Sector Modelling Platform v.5.13. This version (v.5.13) is the platform used for the proposed rule (the final rule employed v.5.15) and numerous commenters submitted comments regarding the use of IPM in both support and critique of its use. RTC Chapter 3 GHG Mitigation Measures Section 3.2. As Basin Electric Power Cooperative has not established that its comments could not have been raised during the public comment period or that it was provided inadequate notice in regards to the use of IPM modelling, its request for reconsideration of the building block 2 stringency level on that basis must be denied.

Further, were the EPA to consider the merits of Electric Power Cooperative's request it must also be denied on the basis that the EPA acted reasonably in this regard and Basin Electric Power Cooperative has failed to establish that its objection is of central relevance. First, Electric Power Cooperative's claims regarding the use of IPM modelling to support the use of the 75 percent capacity factor assumed in building block 2 ignore the numerous other factors analyzed by the EPA to support its building block 2 determination. As stated above, the EPA

conducted a robust analysis, closely examining units' design capabilities and historic utilization, including their "availability and capacity factors." Mitigation TSD 3-5, 80 FR 64799. The EPA found that national-average capacity factors for gas units historically range from 40-50 percent, *Id.* at 3-5 & nn.11-12, but their availability "generally exceeds 85 percent, and can exceed 90 percent for some groups." 80 FR 64799. The EPA found that existing gas units "are designed for, and are demonstrably capable of, reliable and efficient operation at much higher annual capacity factors, as shown in observed historical data for particular units and their design and engineering specifications." Mitigation TSD 3-5, 80 FR 64799. Based on a complete analysis, which included, but did not solely rely upon IPM modelling, the EPA concluded that a 75 percent net summer capacity factor is "*below* the maximum levels at which some units have demonstrated the capability to operate" and, therefore, conservatively "offer[s] sources additional compliance flexibility, given that the extent to which they realize a utilization level beyond 75 percent will reduce their need to rely on other emission reduction measures or building blocks." 80 FR 64799, 64803 In addition, the EVA study and Electric Power Cooperative's assertions regarding IPM misstate several key issues to argue that the EPA's determination of achievable NGCC capacity factors are misguided. The EVA study argues that coal plants cannot be operated as peaking units. However, the EPA's historical analyses show that several coal plants operate at very low capacity factors. The EVA study additionally states that NGCC units in regulated markets were built to serve baseload, in an attempt to argue that the EPA's analysis of historical data is flawed. EVA at 10. EVA does not provide a technical difference between NGCC capacity in regulated versus deregulated markets, nor is the EPA aware of any, that would preclude NGCC units in one type of market from operating at higher capacity factors than those in another type of market. Further, the EVA study's argument regarding NGCC plants in deregulated markets not being located near high load centers and being susceptible to gas price volatility may serve as a partial explanation as to why certain units have achieved lower or higher historical utilization rates, but is wholly unrelated to the technical capability of those units to be operated at a higher capacity factor.

Basin Electric Power Cooperative's next argument, that IPM demonstrates that the 75 percent utilization rate cannot be achieved at existing sources without reducing the utilization of new NGCC units also misstates the model. Basin Electric Power Cooperative argues that the EPA's model requires "reduced generation from new units in order to accommodate the 75 percent capacity factor assumption for existing units." Basin Electric Power Cooperative at 21. This is incorrect. The model holds total generation from existing fossil-fuel fired plants (gas plus steam) constant in each interconnection with the level of such generation projected in the base case. *See* Mitigation TSD 3-20. By definition, then, any modeled increase in existing gas-fired generation must displace *existing* steam generation. The decrease in *new* gas-fired generation within the modeled scenario is a response to changes in other variables (e.g., increased demand for natural gas) that also lead to offsetting increases in generation from renewable, nuclear and other sources. Therefore, the IPM modelling shows that *existing* gas-fired generation can replace *existing* steam generation up to an existing NGCC utilization rate of 75 percent net summer capacity.

Basin Electric Power Cooperative also claims that the EPA improperly used regional averages instead of what individual units can achieve when assessing the reductions attributed to building blocks 1 and 2, stating that "[t]his necessarily means that some units and companies may not be able to reasonably achieve the BSER or the applicable sub-category performance

rates or State goals, while others can readily over-comply."[148] Basin Electric Power Cooperative at 16-17. This approach is the same approach used at proposal and Basin Electric Power Cooperative raised this argument in some form in their comments on the proposal, thus, there can be no claim that Basin Electric Power Cooperative had inadequate notice in regards to this specific element of the building block 2 methodology. In addition, the EPA did not calculate "performance rates", but, rather, emission guidelines. States use the emission guidelines to set the performance rates, and states have flexibility to apportion that industry-wide average among sources according to each source's capabilities. As such, Basin Electric Power Cooperative's comments were not persuasive when they were initially made on the proposal in this regard, and, at present, they have not provided the EPA with any additional information that would change the outcome of the rule. In addition, the assumed level of NGCC utilization is increasingly modest for states because of the recent business-as-usual shift to cleaner energy, as described above and in the Power Sector Trends Appendix, evidences that the CPP will be less impactful on the generation mix of the industry than EPA anticipated at the time of promulgation. Therefore, in addition to being denied as Basin Electric Power Cooperative was provided adequate notice as described above, Basin Electric Power Cooperative's petition for reconsideration with regard to building block 2 is denied as it does not establish an objection that is of central relevance to the rule.

4. Wisconsin DNR and PSC

Wisconsin DNR and PSC raised several issues regarding building block 2 in their petition for reconsideration. Wisconsin DNR and PSC acknowledged in their cover letter submitting the petition that "[s]everal issues raised in this reconsideration request were also raised in Wisconsin DNR and PSC's comments on the proposed rule", further stating that some issues raised in the petition were new. Wisconsin DNR and PSC alleged that the EPA did not adequately assess natural gas supply and infrastructure. *Id.* at 4. Wisconsin DNR and PSC suggested that its NGCC capacity factor should be set at 37 percent based on a 3-year average of the highest capacity factors achieved over a 10-year period by NGCC units in the state. *Id.* at 8. Additionally, Wisconsin DNR and PSC suggested that the "EPA should use the long-term historic average rate increase of 5 percent per year, rather than the 22 percent used in the final rule" and that the EPA "should not be assuming an increase in natural gas supply capacity at all, as that is beyond existing condition that should be evaluated in determining BSER" *Id.* at 8-9. Wisconsin DNR and PSC further suggested that the EPA failed to consider additional duct-firing for NGCC units operating at higher capacities.

Wisconsin DNR and PSC's petition fails to establish that it was provided inadequate notice in regards to building block 2. The proposal included a capacity factor assumption of 70% nameplate capacity for NGCC units, equivalent to the 75 percent net summer utilized in the Final Rule. Wisconsin DNR and PSC provided numerous comments on the proposed rule including the following: (1) the suggestion that its NGCC capacity factor should be set at 37 percent based on a 3-year average of the highest capacity factors achieved over a 10-year period by NGCC units in the state; (2) assertions that the EPA did not adequately assess natural gas supply and infrastructure; (3) the EPA failed to consider additional duct-firing for NGCC units operating at higher capacities; and (4) the EPA must phase in building block 2 over time. Wisconsin DNR and PSC Comments on Proposed Rule at pt. 2 pp. 13-20, EPA-HQ-OAR-2013-

[148] See the Section IV for EPA's response to the building block 1 related details of this claim. See Section XIV addressing trading for EPA's response to the trading details of this claim.

0602-23541. In addition, Wisconsin DNR and PSC provided numerous comments and corrections to the EPA's IPM models. *Id*. at pt. 3 pp. 11-14. Thus, Wisconsin DNR and PSC raised the vast majority of its rationales for reconsideration in regard to building block 2 in its comments on the proposal. Additionally, Wisconsin DNR and PSC had adequate notice for claims that it did not raise in its comments on the proposal, in particular the NGCC phase-in. Wisconsin DNR and PSC actually suggested the addition of the "phase-in," or "glidepath," in its comments on the proposal. *Id*. at Pt. 2 Page 19. As Wisconsin DNR and PSC either raised or could have raised all of its rationales for reconsideration regarding building block 2 in its comments on the proposal, Wisconsin DNR and PSC were afforded adequate notice on which to comment on building block 2, and, thus, their petition for reconsideration concerning building 2 must be denied.

Further, were the EPA to consider the merits of Wisconsin DNR and PSC's request, it must also be denied on the basis that the EPA acted reasonably in this regard and Wisconsin DNR and PSC have failed to establish that their objection is of central relevance. First, Wisconsin DNR and PSC's critique of the glidepath to compliance (which it recommended in its comments) is factually misstated. Wisconsin DNR and PSC suggested that the "EPA should use the long-term historic average rate increase of 5 percent per year, rather than the 22 percent used in the final rule." Wisconsin DNR and PSC Petition at 8. However, Wisconsin DNR and PSC failed to acknowledge that the 22 percent increase (representing the single largest one-year increase in NGCC capacity in the EPA's dataset) was to be achieved over a period of 10 years between 2012 and 2022. *See* 80 FR 64798. This percentage increase actually results in a less accelerated increase than Wisconsin DNR and PSC's suggested 5 percent per year over that same time period. Second, the EPA comprehensively assessed natural gas supply and infrastructure via its IPM modelling and further analysis, concluding that there will be adequate supply, deliverability and infrastructure to support the increased utilization of NGCC units. TSD GHG Mitigation Measures at 3-15 to 3-19. Wisconsin DNR and PSC do not provide any source that this information is flawed or any additional information that would change this determination. Wisconsin DNR and PSC's suggested NGCC capacity factor of 37 percent, based on a 3-year average of the highest capacity factors achieved over a 10-year period by NGCC units in the state, ignores the establishment of the BSER. Were the EPA to adopted Wisconsin DNR and PSC's suggestion it would have established a utilization rate below the 2012 national average for NGCC units. As has been established by the courts, to be adequately demonstrated the BSER is not limited to measures "in actual routine use somewhere"; rather, the EPA may make a reasonable "projection based on existing technology" and may "hold the industry to a standard of improved design and operation advances, so long as there is substantial evidence that such improvements are feasible." 80 FR 64720; *see* Portland Cement Ass'n v. Ruckelshaus, 486 F.2d 375, 391 (D.C. Cir. 1973); Sierra Club v. Costle, 657 F.2d at 364. Wisconsin DNR and PSC's suggestion essentially rules out any possibility of projections, suggesting that the BSER be determined only by what has been historically achieved when viewing Wisconsin in isolation. Wisconsin DNR and PSC provide no support to the suggestion in this regard that State borders have some bearing on the design capabilities of an NGCC unit. Finally, Wisconsin DNR and PSC's assertion that the EPA failed to account for duct burners is equally misguided. The EPA's record shows that gas units equipped with duct burners can sustainably operate at higher capacity factors. Reported data show that "roughly 15 percent of existing [gas] plants operated at annual utilization rates of 75 percent or higher on a net summer basis" in 2012. 80 FR 64799. Over 60 percent of those high-capacity-factor units are equipped

with duct burners. *See* 2012 NGCC Plant Capacity Factor, EPA-HQ-OAR-2013-0602-0250. Consequently, Wisconsin DNR and PSC's claim that the EPA failed to consider that operating such units at high capacity factors is impractical as it consumes additional fuel and decreases efficiency is demonstrably wrong.

Additionally, the assumed level of NGCC utilization is increasingly modest for states because of the recent business-as-usual shift to cleaner energy, as described above and in the Power Sector Trends Appendix, evidences that the CPP will be less impactful on the generation mix of the industry than EPA anticipated at the time of promulgation. For the above stated reasons, the EPA has determined that Wisconsin DNR and PSC's claims in their petition for reconsideration in regards to building block 2 do not establish an objection of central relevance to the rule, and, thus, the petition should be denied with regard to these claims.

5. Prairie State

Prairie State noted that NGCC units may have high availability when capacity factors have been low, but argued that high availability does not necessarily correspond to high capacity factors "as significantly more forced and planned outages may occur in NGCC units once use of the units increase." Prairie State at 12. Prairie State cited concerns that the EPA's assumptions may cause reliability issues due to pipeline capacity constraints that "occur due to a domino effect of higher use of NGCC plants that was not factored into models." *Id.* As discussed above in the general claims section for building block 2, at proposal, building block 2 was comprised of equivalent assumed NGCC capacity factors to those settled on in the final rule. In addition, any reliability concerns associated with increased NGCC should have been evident to a commenter based on building block 2 at proposal as there is was no ambiguity that the building block's central tenet was that of increased NGCC utilization. Prairie State had adequate notice in regards to both of its stated concerns with building block 2, and, therefore, its petition for reconsideration on those points is denied.

Further, were the EPA to consider the merits of Prairie State's request, it must also be denied on the basis that the EPA acted reasonably in this regard and Prairie State has failed to establish that its objection is of central relevance. Prairie State simply states that there "may be cause for reliability concerns" due to various variables but provides no information to explain or justify this claim. The EPA considered reliability in its analyses at proposal and the final rule and reliability is considered within the constraints of the accompanying IPM modelling. The EPA determined that pipeline capacity, transmission etc. did not render building block 2 unachievable. 80 FR 64795-803; Mitigation TSD, Chapter 3; RTC Chapter 3, GHG Mitigation Measures Section 3.2, EPA-HQ-OAR-2013-0602-37106. Again, Prairie State provides no additional evidence or information for its claim that higher capacity factors would lead to increased outages at NGCC units and would render building block 2 unachievable. The EPA found that national-average capacity factors for gas units historically range from 40-50 percent, *Id.* at 3-5 & nn.11-12, but their availability "generally exceeds 85 percent, and can exceed 90 percent for some groups." 80 FR 64799. The EPA found that existing gas units "are designed for, and are demonstrably capable of, reliable and efficient operation at much higher annual capacity factors, as shown in observed historical data for particular units and their design and engineering specifications." Mitigation TSD 3-5, 80 FR 64799. Based on a complete analysis, which included, but did not solely rely upon IPM modelling, the EPA concluded that 75 percent is "*below* the maximum levels at which some units have demonstrated the capability to operate" and, therefore, conservatively "offer[s] sources additional compliance flexibility, given that the extent to which they realize a utilization level beyond 75 percent will reduce their need to rely

on other emission reduction measures or building blocks." 80 FR 64799, 64803. Prairie State has provided no information that disputes or would change these determinations. In addition, the assumed level of NGCC utilization is increasingly modest for states because of the recent business-as-usual shift to cleaner energy, as described above and in the Power Sector Trends Appendix, evidences that the CPP will be less impactful on the generation mix of the industry than EPA anticipated at the time of promulgation. For the above reasons, the EPA has determined that Prairie State's claims in its petition for reconsideration in regards to building block 2 do not establish an objection of central relevance to the rule, and, thus, the petition should be denied with regard to these claims.

For the above stated reasons, the EPA concludes that these specific petitions for reconsideration regarding building block 2 fail to demonstrate that reconsideration is warranted or appropriate under Section 307(d)(7)(B).

VI. Building Block 3

A. Introduction

The EPA is denying the petitions for reconsideration on the adjustments to the structure of building block 3 that the EPA selected in the final Rule (referred to generally as the building block 3 methodology). Petitioners had adequate opportunity to comment. In addition, the petitions are not of central relevance because they do not provide any information that could lead EPA to revise the final Rule.

The EPA received petitions for reconsideration related to these issues from the following parties: Ameren Corporation; UARG; Southern Company; Basin Electric Power Cooperative; Prairie State; Mississippi PSC; Kentucky, West Virginia and 15 States, Kansas DHE, New Jersey DEP, North Dakota, Wyoming, and Wisconsin DNR and PSC.

In the proposed rule, the EPA proposed a building block 3 methodology and also included an alternative methodology for comment. Building block 3 encompassed substituting generation from low- and zero-carbon generation capacity, including RE and nuclear capacity, for reduced generation from existing fossil fuel-fired EGUs.[149] 79 FR 34883.

The EPA proposed a building block 3 methodology based upon a best practices scenario that utilizes renewable portfolio standard (RPS) requirements that were already in effect in many states. 79 FR 34866. The EPA grouped the states into six regions[150] to determine the best practices scenario. 79 FR 34866-34867. The EPA stated that the regions are informed by NERC regions and RTO boundaries with adjustments made to align the selected regions with state borders. 79 FR 34867. Under the best practices scenario, the EPA proposed to increase annual levels of renewable generation based upon estimates of an "annual RE growth factor to the state's historic RE generation, subject to RE growth factors and a maximum RE generation target." 79 FR 34867. The EPA separately developed the annual renewables growth factor and the maximum renewables growth factor for the six regions. 79 FR 34867. First, the EPA looked at the amount of renewables generation in 2012, adding up the renewables generation for all states in the six regions. This allowed the EPA to see the starting point for renewable generation prior to applying the best practices scenario. 79 FR 34867. The EPA then averaged the existing RPS 2020 percentage requirements and then multiplied that number by the total amount of

[149] In the proposal, the EPA included both nuclear generating capacity currently under construction and avoidance of nuclear retirements. 79 FR 34883. In the final rule, the EPA did not include nuclear generating capacity in our calculation of Building Block 3. 80 FR 64729.

[150] The six regions are East Central, North Central, Northeast, South Central, and West. 79 FR 34867.

renewables generation in each region in 2012. 79 FR 34867. We also calculated a maximum renewables target by multiplying each individual state's 2012 renewables generation by the average growth factor. 79 FR 34867. The EPA calculated each region's growth factor needed to increase regional renewables generation from the regional 2012 level to the regional target level by adding new renewables capacity. 79 FR 34867. The EPA assumed the addition of renewables capacity would begin in 2017 and continue through 2029. 79 FR 34867. The final step was applying the regional growth factor to each state's 2012 starting level starting in 2017 and stopping when it would exceed the state's maximum renewables generation target. 79 FR 34867.

The EPA also identified an alternative approach to calculating building block 3. 79 FR 34869. This alternative approach included both a technical and economic assessment of renewables potential in each state. 79 FR 34869. The EPA developed this alternative approach in two ways. First, we compared each state's current renewables generation by technology type with the technical potential for each state as derived by the National Renewable Energy Laboratory (NREL). 79 FR 34869. "This comparison yields, for each state and for each RE technology, a proportion of renewable generation technical potential that has been achieved and can be represented as an RE development rate." 79 FR 34869. The EPA then looked at the range of development rates across the states to set a benchmark renewables development rate for each technology. 79 FR 34870. In order to also take costs into account, the EPA then performed IPM modeling based upon a reduced cost to develop renewables.[151] 79 FR 34870. "Under this alternative RE approach, the EPA would quantify RE generation for each technology in each state as the lesser of (1) that technology's benchmark rate multiplied by the technology's in-state technical potential, or (2) the IPM-modeled market potential for that specific technology." 79 FR 34870. The EPA then proposed to determine the amount of generation from each renewables technology from each state and add these together for each state in order to determine the overall level of renewables for each state under the alternative approach. The EPA also requested comment on other potential "techno-economic approaches." 79 FR 34870.

In the NODA, the EPA discussed stakeholder concerns about the failure to align the goal-setting methodology of estimating each state's targets based upon in-state renewables with allowing states to use out-state renewables for compliance. 79 FR 64547. We noted that stakeholders were interested in incorporating interstate exchanges of renewables into the goal-setting methodology. 79 FR 64547. The EPA requested comment on how "state targets could be developed by defining regional RE targets, then assigning shares of those regional targets to individual states within the region." 79 FR 64547. The NODA offered a third approach where the state's renewables target would be based upon renewables potential across a multi-state region. 79 FR 64551. The NODA stated, "This regionalized approach could group states into regions; aggregate RE generation potential across states within each region; and then reapportion the aggregate identified RE generation to individual states according to criteria that assume regional RE development in which parties in multiple states participate, regardless of the specific state where the generation occurs." 79 FR 64551. The EPA requested comment on the regional structure that we should choose for a regional target setting methodology. 79 FR 64551. The EPA also requested comment on (1) the regional structure;[152] (2) the criteria that we should use for reapportioning state renewables targets within given regions; and (3) what

[151] The EPA used a $30 per MWh level to model renewables deployment levels. The proposed methodology had a cost range of $10-$40 per metric ton of avoided CO_2 emissions based on EIA data. 79 FR 34870.

[152] We discuss the issue of regionalization and the regions we chose in a separate section.

aspects of state renewables targets we should regionalize. 79 FR 64551. The EPA also generally requested comment on other potential techno-economic approaches. 79 FR 64552.

In the final Rule, the EPA set forth a regional process for calculating building block 3. "First, the EPA collected data for each RE technology (onshore wind, utility-scale solar PV, CSP, geothermal and hydropower) to determine the annual change in capacity over the most recent five-year period. From these data, the EPA calculated the five-year annual average change in capacity and the five-year maximum annual change in capacity for each technology. Second, the EPA determined an appropriate capacity factor to apply to each RE technology that would be representative of expected future performance from 2022 through 2030. For this purpose, the EPA relied on NREL's ATB." 80 FR 64807. Third, the EPA "calculated two generation levels for each RE technology. The first generation level is the product of each technology's five-year average capacity change and the assumed future capacity factor. The second generation level is the product of each technology's five-year maximum annual capacity deployment and the assumed future capacity factor." 80 FR 64807. Fourth, the EPA "quantified the RE generation from capacity commencing operation after 2012 that can be expected in 2021 (the year before this rule's first compliance period) without the imposition of this rule." 80 FR 64808. Fifth, the EPA "applied the generation associated with the five-year average capacity change to the first two years of the interim period." 80 FR 64808. "Sixth, for all years subsequent to 2023 the EPA applied the generation associated with the maximum annual capacity change from the historical data analysis." 80 FR 64808. "Seventh, to further evaluate the technical feasibility and cost-effectiveness of the building block 3 generation levels (aggregated across all three BSER regions), as well as to produce interconnection-specific levels of building block 3 generation from the national totals described in steps 5 and 6, the EPA conducted analysis using IPM of a scenario directing the power sector to achieve those RE generation levels." 80 FR 64808.

B. Notice and Comment

Several Petitioners made general statements regarding the changes to building block 3 in their Petitions for Reconsideration. New Jersey DEP, North Dakota, and Kansas DHE all stated that the EPA revised the building blocks without notice and comment, including our assumptions regarding renewable generation expansion. Kansas DHE at 4-5; New Jersey DEP at 8; North Dakota at 3; Wyoming at 5. West Virginia and 15 other states asserted that "[t]he final CPP made a dramatic change in renewable energy assumptions and targets based on the change to building block three, which was not forecast in the proposal." West Virginia and 15 other states at 2. Kentucky focused its comments on the change in assumed renewable energy generation between the proposed rule and the final Rule. Kentucky argued that the EPA's use of the "historical maximum capacity change" rather than the "average" was not a logical outgrowth of the rule and that Kentucky was deprived of the opportunity to comment on this "drastic change." Kentucky at 4. Kentucky also noted that the EPA, in support of the changed methodology regarding building block 3, relied upon studies published after the publication of the proposed rule, and, thus, the public was denied the opportunity to examine and comment on them. *Id.*

Southern Company argues that the final Rule "jettisons both its original state and regional approaches for determining the stringency of Building Block 3." Southern Company at 15. Southern Company stated that the NODA "merely suggested the possibility of a regional analysis, not an interconnection-based approach." *Id.* Southern Company, like Wisconsin, identified the application of different growth rate, one for 2022 and 2023, and one thereafter, as

"not proposed and [] not a logical outgrowth of the Proposed Rule." *Id.* Southern Company argued that the use of 2012 historical deployment data as a new assumption in establishing the stringency of building block 3, in particular wind, was skewed by the threat of the expiration of the production tax credit, providing data to display that 2012 "is clearly an anomaly for wind development based on the uncertainty regarding whether the tax credits would expire at the end of the year or be extended." *Id.* at 15-16.

Ameren Corporation asserted that building block 3 was "entirely revamped" from proposal to the final Rule. Ameren Corporation at 14. Ameren Corporation stated that the "EPA rebuilds building block 3, including only solar and wind renewable energy in the BSER. It allows only uprated existing nuclear and hydropower, clearly excellent zero-energy [sic] resources, to be used for compliance purposes." *Id.* Ameren Corporation concludes that this "favoritism shown to renewable energy throughout the suite of rules is an unlawful transfer of wealth." *Id.*

Mississippi PSC claimed that the treatment of renewable energy in the final Rule was not a logical outgrowth of the proposal, arguing that this a proper area for reconsideration "because of the impracticability of commenting on a methodology not properly noticed and supported by new material." Mississippi PSC at 12. Mississippi PSC described the "multi-step process" to calculate emission rates, stating that "is not clear even what implicit level of RE generation is being applied in each state." *Id.* Mississippi PSC alleged that the final methodology was not adapted from the alternative posited at proposal, but, rather, "relies upon new estimates of [renewable energy] technological potential from a draft of the 2015 Annual Technology Baseline from the National Renewable Energy Laboratory." *Id* at 13. Mississippi PSC concludes that "EPA should allow review and comment on both the substantial changes in its goal setting methodology and the new RE estimates on which it relies." *Id.* However, Mississippi PSC does not provide any additional information or comments on the methodology in its petition.

Nebraska focused its Petition for Reconsideration regarding building block 3 on the change to exclude existing nuclear capacity. Nebraska stated that "[w]hen nuclear capacity is retired, that capacity must be replaced by an alternative energy source to ensure reliability. Given the fact that increases in the affordability, reliability, and availability of other zero-carbon emitting sources, a claimed benefit of the Final Rule, have yet to materialize, nuclear power capacity that is forced into early retirement will likely be replaced with natural gas-fired units." Nebraska at 10.

UARG argued that the final Rule "introduced an entirely new methodology for quantifying what [EPA] believes to be an 'achievable' level of renewable energy under Building Block 3." UARG at 4. UARG described the proposed rule's building block 3 methodology as well as the alternative methodology on which EPA requested comment. *Id.* UARG argued that the final Rule used a novel approach and described the methodology applied in the final Rule, concluding that "[t]he Agency's approach to calculating Building Block 3 targets in the Final Rule is a radical departure from the approaches that were proposed and published for public comment." UARG at 5. UARG argued that the final Rule's approach was not a modified version of the proposed alternative approach as EPA claimed and highlighted several perceived distinctions in the methodologies. *Id.* UARG compared the results of the proposed alternative methodology and the final Rule concluding that the final Rule "more than doubl[ed] the target in the proposal's alternative approach" *Id.* UARG concluded that the public was denied an opportunity to comment on "types of renewable energy used in this methodology, the

appropriate time frame for evaluation, … whether and at what point during the compliance period the annual incremental renewable generation should increase by the historical maximum amount rather than the historical average" and "EPA's application of renewable targets on a regional level." *Id.*

Basin Electric Power Cooperative states that "EPA's Final Rule also employed an entirely new methodology for determining the availability of renewable energy that could be available to replace existing generation from affected units under building block 3." Basin Electric Power Cooperative at 13. Basin Electric Power Cooperative describes the methodologies present in the proposal; one based on state renewable energy portfolio standards, an alternative based on technical and market potential for renewable energy in each state, and a third method of establishing targets within a region and assigning shares of the target to the states. *Id.* Basin Electric Power Cooperative describes the final Rule as based on national RE projections, growth assumptions premised on historical data from 2010-2014, and apportionment within the three electric interconnections. *Id.* Basin Electric Power Cooperative notes the change in stringency levels of the performance goals for Wyoming and North Dakota, stating additionally that "the Proposed Rule allowed States and affected EGUs to use existing renewable resources to lower their effective CO_2 emission rates, but the Final Rule allows States and EGUs to use only renewable energy that commences operation after 2012." *Id.* at 14. Basin Electric Power Cooperative states that the "dramatic changes in the methodology and data assumptions between the Proposed and Final Rules require that EPA grant Basin Electric's Petition for Reconsideration and withdraw the Final Rule." *Id.*

Petitioners had notice and an opportunity to comment on the building block 3 methodology. As an initial matter, we respond above to Petitions for Reconsideration on the EPA's decision to use a regional methodology to calculate building block 3 as well as the three regions the EPA chose in the section on regionalization. As summarized above, the EPA provided two approaches in the proposal. First, the EPA proposed to set state renewables targets based upon an average of state RPS requirements across certain regions. 79 FR 34866-34869. Second, the EPA offered an alternative approach based upon the technical and economic potential for renewables in states. Additionally, the EPA requested comment on other potential "techno-economic approaches." 79 FR 34870.

While Petitioners claim they did not have notice of the final Rule building block 3 methodology, we disagree. As discussed in an earlier section, Petitioners clearly had notice that the EPA was considering a regional approach to setting the building block 3 targets. First, in the proposal, the EPA included a regional component in its proposed approach, looking at an average of state RPS requirements across six regions. Second, in the NODA, the EPA further asserted that we were considering a regional approach for setting the building block 3 methodology. In fact, the EPA offered two of the three final regions as possibilities and requested comment on which regions the EPA should select for a regional methodology and how we should incorporate regional aspects into our building block 3 methodology.

We also disagree with Petitioners that they had no notice with regard to the change to exclude existing nuclear capacity. In the proposed rule, the EPA requested comments regarding how the EPA included nuclear capacity in our building block 3 methodology. 79 FR 34871. The EPA received multiple comments on this issue and all entities, including Petitioners, had notice and an opportunity to comment on how we treated existing and new nuclear capacity in the final Rule. We deny reconsideration on this issue.

As described more fully above, the EPA utilized NREL data to determine the technical

potential for renewables in the proposal alternative approach. The EPA continued to utilize NREL data to determine the technical and economic potential for renewables in the final Rule Building Block 3 methodology. Petitioners had notice that the EPA would use NREL data in the final Rule. Petitioners assert that the EPA did not give them the opportunity to comment on the updated data from EIA and NREL. We disagree with this assertion. Given that Petitioners knew that the EPA was utilizing both EIA and NREL data to calculate building block 3 levels, we believe that it was reasonable and foreseeable that the EPA would utilize the most up-to-date data from both in the final Rule. Additionally, we note that we received comment that the EPA should utilize the most up-to-date data to calculate building block 3 levels. Environmental Defense Fund Comment, EPA-HQ-OAR-2013-0602-23140, at 10.[153] Petitioners had notice and the opportunity to comment on this issue and we deny the Petitions for Reconsideration on the building block 3 methodology.

We disagree with Petitioners that the methodology that we chose for the final Rule was entirely new and revamped. Indeed, we utilized aspects of both the proposed and alternative approaches from the proposed rule, along with the approaches from the other building blocks, to craft the final building block 3 methodology. As such, the final building block 3 methodology was a logical outgrowth of the proposed rule and was reasonably foreseeable based upon the information that we presented in the proposal and the NODA. Similar to our proposed approach, the final Rule methodology calculated an annual amount by which we expected renewables to grow based upon the level of renewables in a baseline year and added that annual amount of additional renewables each year. In the final Rule, the annual amount was the historical average change in capacity for 2022 and 2023 and maximum historical change in capacity for 2024 through 2030. While the proposal utilized an RPS best practices scenario to calculate the annual amount of additional renewables, the proposed alternative methodology utilized a technical and economic approach to calculate the building block 3 levels. Given that we requested comment on other techno-economic approaches in both the proposal and the NODA, it was reasonable to conclude that we would utilize a techno-economic approach to establish a pre-compliance baseline amount of renewable energy and test the overall cost-effectiveness of the building block. Additionally, similar to the alternative approach, it was reasonable to assume that the EPA would utilize NREL data. In the final Rule, the EPA harmonized our approach to the building blocks, rooting our methodology for the three building blocks in historical data and then applying an observed level of performance to the future for each building block. We then tested their cost-effectiveness. Our approach for these methodologies was based upon components of our proposed approach as well as the alternative building block 3 methodology and information provided in the NODA. The Petitioners had notice and opportunity to comment on the final building block 3 methodology which was a logical outgrowth of the proposed rule. Therefore, we deny their Petitions for Reconsideration on building block 3.

1. Notice and Comment with Regard to Replacement Impact of RE

In addition to the level of RE generation assumed for building block 3, the EPA also described its application to calculating the state goal in the proposed preamble and the Goal computation TSD. The EPA invited comment on "all aspects of the goal computation", 79 FR 34896, including how the RE generation was factored into state goals in an incremental method or a replacement method relative to historical fossil generation. The EPA received initial

[153] Environmental Defense Fund stated, "In order to properly assess the potential from renewable energy, the EPA must use up-to date data. Current data show that wind and solar costs are each approximately 45 percent less costly than the EPA assumed in its analysis." *Id.* at 10.

feedback that the building block three generation should be assumed to replace historical generation levels, not merely be incremental to it as proposed. In the NODA, the EPA highlighted this concern and invited further comment on the "implementation of the goal-setting equation". 79 FR 64547. The EPA noted that stakeholders had raised concerns that the formula for calculating each state's goal is not consistent in its assumption for building block 2 as compared to building block 3. The EPA highlighted that stakeholders asserted that the proposed building block three implementation for state goal calculations did not reflect its ability to shift generation away from existing fossil generation units. 79 FR 64548. Whereas building block 2 subtracted 1 MWh of baseline fossil steam generation for each incremental building block 2 MWh identified, no such subtraction was made for each building block 3 MWh. The NODA noted two additional alternative stakeholder approaches – replacing historical fossil baseline generation on a pro-rata basis, or on a fossil steam first basis – explicitly noted that either of these "would increase the collective stringency of the state goals", and noted it was "seeking comment on which approach among the proposal and alternatives best reflects BSER." 79 FR 64553. Thus, Petitioners had adequate notice and opportunity to comment.

C. Central Relevance

Some Petitioners only make general arguments regarding building block 3 and have not provided any additional information they claim would have been provided if they had been able to comment on the final building block 3 methodology. Therefore, in addition to denying Petitions for Reconsideration on notice and comment grounds, we also deny these petitions regarding building block 3 on central relevance grounds.

UARG identified several areas in which it argued that the final Rule methodology was flawed. First, UARG stated that the decision to rely on historical year-to-year changes in renewable capacity was arbitrary, stating that "EPA failed to examine what drove the significant growth of renewable capacity from 2010 to 2014", noting that this time period included "opportunities to develop the lowest-cost renewable resources that have since been carried out and tax incentives, subsidies, and other federal or state policies that may not be available during the Rule's compliance period." UARG at 5. UARG also argued that the final Rule's reliance on national growth trends ignored state-by-state variation. UARG also criticized the EPA's determinations regarding achievability. *Id.* at 5. Prairie State also argued that the EPA made "very aggressive assumptions regarding renewable energy." Prairie State at 11.

Wyoming described the changes in the rule from proposal to final regarding building block 3. Wyoming also raises operational and modeling concerns. Wyoming at 5. Wyoming argued that this data overstated the emission reductions available due to unreasonable assumptions about the size of land available for renewable generation, in particular the "sage grouse corridor." *Id.* Wyoming also claimed that the BSER was not adequately demonstrated because the EPA ignored "the practical challenges of rapidly scaling up renewable generation in a relatively short time period." *Id.* at 8. In a similar fashion, Wyoming contended that the EPA's conclusion that additional renewable energy will not require additional transmission was unlikely. *Id.*

Basin Electric Power Cooperative additionally argues that the levels of renewable energy growth assumed in the final Rule are not adequately demonstrated. *Id.* at 19. Basin Electric Power Cooperative also questions the assumption that renewable generation from 2024-2030 can match the maximum annual growth achieved from 2010-2014. *Id.* In particular, Basin Electric Power Cooperative notes the reliance of the growth estimates on wind generation in 2012, claiming this year to be an outlier and observing that "since the nearly 28% increase in

wind generation capacity during 2012, wind generation capacity has only increased approximately 16% through October 31, 2015, which equates to an annual growth rate of approximately 6%." *Id.* In addition, Basin Electric Power Cooperative argues that the building block 3 analysis is further flawed because of the EPA's assumed 41.8 percent capacity factor applied to wind generation., stating that "EPA has failed to adequately explain how average wind capacity factors can be increased by the approximately 30% it assumes in its BSER analysis." *Id.* Finally, Basin Electric Power Cooperative argues that "EPA's unrealistically high assumptions about the level of incremental renewable energy generation in the Eastern Interconnection directly result in lower calculated emission performance rates for the nation as a whole." *Id.*

Wisconsin argues that the EPA manipulated the stringency of the BSER because for building block 3 the "EPA applied the average renewable energy growth rate only to the years 2022 and 2023, while applying the *maximum* growth rate for each of the remaining years through 2030." Wisconsin at 3. Wisconsin further states that "EPA relied on an average capacity factor for wind resources that cannot be realistically achieved by the majority of the state's wind facility installations." *Id.* at 9.

We do not agree with Petitioners' assertions. The methodology that the EPA utilized in calculating building block 3 for the final Rule was conservative and reasonable. The EPA used historical data to project annual targets, and then used modeling to confirm the technical feasibility and cost-effectiveness of those targets. Our projections, based on the best available data and consistent with external expert projections, are reasonable. First, by basing projections on actual renewable capacity built between 2010 and 2014, the EPA limited the targets to historically "demonstrated levels of [renewable-energy] deployment that have been successfully integrated into the power system." 80 FR 64806-64807. This was a significant constraint because it presumes that additions of renewable generation under the final Rule will never exceed 2010-2014 levels, even after two decades of technological development and industry expansion. *See Id.* at 64809 (describing recent renewable growth). Moreover, the EPA declined to apply the maximum growth rate in 2022 and 2023 to ensure significant lead time to invest in and plan for the larger generation additions thereafter. *Id.* at 64808.

Second, we disagree with Basin Electric Power Cooperative's assertions regarding the capacity factor that we utilized for onshore wind in the final Rule. The EPA based the 41.8 percent capacity factor on the "simple average of annual capacity factors for each of the five techno-resource groups". Greenhouse Gas Mitigation Measures TSD at 4-3. The EPA utilized NREL Annual Technology Baseline as the "basis for the expected future generation by MW of installed capacity for each RE technology." *Id.* (citing http://www.nrel.gov/analysis/data_tech_baseline.html). We also note that, in contrast to Petitioner's assertions, the average capacity factor in 2015 for projects installed in 2014 was 41 percent. *See Department of Energy 2015 Wind Technologies Markets Report*, at viii, *available at* https://emp.lbl.gov/sites/all/files/2015-windtechreport.final_.pdf. Additionally, the EPA's methodology conservatively assumes that present-day technological capacity factors, used to calculate the average and maximum generation added between 2022 and 2030, will not increase over time. *Id.* Capacity factors have historically increased for renewable technologies, suggesting the EPA's calculation may significantly undercount possible renewable generation. 80 FR 64803-64804, 64809.

Third, the EPA set conservative modeling parameters. 80 FR 64808; Greenhouse Gas Mitigation Measures Mitigation TSD at 4-20–4-21. For example, the EPA constrained the

model from forecasting new generation in places where significant new transmission would be required, or where transmission costs would be prohibitive. *See* 80 FR 64808; Greenhouse Gas Mitigation Measures TSD at 4-23–4-24. Likewise, the EPA's model capped the amount of wind and solar generation that could be built in any one area so that no part of the grid (broken into 64 subregions) would have more than 30 percent of its electricity coming from wind and solar together, or more than 20 percent from either alone. 80 FR 64808. These generation levels have already been demonstrated and are reasonable. *Id.* at 64808, 64810.

The EPA's approach was also conservative in other ways. The EPA calculated targets based on five RE technologies, while allowing other RE technologies to be used for compliance, *Id.* at 64810; modeled the targets without federal tax credit incentives, *see* RTC 3.3.7, 348 (Response 10); and set the uniform rates based on the least-stringent regional rate, 80 FR 64810-64811. The latter factor alone means that states and sources can meet their emission-reduction goals without needing over 160,000,000 megawatt-hours of renewable generation projected under building block 3 - about 20 percent of the total. *Id.*; Greenhouse Gas Mitigation Measures TSD at 4-10.

We also disagree with Petitioners that the final Rule requires renewables to be rapidly scaled up in a short period of time. Instead, the EPA set reasonable emission reduction requirements and provided a great deal of flexibility in how those requirements are met. In the final Rule, the EPA also delayed the start of the interim period to 2022 and allowed the state to choose its own emission reduction glide path. 80 FR 64673. Further, as noted below, industry trends show that renewables are already being built in a short period of time as a matter of business-as-usual. *See, e.g.*, Power Sector Trends Appendix at Section 2.

Despite Petitioners' assertions, in calculating the building block 3 levels, we also did not require renewables to be sited in any particular location or even that renewables be used to meet the final Rule's emission reduction goals. Despite Prairie State's assertions, we did not require renewables to be built in places with siting limitations such as sage grouse corridors. Instead, we provided states and sources with flexibility in meeting the emission reduction requirements, choosing the most cost-effective and efficient means to meet those requirements.

Finally, Petitioners state that the historical period that we utilize to calculate building block 3 (2010-2014) was not appropriate because we failed to consider that tax incentives, subsidies, and other federal and state policies may not be in place during the compliance period. However, we believe that the five-year period that we selected to calculate the average and maximum growth rates was appropriate. As noted above, the approach we took in calculating building block 3 yielded conservative and reasonable levels of renewables. Additionally, the level of renewables that we calculated under Building Block 3 was consistent with industry trends. Also, as we discuss further in the Power Sector Trends Appendix, industry trends continue to indicate that the level of renewables calculated in building block 3 is reasonable. One major factor that leads us to this conclusion is the renewal of the wind production tax credit (PTC) and the solar investment tax credit (ITC). *See* Power Sector Trends Appendix at Section 2. These tax credits are driving high levels of renewables development and potentially will allow states and sources to meet their building block 3 levels without difficulty. These tax credits are projected to significantly increase renewable capacity and generation relative to the baseline that the EPA assumed when developing and evaluating the CPP. *Id.*

Petitioners have not shown that they did not have notice and opportunity to comment on building block 3 nor have they provided us with new information that is centrally relevant to our findings in the final Rule. For these reasons, the EPA concludes that these petitions for

reconsideration fail to demonstrate that reconsideration is warranted or appropriate under Section 307(d)(7)(B). Therefore, we deny the Petition for Reconsideration on building block 3.

VII. Additional BSER Topics

A. The BSER as "Menu" of actions

1. Summary of Petitions

The EPA states that the BSER is a "menu" of actions, but does not describe what they are, raising an issue about whether the BSER also includes compliance options. Wyoming 6.

2. Response

The EPA is denying this petition to reconsider. EPA's proposed rule and final Rule were clear that the BSER consists of the building blocks and EPA provided adequate notice.

B. Headroom in the Building Blocks and the BSER

Wyoming contends that the determination of the BSER in the final Rule is not adequately demonstrated because it relies on "nonexistent markets" and the "conceptual framework of 'headroom' does not ameliorate these concerns." Wyoming at 7. Wyoming contends that various details of the "EPA's method of calculating a target" indicate that the EPA "may be overstating" the Rule's compliance headroom. Wyoming at 12. Wyoming further contended that in the final Rule, the EPA presented the element of "headroom" with a "conceptual rather than a mathematical basis" and "never quantified how much headroom is appropriate or how much has actually been provided to sources located in different regions of the country." Wyoming contends that the EPA cannot "bootstrap" adequate demonstration via the "novel idea" of headroom. Wyoming at 11.

As discussed in further detail below for each of the building blocks and in Section II addressing issues related to regionalization, Wyoming had adequate notice in regards to this concept. As described in the final Rule, the EPA's used the concept of "headroom" to reflect the EPA's adoption of a conservative measure, and in the proposed rule, the EPA noted, on at least nine occasions, the conservative nature of its assumptions. *See generally* 79 FR 34830.

In addition, Wyoming's objection is not of central relevance. Part of the reason why Wyoming's contention is not of central relevance is because Wyoming is challenging the EPA's application of conservative stringency levels in order to assure achievability. In the final Rule, the EPA stated that "[w]ith attention to emission reduction costs, electricity rates, and the importance of ensuring continued reliability of electricity supplies, the individual building blocks and the overall BSER have been defined not at the maximum possible degree of stringency but at a reasonable degree of stringency designed to appropriately balance consideration of the various BSER factors." The EPA added that "[t]his approach to determination of the BSER provides compliance headroom that ensures that the emission limitations reflecting the BSER are achievable by the source category, but nevertheless, as required by the CAA, will result in meaningful reductions in CO_2 emissions from this sector." 80 FR 64718. Thus, Wyoming is not prejudiced by the EPA's reliance on "headroom."

Further, Wyoming has not provided any information to dispute the notion that the EPA may rely on the concept of "headroom" in determining that the BSER is adequately demonstrated and that the emission rates are achievable. This concept is far from "novel," and, in fact, benefits the Petitioners. The EPA evaluated the building blocks and adopted conservative levels of stringency for each and then combined the building blocks to develop the

uniform emission performance standards. For example, with regards to building block 2, the EPA concluded that 75 percent is "below the maximum levels at which some units have demonstrated the capability to operate" and, therefore, conservatively "offer[s] sources additional compliance flexibility, given that the extent to which they realize a utilization level beyond 75 percent will reduce their need to rely on other emission reduction measures or building blocks." 80 FR 64799, 64803. Had the EPA adopted the most stringent levels determined to be adequately demonstrated, it would have adopted more stringent performance standards. It cannot be disputed that if a stringent target is considered to be achievable and adequately demonstrated then a conservative target must also meet that standard. Wyoming's apparent disputation of this concept is not persuasive. Additionally, Wyoming's contention that "headroom" is not a mathematical concept is incorrect. With the application of each building block the EPA developed performance standards. For example, had the EPA adopted an 80 percent utilization rate for NGCC facilities, this would result in a more stringent performance standard and the difference in required reductions is easily calculated. This is also evident in the regional approach adopted by the EPA in which it applied the least stringent of the regional emission rates as the nationally uniform subcategory emission rates, and then calculated the state goals based on those rates. Had the EPA used each region's emission rates based on application of the building blocks to each region's emissions, rather than using the least stringent for all the regions, and calculated state goals accordingly, one could calculate the difference between the two sets of state goals, and that amount would represent the additional "headroom" due to the application of the least stringent rate.

With respect to building block 1, Wyoming asserts that much of the "so-called headroom" in building block 1 is related to the EPA's choice of the Eastern Interconnection as, in general, the least stringent region which, as applied to Wyoming, provides "the opposite of headroom."[154] As an initial matter, Wyoming is incorrect. As explained above with respect to Southern Company's objection that non-Eastern EGUs are "penalized" by a determination of the BSER that includes the Eastern Interconnection's potential for heat rate improvement, this objection misunderstands the purpose of the BSER. The BSER is used to set emission guidelines, expressed in the form of a uniform emission rate. The EPA's assessment of heat rate improvement potential is a means of achieving that end; it is not a heat-rate improvement mandate. Far from being penalized, translating the BSER into a national uniform performance rate gives non-Eastern EGUs (like those in Wyoming) a compliance advantage, as the national rate is based on EGUs with more limited capabilities for emission reductions.[155]

Even setting aside the misunderstanding upon which Wyoming's objection is premised, Wyoming is further incorrect that the headroom in building block 1 purportedly flows from use of the Eastern Interconnection. The compliance headroom in building block 1 comes from the numerous highly conservative assumptions that the EPA made in both the proposal and included in the final rule. These include that the EPA (1) conservatively employed a backward-looking analysis that assumed the best 10 percent of a unit's historical heat rates could not be improved upon,[156] despite significant literature to the contrary,[157] (2) used the 10th percentile historical performance as a benchmark, even though using a 5th or even 1st percentile benchmark would

[154] Wyoming at 12.
[155] 80 FR 64792–93.
[156] GHG Mitigation TSD at 2-25.
[157] *Id*. at 2-16 to 2-22.

have been statistically acceptable;[158] (3) conservatively assumed that units could only *marginally* improve their worst heat rates, rather than match their best heat rates under similar conditions;[159] (4) conservatively based cost estimates only on the most-expensive types of heat rate improvement measures, even though literature indicates that units are not implementing significantly cheaper measures;[160] (5) conservatively used longer two-year rolling averages to calculate historical performance, even though shorter averaging periods would have sufficed;[161] (6) conservatively used three different statistical approaches to estimate heat rate, but only relied on the approach with the most conservative outcome;[162] (7) conservatively used a 2012 baseline, even though units experienced lower capacity factors in that time;[163] (8) conservatively included units near retirement in the statistical analysis, even though these units tend to have higher heat rates and their retirements will make attaining mass-based goals easier for the remaining units;[164] (9) conservatively excluded substitute heat rate data reported to the EPA by unit owners/operators that overestimates heat rate;[165] (10) conservatively used gross heat rate (rather than net heat rate), which does not reflect a unit's ability to improve its heat rate by reducing on-site energy usage (*i.e.*, parasitic load);[166] (11) conservatively assumed that a unit's capacity factor is completely outside the control of the owner/operator, even though operators may have some influence over capacity factor at specific EGUs at a facility;[167] (11) conservatively used cost performance modeling that tends to overestimate the energy requirements from auxiliary equipment;[168] and (13) conservatively assumed that no pollution control devices installed after 2012 will replace pre-existing technological controls,[169] or be more efficient than pre-existing controls (*i.e.*, assumed full auxiliary power requirements rather than the net difference between new and replaced equipment).[170] These numerous conservative assumptions translated into an overall building block 1 estimate that was eminently reasonable with ample headroom.

With respect to building block 2, Wyoming claims that despite any headroom associated with chosen stringency levels of NGCC utilization, the result of applying the BSER is the elimination of fossil steam generation in the Western Interconnection by 2027. Wyoming at 12. Wyoming further stated that the EPA failed to recognize that the majority of existing NGCC generation in the West is in California and "may be too far from new renewable energy

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[158] *Id*. at 2-45 n.67

[159] *Id*. at 2-42 to 2-43 (discussing the EPA's "best historical performance" approach to assessing potential for heat rate improvement); *id*. at 2-50 (describing "best historical performance" and the other two statistical approaches as each "constitut[ing] a reasonable means of assessing the potential for heat rate improvements" within each interconnection, and expressing "confiden[ce] that the potential heat rate improvements identified on the regional basis through these approaches are feasible").

[160] *Id*. at 2-23 to 2-24 & n.26; *id*. at 2-62 to 2-63.

[161] *Id*. at 2-50 & n.73.

[162] *Id*. at 2-50 to 2-51 (§ 2.5.6).

[163] *Id*. at 2-26.

[164] *Id*. at 2-29.

[165] *Id*. at 2-29 to 2-30.

[166] *Id*. at 2-33, 2-49, 2-52.

[167] *Id*. at 2-41 (describing the EPA's decision to "reasonably and conservatively control for the full effect of hourly capacity factor" on EGU heat rate, despite a recognition that some "portion" of hourly capacity factor can be under the control or influence of the EGU owner/operator).

[168] *Id*. at 2-55 ("EPA's cost performance assumptions tend to overestimate the auxiliary energy requirements from individual retrofit controls").

[169] *Id*. at 2-55.

[170] *Id*. at 2-55 & n.83.

development to provide adequate support for the entire Western interconnection." Wyoming at 12. For the reasons discussed in the building block 2 section addressing petitions for reconsideration regarding the general and specific claims around the 75 percent net summer utilization rate for NGCC units, Petitioners had adequate notice as to this aspect of building block 2. Further, Wyoming had adequate notice that the EPA may consider the ability of NGCC generation to shift across regions, in light of the fact that the EPA noted at proposal that it sought comment "on whether the regional or state scenarios should be given greater weight in establishing the appropriate degree of re-dispatch to incorporate into the state goals for CO_2 emission reductions." 79 FR 34863. In addition, Wyoming contends that the EPA's notion of headroom requires reconsideration. At proposal, as it did in the final Rule, the EPA explained that the 70 percent nameplate utilization rate (equivalent to the 75 percent net summer used in the final Rule) was well below unit availability, noting that availability for "NGCC units in the U.S. generally exceeds 85 percent, and can exceed 90 percent for some groups." *Id*. Wyoming was afforded adequate notice that the EPA considered building block 2 to have a built in buffer in terms of availability versus utilization rate which would create "headroom" and allow units to achieve the utilization rate on average, despite some units' inability due to specific circumstances. In addition, Wyoming has not provided any information to dispute the achievability of the standard in this regard. Wyoming claims that modelling the full application of building block 2 results in no fossil steam generation in the Western Interconnection, however, this claim does nothing to dispute the achievability of the standard that the EPA actually established, it merely notes a modelling result in one scenario. In addition, Wyoming notes that NGCC generation in California "may be too far" from renewable generation, however, Wyoming provides no citation or relevant information to support this assertion. As such, Wyoming has failed to provide any information to establish that its claim in this regard is an objection of central relevance. The EPA's modeling in the RIA demonstrated that the emission standards are achievable.

With respect to building block 3, Wyoming claims that the EPA substantially overstates the headroom available. For example, Wyoming states that the EPA overstates the "capacity of anticipated wind generation as 41.8%" Wyoming at 12. It states that by overstating this capacity factor, the EPA is overestimating the amount of non-renewable generation that can be replaced by renewables. Wyoming at 12. Wyoming points out that the EPA uses a 30 percent capacity factor for the Clean Energy Incentive Program. It claims that the EPA is cherry-picking capacity factors to achieve a desired policy outcome. Wyoming at 12.

We discuss more fully above in the building block 3 section how our methodology for determining emission reductions under this building block is conservative. However, we note here that Wyoming is incorrect that the EPA utilized a 30 percent capacity factor for wind in the CEIP. The EPA used the same capacity factor – 41.8 percent – for the CEIP. Technical Support Document: Clean Energy Incentive Program Design Details Proposed Rule Renewable Energy and Low Income Community Projects Potential, at Table 1. The EPA explains further above why we believe the 41.8 percent capacity factor for wind is reasonable and conservative. The EPA conservatively assumed that present-day technological "capacity factors," used to calculate the average and maximum generation added between 2022 and 2030, will not increase over time. Greenhouse Gas Mitigation Measures TSD at 4-3. As we describe further above, states are well on their way to meeting the CPP's emission reduction goals. One reason is that the PTC and ITC are projected to significantly increase renewable capacity and generation relative to the baseline that the EPA assumed when developing and evaluating the CPP.

For the above reasons, the EPA has determined that the petitions for reconsideration regarding the EPA's consideration of headroom do not establish an objection of central relevance to the rule, and, thus, the petitions should be denied with regard to these claims on these grounds in addition to being denied on the grounds that petitioners had notice and an opportunity to comment on these issues, as discussed above.

C. Building Block 2 and Building Block 3 Combined Modelling:

In addition to the general petitions regarding building block 2 and those regarding the technical feasibility of building block 2, both discussed above, the EPA is denying the petitions for reconsideration of several Petitioners arguing that building blocks 2 and 3 were not modelled together with IPM. Wisconsin and Basin both raised some form of this claim. Wisconsin at 3; Basin at 20-21, 23.

Basin argued that the EPA based the BSER on the "combined stringency" of the building blocks and that an "increase in renewable generation, which typically is dispatched ahead of all other forms of generation, will result even lower capacity factors for existing NGCC units." Basin at 21. Wisconsin noted that the building blocks were not modelled together and stated "[a]s noted in Wisconsin's comments on the proposed rule, the reductions achievable from each building block are not additive; in fact, when applied together, the building blocks appear to work against each other." Wisconsin at 3; *see also* State of Wisconsin's on the EPA's Proposed Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units Pt. 6 at 4 ("EGEAS modeling confirms the building blocks, which were developed independently of each other, do not work together to achieve the reductions desired by the EPA.") (EPA-HQ-OAR-2013-0602-23541).

These petitions fail to establish that inadequate notice was provided in regards to the independent modelling of building blocks 2 and 3. The EPA's modelling of the building blocks separately for the final Rule is consistent with the modelling conducted in support of the proposed rule, and, thus, Petitioners had adequate notice of this methodology. In fact, Wisconsin, in its petition for reconsideration, notes that it provided comments on the proposal in regard to the building blocks being modelled separately, as discussed above. Petitioners either raised or could have raised all of their rationales for reconsideration regarding modelling building block 2 and 3 together in comments on the proposal; Petitioners were afforded adequate notice on which to comment, and, thus, the petitions for reconsideration arguing that building blocks 2 and 3 were not modelled together with IPM must be denied.

Further, were the EPA to consider the merits of the petitions they must also be denied on the basis that the EPA acted reasonably in this regard and the petitions fail to establish that the objection is of central relevance. Most broadly, section 111(d)(1) and (a)(1) require the EPA to identify the "adequately demonstrated" systems of emission reduction and select the "best" among them, taking into account cost and other factors. The EPA is afforded flexibility in assessing cost and the other factors. The EPA assessed the cost, feasibility, and other considerations for each of the building blocks, and found that they supported identifying the building blocks as the BSER. The EPA was not required to conduct the specific type of modeling that Petitioners request.

Building block 3 modelling required energy and capacity to back up RE development. However, the modelling of building block 3 undercuts the argument that this backup would necessarily need to come from increased utilization of existing NGCC units, a tenet of the rationale that the two need be modelled together. The building block 3 modelling actually displays a decreased NGCC utilization rate (32 percent) versus the base case (51 percent) and

neither is close to the building block 2 capacity factor (75 percent net summer. Capacity factors from IPM runs - BB3- Cost Effectiveness SSR at Table 1-16_US Column F Row 2356 and Base Case SSR at Table 1-16_US Column F Row 2356. This result occurs for several reasons, such as resource diversity, geographic diversity, and the role of non-affected sources such as simple cycle CTs and new NGCC in the modelling. Further, modelling showed states could achieve with building block 3 while meeting reserve margin requirements. In addition, the final Rule afforded states and sources a large amount of flexibility in how they comply. Given that other resources such as energy efficiency can be used for compliance, the RIA estimates that a much lower level of RE will be developed. Even where the modelling discussed above to have showed otherwise, the 75 percent net summer capacity factor is not an upper limit on NGCC availability, the EPA determined that availability "generally exceeds 85 percent, and can exceed 90 percent for some groups" 80 FR 64799. Thus, even if, contrary to what the modelling showed, existing NGCC units were called upon to increase overall generation in order to back up increased RE, there would be enough natural gas capacity available to serve this function, especially given the sporadic need for back-up resources. States also have flexibility when backing up RE such as simple cycle, storage, demand response, and better forecasting of RE production.

In addition, it would have been inappropriate and inaccurate to model the building blocks together as this results in an outcome much more stringent than the established BSER. Combining the building blocks in the IPM modelling would not account for the goal setting methodology. The goal setting methodology results in less stringent targets than when each building block is applied individually- for example the goal setting methodology uses the least stringent regional rate. CO_2 Emission Performance Rate and Goal Computation Technical Support Document for CPP Final Rule.

By the same token, it was not necessary for the EPA to determine the impact of each building block, if implemented fully, in each region. In general, in the Western and ERCOT regions, because the uniform national subcategorized rates are less stringent than the rates that would result from full implementation of the building blocks in those regions, if sources in those states choose to comply by implementing the building blocks, they have flexibility in determining the extent to which they need to do so, and they would not need to fully implement each building block. As a result, analyzing full implementation of each building block in each region would not provide useful information. The fact that full implementation would yield more stringent, and as a result, more expensive, emission limits does not mean that the building blocks do not meet the requirements for the "best" system of emission reduction that is "adequately demonstrated," just as in the companion NSPS for CO_2 from newly constructed coal-fired power plants, the fact that full capture (90% capture) CCS is more expensive than partial capture (16-23% capture) CCS, does not mean that partial capture CCS does not meet those requirements.

In addition, in the RIA, the EPA conducted modeling to evaluate the impacts of two sets of state plans, rate-based and mass-based (without interstate trading), and determined that under those state plans, sources could achieve their standards, and states could achieve their goals, at reasonable cost. While that analysis did not directly model building blocks 2 and 3, it did take account of all the actions that sources would take to achieve their standards, including all the building blocks, as well as the measures that states would adopt.

As noted elsewhere, power sector trends since the CPP record closed indicate greater shifts away from coal-fired generation and towards natural gas-fired and renewable generation,

which mean that much of implementation of the building blocks is already occurring as a matter of business-as-usual, further reducing the need for modeling of the building blocks together, or of full implementation of the building blocks separately.

For the above reasons, the EPA has determined that the petitions for reconsideration arguing that building blocks 2 and 3 were not modelled together with IPM do not establish an objection of central relevance to the rule, and, thus, the petitions should be denied with regard to these claims.

VIII. Achievability by Sources

A. Summary of Petitions

The EPA has not shown sources can meet the emission performance rate by generation shifting in general, or on the scale assumed by the EPA. Southern Company 5-6.

Individual sources cannot limit their emissions to the subcategory rates. That is, the rates cannot be achieved by sources on their own, and thus are not achievable. Basin Electric Power Cooperative 16.

B. Response

The EPA is denying this petition to reconsider. The EPA provided adequate notice of both the uniform emission performance rate, as described in the section below, "Significant changes to state goals," and the identification of generation shifting as part of the BSER, as described further below in the discussion of generation shifting. *See, e.g.*, 79 FR 34886-34887 (evaluating ability of affected EGUs to implement building blocks 2 and 3). Accordingly, Petitioners had the opportunity to submit their objections related to use of generation shifting by affected EGUs in comments on the proposed rule. In fact, commenters did make these objections on both technical and legal grounds, and the agency has already considered them. *See generally* RTC 1.10.3 (summarizing legal objections to generation shifting); *id.* 3.2 (summarizing comments on technical feasibility of building block 2); *id.* 3.3 (summarizing comments on technical feasibility of building block 3).

In addition, the objection is not of central relevance because the EPA did show that sources can meet the uniform subcategory emission rates by generation shifting, both as a general matter and on the scale assumed by the EPA. Petitioners have not provided any information that would lead the EPA to change the rule in this regard.

Because the effective rates can be achieved using the identified BSER, they "reflect[]" a "degree of emission limitation achievable," consistent with Congress's direction in Section 111(a)(1). It must be emphasized that the subcategory-specific uniform emission rates are purposefully set in the form of effective emission rates for the two subcategories. They are not stack rates. These effective emission rates are regulatory constructs intended to reflect adjustments to actual emission rates—for regulatory compliance purposes—with such adjustments crediting the generation-shifting pollution-reduction measures that the EPA determined can be successfully undertaken by the sources. The proposal and the final Rule describe how these effective rates – which the EPA terms "adjusted emission rates" – are designed to reflect not only stack emission rate adjustments, such as those that result from implementation of heat rate improvements (building block 1), but also generation-shifting measures as well (building blocks 2 and 3). 80 FR 64813. Moreover, in the final Rule, EPA explained how sources can account for emission reduction credits from NGCC units and renewable generators to reduce their effective emission rates and thereby achieve their standards. 80 FR 64746. The EPA's record is clear that EGUs are not required to meet their

emission standards purely on the basis of their stack emission rates (although they could if they chose to do so).

As discussed elsewhere, in the final Rule, the EPA demonstrated that all types of fossil fuel-fired power plants, of all sizes and in all locations, are able to meet the uniform emission rates by implementing the building blocks. 80 FR 64787-64811; Legal Memorandum 137-148. The EPA provided many examples of different types of fossil fuel-fired power plants implementing generation shifting, including smaller utilities that have historically been coal-fired-generation intensive. *See id.* The Power Sector Trends Appendix, and the IRP study attached to that Appendix, provide many additional examples. As the power sector continues to shift away from coal-fired generation and towards natural gas-fired and renewable generation, more and more individual companies of all types do so.

In addition, the approach to the BSER and the associated emission limits that the EPA took in this rule are consistent with the approach the EPA took in other NSPS rulemakings, where the degree of emission limitation achievable through the application of the BSER for each category or subcategory of affected sources generally has not been determined on the basis of what is achievable by the sources that can reduce emissions most easily, but instead on the basis of what is reasonably achievable through the application of the BSER across a range of sources. 80 FR 64745.

In addition, the EPA demonstrated that the affected sources can implement generation shifting to the extent necessary to achieve the emission limits. The EPA explained the technical basis for that degree of application of building blocks 2 and 3, e.g., the extent of available NGCC capacity and the amount of new renewable generation capacity. The EPA also calculated the costs, and determined that they are reasonable. 80 FR 64795-64811. In the RIA, the EPA modeled two state plan scenarios – rate-based and mass-based state plans without interstate trading – and determined that across all states, sources could meet their standards of performance at reasonable cost. *See* RIA, at 3-21—3-23.

In addition, if a state is concerned that some of its sources may have difficulty in achieving lower emission limits, the flexibilities the final Rule allows may permit the state to adjust the emission limits to accommodate those sources. For example, the state may allocate allowances or assign emission limits in a manner that accommodates particular sources.

As indicated in the Power Sector Trends Appendix, because of the recent trends away from coal-fired generation and toward natural gas-fired and renewable generation, the costs of implementing the CPP have become much lower, which further eases the ability of the affected sources to implement the building blocks to achieve their emission limits. By the same token, as a result of business-as-usual changes to generation mix, the states generally are closer to achieving state goals, their which means they have even more flexibility to accommodate particular sources that may have difficulty in achieving lower emission limits.

In addition, as indicated in the Non-BSER CPP Flexibilities Appendix, sources have many other avenues to achieve their emission limits as well. For example, coal-fired generators are able to co-fire with natural gas to achieve emission reductions. As that Appendix notes, based on the record for the final Rule, almost all coal-fired generators are able to achieve the uniform performance rate through measures applied at the source, such as co-firing (albeit at greater cost than generation shifting), and without relying on generation-shifting. Again, recent trends have now made it significantly easier for coal-fired generators to do so.

It should also be noted that section 111 does not require that each source reduce its emissions to achieve its emission limit. Clean Air Act section 111 requires, in general, that each

source have a standard of performance, which is defined as an emission standard that reflects "the *degree* of emission limitation achievable through [the BSER]." (emphasis added). This requirement does not mandate any particular amount of emission limitation, or any emission reduction at all. It simply mandates *whatever* degree of emission limitation, if any, is achievable through the BSER. In determining the BSER, the EPA must consider the overall amount of emission reductions for the source category. However, the EPA may select as the BSER a system that results in some sources reducing their emissions and others not. Under those circumstances, each source's emissions standard reflects whatever degree of emission reduction would result from that source's implementation of the BSER. In addition, the fact that section 111 does not require that each source reduce its emissions allows for flexible compliance options, including trading programs, which industry requested in their comments. In general, under a trading program, a source may forego reducing its own emissions by purchasing credits or allowances from sources that reduce theirs, and in that manner, a trading program maximizes the source category's efficiency in reducing emissions. Under a trading program, even if a source does not reduce its own emissions, it still incurs a cost to comply with its emissions standard.

IX. Stringency of state goals

A. Summary of Petitions

Nebraska objected that the BSER is too stringent, and as a result, Nebraska's state goal is too stringent. Nebraska 10-11. Wyoming made a similar objection. Wyoming 1-4. The Wisconsin PSC objected that the CPP is arbitrary and capricious because it disproportionately impacts coal-intensive states. Another petitioner objected that the CPP would have significant adverse effects on Montana, especially the Colstrip Plant (the biggest generating asset), and a shut-down of that plant would have significant ripple effects. Northwestern 4-5. Another made similar objections, except geared to Kansas and Westar. Westar 3-4.

B. Response

The EPA is denying these petitions for reconsideration. As discussed elsewhere, Petitioners had adequate notice and opportunity to comment on the stringency of state goals, and many did comment.

In addition, these objections are not centrally relevant because they do not provide any reason for the EPA to revise the state goals, nor is the EPA aware of any reason to do so. In the final Rule, the EPA determined that every state is able to meet its rate- or mass-based goals at reasonable cost to its sources. This is because the EPA determined that all sources, of all types and in all locations, are able to achieve the applicable uniform emission rate at reasonable cost by implementing the BSER. 80 FR 64752-64754. Each state's goals are simply the application of the dual uniform emission rates to the inventory of sources in that state. Because the sources in each state can meet their applicable uniform emission rate, each state can meet its goals. As discussed below, some states object that they cannot meet their goals because their sources must be limited in complying with their standards of performance to taking action in-state, but these objections are invalid. As discussed in the Power Sector Trends Appendix, energy sector trends towards less coal generation and more natural gas and renewable generation have reduced the amount of emissions reductions that most states need to achieve their goals, and significantly reduced the costs in achieving the remaining emission reductions. Various studies identify more than one-third and up to a majority of the states as coming into compliance with their 2030 CPP state goals through business-as-usual generation shifts, including some that at present are coal-

heavy. The CPP will continue to require the remaining states to impose requirements to achieve their state goals. In addition, as noted elsewhere, sources have available non-BSER measures that they could rely on to achieve the applicable uniform emission rate. Some of those measures, such as demand-side energy-efficiency measures, are less expensive than the BSER measures. As discussed in the Non-BSER CPP Flexibilities Appendix, non-BSER measures have also become less expensive, including demand-side energy efficiency measures and natural gas co-firing for coal-fired power plants.

In addition, the final Rule incorporates flexibilities that each state could rely on and that facilitate attainment of state goals. These include interstate trading mechanisms, which further reduce costs. The fact that trading results in lower costs provides a compelling incentive for states to participate in trading programs, and in fact, states have evidenced interest in doing so, as discussed in the States' Progress and Trends Appendix. The benefits of trading in lowering costs to sources, coupled with the demonstrated interest by the states in developing trading programs, refutes objections that states cannot be expected to develop such programs.

In addition, the EPA has a history of working cooperatively with states to develop approvable plans, even when states encounter problems in doing so despite their good faith efforts. The history of the EPA's implementation of the section 110 state implementation plan (SIP) program is replete with examples. *See, e.g.*, a set of rulemakings approving the California ozone plan: (i) 61 FR 10920, 10921-10924 (March 18, 1996) (proposed approval of various California ozone plans), (ii) 62 FR 1150, 1151-1152 (January 8, 1997) (final rule approving various California ozone plans), and (iii) 64 FR 30276 (June 7, 1999) (proposed approval of SIP revision reflecting the outcome of public consultative process); a set of rulemakings acting on the San Joaquin Valley 1997 ozone and 1997 PM2.5 plans, which, at the indicated pages, described the background for those rulemakings: (a) 76 FR 41338, 41339-41342 (July 13, 2011) (proposed rule for San Joaquin Valley PM2.5 plan), (b) 76 FR 57846, 57847-57848 (September 16, 2011) (proposed rule for San Joaquin Valley Ozone Plan), (c) 76 FR 69896, 69896-69897 (November 9, 2011) (final rule for San Joaquin Valley PM2.5 Plan), (d) 77 FR 12652, 12652-12653 (March 1, 2012) (final rule for San Joaquin Valley ozone plan); 77 FR 10430 (Feb. 22, 2012) ("EPA allows and encourages local authorities to tailor SIP programs, including new source review permitting programs, to account for that community's particular needs provided that the SIP is not less stringent than the Act's requirements"; describing multi-year process of working with district to develop NSR SIP).

Similarly, the EPA has worked with states to develop regional haze SIPs. One example is the Louisiana regional haze SIP, which was due in 2007 under 40 CFR 51.308(b). On June 13, 2008, Louisiana submitted a SIP based on CAIR to meet EGU Best Available Retrofit Technology (BART) requirements. On June 7, 2012, the EPA disapproved the SIP, 77 FR 33641, and on August 26, 2016, the agency entered into a consent decree to approve a SIP revision or issue a FIP in 2017. *Sierra Club v. McCarthy*, Case No. 1:15-cv-01555-JEB (D.D.C). Since entering the consent decree, the EPA has worked closely with Louisiana and some of the regulated entities to help them develop a revised SIP to address EGU BART requirements under regional haze program.

X. Significant Changes to State Goals

A. Summary of Petitions

Several Petitioners for reconsideration raise objections related to changes in the stringency level of the state goals for the proposal and final Rule. Some stated that the changes

to the state goals are very significant. Ameren 11, Nebraska 10-11. Another state stated that the final Rule is fundamentally different than proposal because its state goal is significantly more stringent and not achievable. Wyoming 1-2. Several states and other Petitioners noted that their final Rule state goals are significantly more stringent than the proposed rule goals. North Dakota 1, Basin Electric Power Cooperative 14 (Wyoming and North Dakota), Kentucky 4, Ameren 14 (Missouri and Illinois). Another Petitioner stated that the increased stringency in the final Rule's goals was even greater because the proposal allowed states to rely on renewable energy in 2012, but the final Rule limited reliance to post-2012 renewable energy. Basin Electric Power Cooperative 14.

B. Response

The agency is denying all petitions related to this issue. First, the CPP proposal includes a robust record on building blocks, potential changes, and necessary data to estimate such changes. The EPA explicitly took comments on changes to the level of building blocks, commenters suggested changes be made, and the EPA made tools available allowing stakeholders to see how changes in assumptions may impact a state goal. In addition, the EPA issued a NODA that further highlighted and took comment on potential changes to the building blocks and noted that some changes could result in significant changes to the state goals. Stakeholders reviewed the materials, provided significant feedback in terms of comments and analysis, and suggested changes in some cases. The final Rule state goals are logical outgrowths of the proposal and NODA.

In the final Rule, the EPA incorporated several suggestions to the mitigation technology assumptions (i.e., building blocks) highlighted by commenters. While there were more than three changes to the EPA building block assumptions and methodologies, the primary drivers of the state goal changes that petitioners want reconsidered are attributable to three adequately-noticed changes: 1) changes to building block 3 levels, 2) changes regarding the replacement assumptions of incremental RE generation, and 3) regionalization of the building block 2 to better reflect the interconnected nature of the grid. Each of these changes was discussed in both the proposal and the NODA, as is discussed in more detail elsewhere in this document. Furthermore, stakeholders had data and formulas to estimate potential impacts of the elements of the proposal on final state goals.

Many commenters noted that some states' goals could become significantly more stringent due to these changes. For example, a Kentucky utility recognized that a regional approach would render Kentucky's state goal more stringent, and, to illustrate, provided a calculation that was close to Kentucky's final goal. Comment submitted by Gary Revlett, Director, Environmental Affairs, LG&E and KU Energy LLC, EPA-HQ-OAR-2013-0602-31932, at 25:

> Within the NODA, EPA claims the concepts for consideration are in response to comments from meetings with stakeholders to provide a more fair assessment of Building Blocks 2, 3 and 4; changes to the formula for calculating the goal; and more flexibility with respect to the timeframe of implementation. LKE's review of the NODA finds the recommendations regarding the implementation schedule may be more favorable and provide states additional flexibility toward a glide-path approach. However, the considerations EPA has outlined relative to the other topics, particularly a regional assessment of Building Blocks 2, 3, and 4 could result in significant reductions to Kentucky's target emission rate. Based on

calculations performed by the Kentucky Energy and Environment Cabinet, Kentucky's target could change from the original proposal of 1,763 lbs CO2/net MWh by 2030 down to as low as approximately 1,034 lbs CO2/net MWh, if adopted to the full extent of the potential described in the NODA.

Ameren Comment, Appendix 1-1, EPA-HQ-OAR-2013-0602-24964: "EPA acknowledges that the various alternative approaches the Agency is now contemplating in the NODA could fundamentally alter the proposed emission guidelines and lead to more stringent goals for all or some states. 79 FR 64544;" Comments of Wisconsin DNR - EPA-HQ-OAR-2013-0602-23541 at 14: "EPA's proposed approach for states participating in a regional compliance effort, in which state rate-based goals are averaged to give a shared, regional goal, is unlikely to work. It is difficult to perceive why a state with less stringent goals would be willing to join a regional plan if it resulted in their goals becoming more stringent, again highlighting the major inequities created by the form of this proposal;" Iowa Department of Natural Resources, Iowa Utilities Board, and Iowa Economic Development Authority, EPA-HQ-OAR-2013-0602-23271, at 13: Objecting to the NODA's approach "in which regional availability of NGCC generation would be considered, rather than just in-state availability of NGCC generation, when setting building block two targets," on grounds that "it does not seem reasonable or fair to set a state's goal for building block two premised on shifting generation to NGCC units that do not exist in the state based on the amount of NGCC generation in another state;" Arizona Corporation Commission comment, EPA-HQ-OAR-2013-0602-23479, at 23, 65 (objecting to a regional approach on grounds that a state's goal might be based on the proposition that it could procure generation in another state when in fact it might not be able to do so).[171]

XI. Adjustment of mass-based goals

A. Summary of Petitions

Petitioner urged the EPA to allow states to adjust their mass-based goals if projections of energy efficiency or demand prove inaccurate. Petitioner recommended that the inaccuracy could be calculated by applying regional demand growth projections from a reliable source (e.g., EIA) for the states, then applying state rate limits to those projections. Wisconsin PSC 10. Another petitioner objected that unlike the proposal, the final Rule does not allow anticipated electricity demand growth to be incorporated into mass-based goal, which significantly affects the goals. Prairie State 10-11.

Petitioner objected that, unlike the proposal, the final Rule does not authorize preserved at-risk nuclear generation to count as part of goal achievement. Petitioner stated that preserving nuclear generation is as good or better as new renewable generation and up-rated nuclear generation. Petitioner added that Illinois is impacted by these parts of the final Rule.[172]

[171] In addition, the fact that certain states had stringent proposed goals due to building blocks 2 and 3 – for example, the goals at proposal relied on RE increases from 2020-2029 in Texas of over 39 million MWhs, in Pennsylvania of over 26 million MWhs and in New York of over 15 million MWhs and relied on Texas and Arkansas redispatching over 50 percent of their historical coal generation via building block 2– put all states on notice that their goals could also become more stringent. Proposed Rule Goal Computation TSD Appendix 1, *see also* 79 FR 34895-3497.

[172] It should be noted that Illinois supported the CPP in the litigation and did not seek reconsideration). Prairie State 10-11.

B. Response

The EPA is denying this petition to reconsider. Petitioners had adequate opportunity to comment. In addition, the petitions are not of central relevance because they do not provide any information that could lead the EPA to revise the final Rule.

The "EPA is not adjusting the Final Rule to allow or require mass-based goals to be changed if projections of energy efficiency or demand prove inaccurate. As discussed above, the CPP incorporates flexibilities that each state could rely on and that facilitate attainment of state goals even if actual and projected demand differ. As discussed in the Power Sector Trends Appendix, energy sector trends towards less coal generation and more natural gas and renewable generation have reduced the amount of emissions reductions that most states need to achieve their goals, and significantly reduced the costs in achieving the remaining emission reductions. Various studies identify more than one-third of the states as coming into compliance with their 2030 CPP state goals through business-as-usual generation shifts, including some that at present are coal-heavy; and at least one study identifies a majority of the states. The CPP will continue to require the remaining states to impose requirements to achieve their state goals. In addition, as discussed in the response to the section, "Stringency of State Goals" above, the EPA has a history of working with states that make good faith efforts to submit approvable state plans but that encounter problems in doing so.

Furthermore, energy efficiency and demand levels are not part of the BSER determination and did not dictate the performance standards for steam and gas units. The mass-based goal is a compliance alternative, not a mandatory part of the program. Increased growth in electricity generation is compatible with both rate and mass implementation. With the mass goal, at least some of an increase in generation must be met by renewable or other low-emitting generation. The amount of incremental generation assumed in the mass goal calculation is a function of the cost-effective RE quantified under building block 3 that was not necessary under the goal-setting methodology to achieve the emission performance rates, rather than any fixed view of future demand. In addition, it should be noted that a limit on emissions does not represent a limit on generation. For example, existing mass emission budget programs for traditional pollutants and CO_2 for EGUs have been compatible with increased levels of generation.

Further, Petitioner had adequate opportunity to comment on at-risk nuclear generation because the proposal included preservation of at-risk nuclear generation in the state goal calculation, which raised the issue of whether it should count towards achieving the goal. 79 FR 34871; *see also* Wisconsin PSC Comments on CPP at Pt. 2-21 ("EPA's decision to count 5.8% of nuclear generation in each state as 'at risk' and including it in that state's goal is arbitrary and inappropriate.") (EPA-HQ-OAR-2013-0602-23541).

In addition, the petition is not of central relevance because it does not provide any information that could lead the EPA to revise the final Rule. In the final Rule, the EPA determined to define the BSER in terms of only incremental emission reduction measures from the baseline. For example, the EPA included in the BSER only new renewable generation, not maintenance of existing renewable generation. After determining the BSER, the EPA calculated the uniform rates by applying the BSER to the amount of fossil-fuel-fired generation in 2012. To provide flexibility, the EPA calculated rate- and mass-based goals for each state by applying those rates to the amount of each state's steam and gas generation in 2012. 80 FR 64821. State plans may allow sources to comply with a rate-based standard by holding credits that reflect generation from certain low- or zero-emitting sources, such as new renewable or uprated

nuclear generation. 40 C.F.R. §§ 60.5790, 60.5800. Because only facilities that commence operation or increase generation capacity after December 31, 2012, can be assumed to reduce fossil-fuel-fired emissions from the baseline level, only such facilities are eligible to generate credits for rate-based compliance. *Id.* at § 60.5800(a)(1); 80 FR 64737, 64814, 64896-97. Thus, because nuclear uprates increase zero-emission generation above the baseline, they are eligible for emission reduction credits. In contrast, maintaining existing nuclear generation (whether at-risk or not) does not increase zero-emission generation above the baseline and thus is not eligible for ERCs.

XII. Combination of Changes

A. Summary of Petitions

Some petitioners stated that the combination of changes that the EPA made from the proposal to the final Rule meant that they could not foresee the final Rule and therefore did not have an adequate opportunity to comment. Basin Electric Power Cooperative 13 (claiming that the EPA changed both the methodologies for determining BSER – including using a new approach for calculating building blocks 2 and 3 – and underlying technical data, which resulted in dramatically more stringent requirements for sources in Wyoming and North Dakota); Ameren 5-6 (stating that the final Rule has been altered so significantly that it should be re-proposed; "EPA admits it changed its logic, changed the 'building blocks,' changed the state goals and method of calculation of them, changed the outlines of the state plans, added some requirements, and took some away"); Wyoming 6 (claiming that changes were so many that majority of Wyoming's technical criticisms on the proposal were inapplicable to CPP); Texas 5-6 (claiming a lack of notice for applying building blocks – in the order of 1, 3, 2 – to two subcategories in three interconnects to determine emission performance rates, then picking least stringent rates, then applying them to each state's generation mix to arrive at goals); Northwestern 4-5 (claiming a lack of notice for applying building blocks on regional basis to develop nationally uniform emission rates that are significantly tighter for Montana and that can be achieved only through nationwide emission trading).

B. Response

The EPA is denying these petitions to reconsider. As discussed in other sections, the EPA provided adequate notice of each of the changes identified by Petitioners and, in fact, commenters commented on them.

In addition, the petitions lack central relevance because each of those changes is reasonable and Petitioners do not provide additional information – nor is the EPA aware of any – that would lead the EPA to change any of those parts of the final rule. The proposed rule included a multi-step methodology for calculating the state goals, which incorporated a large set of data. Commenters suggested numerous revisions to various components of the methodology, including suggesting reliance on different data, such as the NREL data for renewable energy. In addition, updates for the data, such as for the NREL data, became available for the final Rule. For the final rule, the EPA made a number of revisions of the methodology, including which data it relied on, based on the comments. In other sections, the EPA explains why each of those changes identified by Petitioners is reasonable and why Petitioners do not provide information that would lead the EPA to change them.

The fact that the EPA made a combination of changes to the methodology, as opposed to, say, a single change, means that the EPA was responsive to many of commenters' concerns, and does not mean that petitioners were deprived of the opportunity to comment. As noted

elsewhere, the EPA included with the proposal a "plug-and-play" workbook that would allow interested parties to determine the effect on their proposed state goals of changes in the various components of the methodology.

XIII. Section 111 and 112

Ameren's petition for reconsideration states that the EPA offered "new logic" in the final Rule to support the EPA's interpretation of the section 112 exclusion language in section 111(d), and that interested persons should have been provided an opportunity to comment on that. Ameren at 21.

First, Ameren and all interested persons had an opportunity to comment on the EPA's interpretation of the section 112 exclusion, and no further opportunity to comment is warranted. The EPA's proposed rule stated its then-current interpretation of the section 112 exclusion and requested comment. 79 FR 34853 (stating that the section 112 exclusion issue is discussed in the legal memorandum in the docket, and soliciting comment on all aspects of the legal memorandum). In response, the EPA received many comments on this issue and, although those comments did not change the EPA's conclusion that the section 112 exclusion did not preclude the CPP, those comments led the EPA to revise certain aspects of its analysis of the section 112 exclusion. 80 FR 64710-64711 (discussing comments on specific issues concerning the section 112 exclusion that impacted the EPA's analysis) and more generally 80 FR 64710-64715 (explaining the EPA's analysis and interpretation of the section 112 exclusion). In short, Ameren and all interested persons were provided an opportunity to comment on the EPA's interpretation of the section 112 exclusion. The EPA considered and responded to those comments, and the EPA is not obligated to provide a further round of comment on the agency's responses to those comments. *See, e.g., Personal Watercraft Indus. Ass'n v. Dep't of Commerce*, 48 F.3d 540, 543 (D.C. Cir. 1995) ("Rulemaking proceedings would never end if an agency's response to comments must always be made the subject of additional comments.").

Second, Ameren does not provide any basis for concluding that Ameren's comments during an additional comment period would have included "matters of such central relevance to the rule that there is a substantial likelihood that the rule would have been significantly changed." *See* Section 307(d)(8). Indeed, though Ameren's petition includes a few sentences describing its view of how the EPA's analysis changed, Ameren does not provide any discussion or opinions on why the EPA's analysis of the Section 112 exclusion is incorrect or how it should be different. Finally, the EPA notes that it thoroughly discussed the issues relating to the EPA's interpretation of the Section 112 Exclusion in the preamble for the final Rule, 80 FR 64710-64715.

For these reasons, the EPA concludes that Ameren's request for reconsideration fails to demonstrate that reconsideration is warranted or appropriate under Section 307(d)(7)(B).

XIV. Trading and the BSER

A. Overview

Several Petitioners assert that in the final Rule, the availability of emissions trading became central to the EPA's view of the BSER in a way that was not noticed in the proposal and was based on assumptions that Petitioners believe to be unsupported or flawed. Petitioners claim this is of central relevance and that the EPA should have conducted analysis of trading as a component of the BSER, and, in this regard, that the EPA had not adequately demonstrated that trading programs would in fact develop.

The EPA is denying these petitions. There was adequate notice of the EPA's views on

the relationship of trading to the BSER because the proposal discussed the availability of trading as a compliance option that would help with cost-effective implementation. In addition, commenters widely supported trading, including some of these Petitioners. Moreover, there was no significant change in the final Rule on the EPA's view of the relationship between trading and the BSER. In the final Rule, the EPA continued to view trading as a means to implement the BSER, but not as a component of the BSER itself. That is, the EPA recognized that sources could implement the BSER to achieve their emission limits without trading. However, the EPA further recognized that in practice, trading programs are likely to develop and states and sources are likely to rely on trading in implementation because it increases the efficiency and cost-effectiveness of compliance with the CPP. For this reason, the EPA considered trading to be integral to the analysis of the BSER. The petitioners do not provide any information to contest the EPA's record-based analysis that trading programs can be expected to develop, and thus their petitions are not of central relevance.

B. Summary of Petitions

Petitioners American Electric Power (AEP), Ameren Corporation, Basin Electric Power Cooperative, Oglethorpe Power, the Southern Company, and UARG, petition the agency to reconsider the relationship between trading and the BSER. First, they assert a lack of notice in how the EPA treated the relationship between trading and the BSER in the final Rule. Second, they raise two primary substantive objections: first, that the EPA should have analyzed trading in the BSER, and second, that the EPA has not established that trading programs will in fact be developed.

With respect to Petitioners' notice arguments, Petitioner UARG argues that the EPA elevated trading from merely an option for the states in the proposal to a necessary component of the BSER in the final Rule. UARG 10. UARG asserts that the EPA's position is that affected EGUs can implement the BSER *only* due to trading. *Id.* UARG asserts it wasn't able to comment on these positions, and that it should have had the opportunity to comment on whether trading could be a basis for a BSER determination or compliance with a section 111(d) standard; whether basing the rule on availability of trading reduces states' flexibility; whether it was reasonable for the EPA to assume that states will establish trading programs; and whether trading markets will be robust enough to support "the levels of trading needed to comply with the Rule." *Id.* at 11. Similarly, AEP asserts that in the final Rule, the BSER "as a practical matter" requires certain states to join multi-state trading programs. AEP 2. Petitioners Ameren and Southern Company assert that the final Rule has become dependent on a trading program, whereas in the proposal, trading was only an option, and given that EPA's model trading rules and federal plans have only just been proposed, viable trading programs aren't fully identified or developed. Petitioners request re-proposal of the CPP and model trading rule requirements at the same time. Ameren 4-5. Southern Co. 33 (asserting the EPA is "precluding meaningful opportunity for public review and comment on the complete set of trading provisions that work together" and "EPA's BSER determination is predicated on trading").

C. Response

In the CPP Proposal, the EPA discussed trading as a compliance option likely to be chosen by states as a cost-effective way to implement the state goals. The agency discussed ways in which states were already establishing policies to reduce GHGs from power plants. In particular, the EPA highlighted trading programs such as the Regional Greenhouse Gas Initiative (RGGI) in the Northeast, and California's A.B. 32 market-based emission trading program. 79 FR 34848-34849. The EPA did not include trading in its proposed approach to the

best system of emission reduction, but made clear that market-based approaches would be an option for states in the design of state plans. 79 FR 34833, 34837. The EPA requested comment on means of ensuring that the CPP facilitated trading, such as by combination of the two source subcategories. *Id.* at 34855. The EPA highlighted the fact that the interconnected nature of the grid means that trading programs often provide least-cost, highly flexible approaches to pollution control, highlighting several existing state and EPA programs. *Id.* at 34880. The EPA stated at proposal, "Emission trading or averaging approaches can facilitate the implementation of [the BSER]…." *Id.* at 34883. Although the EPA did not propose to take the position that trading was a component of the BSER, EPA solicited comment on whether trading should be a component of the BSER. 79 FR 34892.

Commenters on the CPP Proposal were largely supportive of the EPA allowing states to use emissions trading approaches in their state plans. CPP RTC 5.13, at 276-280. Even prior to the CPP Proposal, industry stakeholders urged the agency to look at trading or emissions averaging approaches to GHG controls in the electricity sector. CPP Legal Memorandum, 14-16. Some commenters identified as a concern that allowing two types of trading (i.e., rate-based and mass-based trading) could be complex and could lead to a mixture of programs across the country that could be difficult to administer. RTC 5.13, at 281. Some commenters specifically requested that the EPA establish that the BSER is an "efficient market" and establish the section 111(d) program from that basis. CPP RTC 1.10.9, at 259.

In the final Rule, the EPA continued to treat trading as one of several approaches that sources can utilize to implement the building blocks. 80 FR 64733-64735.[173] The EPA stated, "[b]ecause trading facilitates implementation of the building blocks and may help to optimize cost-effectiveness, trading is a method of implementing the BSER …." 80 FR 64709. The EPA found that other measures or actions could also be encompassed by the BSER in terms of how the building blocks could be implemented, and therefore that trading was not the only method. For instance, the EPA identified direct investment in efficiency improvements and in lower- and zero-carbon generation, as well as reduction of high-carbon generation. 80 FR 64718. The EPA continued to recognize that states could readily incorporate emissions trading into their approach to establishing standards of performance in state plans. *Id.* at 64723.

Furthermore, while the EPA found that sources can implement the building blocks and achieve the uniform rates without trading, 80 FR 64731-32, the record also supported the EPA's determination that sources will be able to rely on trading if they choose. *Id.* at 64734-64735. This is particularly the case, given the widespread support for trading as an implementation approach endorsed by many states and industry stakeholders. 80 FR 64733 n.380 (identifying numerous commenters who supported trading); CPP RTC 5.13; Legal Memo at 14-16. Several commenters suggested that the EPA provide guidance on establishing trading programs or provide model trading rules that states could adopt or incorporate by reference. RTC 5.13, at 285-286. The EPA met these requests by proposing both a rate-based and a mass-based model trading rule, modeled on existing EPA emission-trading programs, which states could readily work from or adopt in order to design their own programs. 80 FR 64966.

To those commenters who argued that having both a rate- and a mass-based approach to emissions trading could cause complexity and frustrate the development of interstate markets,

[173] "Trading" in this context refers to the purchase or sale of compliance instruments (allowances or credits) between parties, such as power plants, renewable-energy facilities, or other market participants, 80 FR 64733, and does not refer to acquiring credits from direct investment. While the EPA recognizes that building blocks 2 and 3 necessarily entail some form of crediting or averaging, this was never, in the EPA's view, synonymous with "trading."

the EPA explained that the CPP, as an exercise of authority under section 111(d), follows the general Clean Air Act principle that states have the discretion to develop plans of their choosing, so long as they meet applicable requirements. Legal Memorandum at 28-30. Because the EPA provided mass-based goals as an equivalent approach to the emission performance rates (and did so at the urging of many stakeholders and commenters), it follows that both rate- and mass-based approaches to implementation could be taken. Further, the agency, in providing for both rate- or mass-based implementation, was meeting commenters' separate requests for flexibility in the design of state plans to respect the unique circumstances of the states. RTC 5.13, at 281. (The EPA never indicated, in either the proposal or the November 13, 2014 Notice providing additional information on translation of the rate-based goals to mass-based equivalents (79 FR 67406), that states would or should have the ability to link mass-based trading programs with rate-based trading programs.)

The flexibility to use either a mass- or rate-based approach was not, in the agency's view, an option for states that would undermine the achievability of the BSER. The EPA did not take a position in either the proposed or final Rule that multi-state plans are necessary for achievability. Rather, states were given the flexibility, "if they choose, [to] work with other states on multi-state approaches that reflect the regional structure of electricity operating systems that exists in most parts of the country …." 80 FR 64666. The EPA's regulatory impact analysis (RIA) for the final Rule demonstrated that the final Rule was achievable at reasonable cost, even if each state only did a state-specific implementation plan. The two illustrative plan approaches the EPA modeled assumed that sources within each state would comply with the applicable state goals without exchanging a compliance instrument with sources in any other state. CPP RIA, at 3-10.[174]

The above description of the rulemaking makes clear that Petitioners are incorrect regarding any alleged lack of notice with respect to the relationship between trading and the BSER.[175] First, the EPA solicited comment broadly on the appropriate role of trading. For example, the EPA noted in the proposal that stakeholders stated that trading should be part of the BSER, and the EPA solicited comment on that view.79 FR 34892. However, the EPA did not propose the position that trading is an intrinsic component of the BSER. In the proposal, we stated, "Emission trading or averaging approaches can *facilitate the implementation* of [the BSER]…." 79 FR 34883 (emphasis added). In the final Rule, we stated, "Because trading *facilitates implementation* of the building blocks and may help to optimize cost-effectiveness, trading is a method of implementing the BSER …." 80 FR 64709 (emphasis added). The BSER analysis itself looked only at the achievability of the building blocks, and the EPA concluded, reasonably and with substantial record evidence in support, that all affected EGUs can do so, while recognizing that "some may need to focus more on certain measures" than others. 80 FR 64735; CPP Legal Memo at 85 ("The EPA's determination of the BSER for the source category … does not depend on each individual affected source being able to implement the BSER in precisely the manner that the EPA defined it for the source category as a whole."). UARG takes a single clause of the final preamble out of context, interpreting it as meaning the EPA somehow *did* rely on trading in setting the BSER, ignoring the record itself on how EPA

[174] In the rate-based scenario, sources are allowed to procure renewable energy or demand-side energy efficiency beyond their own state in order to adjust their effective emission rate, which is consistent with the conditions for rate-based implementation in any state. *Id*.

[175] The EPA's denial of the petitions to the extent they object to the trading rules the EPA established in the CPP is in section XVII.

actually calculated the building blocks. UARG 10. The EPA did *not* include emission trading itself as a type of emission reduction measure, either in the proposal or the final Rule. For instance, nowhere in the Greenhouse Gas Mitigation Measures technical support document (TSD) for the final Rule, did the EPA identify emissions trading as a measure. (The one place trading is mentioned is in a footnote explaining that for some sources, trading could be helpful if they have below-average opportunities for heat rate improvements onsite. GHG Mitigation Measures TSD, at 2-61 n.91. As explained in the Legal Memorandum, however, this observation, with respect to any of the building blocks, is not relevant in the context of the selection of the BSER for the source category as a whole. *See* Legal Memo, at 84-85.)

While the EPA did not treat trading as a part of the BSER in the final Rule, 80 FR 64731-32, the EPA fully recognized what many stakeholders told the agency in their comments: trading would likely be used as the means of maximizing the cost-effectiveness of the BSER level of emission reduction in actual implementation. *Id.* at 64734-35, *see* Legal Memorandum at 84-85 (noting "it would be technically feasible for each affected EGU" to achieve the BSER level of emission reductions on its own, but "that would not maximize the efficiencies available to each source"). The EPA expressed high confidence that trading programs would develop and be relied on, particularly given the widespread support for trading as an implementation approach endorsed by many states and industry stakeholders. *See generally* 80 FR 64733 n.380 (identifying numerous commenters who supported trading); CPP RTC 5.13; Legal Memorandum at 14-16. It was for this reason that the EPA stated that trading was integral to its analysis of the BSER. 80 FR 64733-64734.

Similarly, Petitioners' objections that notice and comment opportunities were inadequate with respect to the relationship of trading and the BSER as a result of what they describe as the EPA's "piecemeal" approach to rulemaking are not compelling. Petitioners claim that some rules and restrictions related to trading were established in the final CPP, while others were proposed for comment in the federal plan and model trading rules. They object that this frustrated their ability to comment on the role of trading, which they say was central to the BSER. First, as explained above, the EPA did not state that trading was a part of the BSER or that it is necessary for sources to be able to implement the BSER. Thus, whether and how states would develop single-state or interstate trading programs is not a necessary predicate to the BSER. Any comments that Petitioners could or did submit on the proposed federal plans and model rules would not have had any bearing on the EPA's BSER determination in the final CPP. Second, Petitioners are incorrect that the CPP and the proposed trading rules were a piecemeal approach to rulemaking that frustrated their ability to comment. The CPP establishes the requirements for state plans, including some requirements related to emissions trading, if states choose to take an emissions trading approach. The proposed model rules are simply intended to provide an example of how a trading program could be developed for use as a state or federal plan. While the EPA encouraged states to consider the benefits of using one of the model trading rules, and to take advantage of the ready-for-interstate trading approach by which larger emissions trading markets could easily be formed, the EPA also made clear, "States of course remain free to develop a plan of their own choosing to submit to the EPA for approval following the criteria set out in the final Clean Power Plan." 80 FR 64973-64974. Further, Petitioners have failed to explain what specifically in the proposed federal plan or model trading rules impacted their ability to comment on the BSER, or the EPA's position on the relationship of trading to the BSER.

Turning to the substantive objections raised by Petitioners, the EPA finds that they lack

central relevance. At base, Petitioners make two separate arguments. First, they claim that if trading is part of the BSER (as explained above, it is not), then the EPA should have done analysis of the BSER, and its cost and achievability, that explicitly incorporates trading. UARG 10-11; Southern Co. 34; Basin Electric Power Cooperative 16, 27-29. Second, they argue that the EPA has failed to adequately establish that trading will actually emerge through state planning, and therefore, the EPA cannot rely on these non-existent trading programs as support for the final Rule. Basin Electric Power Cooperative 29-34; UARG 10; Ameren 4-5; Wyoming 11. Both arguments are specious.

Petitioners' claim that the EPA did not demonstrate that sources can achieve the uniform rates because the EPA relied on trading programs as an emission-reduction measure outside the BSER, lacks merit because trading is not an emission-reduction measure, and, instead, is one of several approaches that sources can use to implement the building blocks. Furthermore, the record demonstrates that sources can implement the building blocks and achieve the uniform rates without trading, 80 FR 64731-64732, and clearly supports the EPA's determination that sources will be able to rely on trading if they choose. *Id.* at 64734-64735.

The uniform rates are based on the amount of emission reductions the EPA determined sources can achieve by implementing the building blocks. Sources have a wide range of options for implementing them. They can, among other things, increase generation from existing gas plants they control; invest in existing gas plants or new renewable-energy facilities; or enter into agreements to purchase power from existing gas plants or new renewable-energy generators. 80 FR 64731-64732; Legal Memo, at 137-148. Sources can utilize these options directly, i.e., through investing in or purchasing power from another generator, or—as an option urged by stakeholders including many of these same Petitioners—indirectly by participating in a market for tradeable credits or allowances. 80 FR 64733-64735. Trading, therefore, is not an emission-reduction measure (either inside or outside of the BSER), that is, it is not a component of the BSER, but rather it is one method for "facilitating implementation" of the building blocks, albeit one that is likely to be used because it maximizes cost-effectiveness. *Id.* at 64709.

The EPA never stated that trading is necessary to achieve the BSER emission performance rates. Rather, the EPA said that trading was integral to its analysis of how the uniform rates could be achieved in a highly cost-effective manner, in light of the near certainty that states will establish trading programs. *Id.* at 64733-64734. Nowhere did the EPA take the view that individual sources are unable to achieve the uniform rates through application of the Building Blocks, and the record demonstrates the opposite. *Id.* at 64735 ("all types and sizes of [sources] in all locations are able to undertake the actions described as the [BSER]"); *Id.* at 64752-64754 (performance standards are achievable through application of the Building Blocks). Petitioners' contrary claims are based solely on snippets taken out of context. For example, the quoted statement from the Goal Computation TSD is from a discussion of the EPA's methodology for calculating the uniform rates that focused on how sources *would* implement the BSER (on a regional basis), and does not address how sources *must* implement the BSER. Furthermore, the fact that sources *can* rely on non-BSER measures for compliance does not mean that they *must* do so. 80 FR 64755-64758.

Petitioners' arguments that the EPA could not conclude that the BSER is achievable without a more thorough analysis of trading are also incorrect. As explained above, the EPA's BSER analysis was not, in fact, predicated on trading, and so additional analysis of trading is not necessary to establish that the BSER is achievable. By the same token, since the EPA's analysis did not assume interstate trading would occur, the Rule remains fully achievable for

affected EGUs even in the highly unlikely event that states decline to work with one another in establishing trading programs. Thus, UARG is factually incorrect to state that interstate trading is necessary because of the regionalized nature of the building blocks, or that the EPA ever made such an assumption. UARG 10. And Basin Electric Power Cooperative and Oglethorpe Power are incorrect that the rules the EPA established relevant to interstate trading will have any significant effect on achievability of the BSER. Basin Electric Power Cooperative 31-32; Oglethorpe Power 4-10. For instance, rate-based crediting is available for eligible resources located outside of a state, even if that state takes a non-trading, single-state approach to its plan. 80 FR 64897. Any such resource in any rate-based state can be credited for use for compliance in any other rate-based state (so long as not double-counted), regardless of what emission rates are used as emission standards on the affected EGUs in the credit-originating state. *Id.* Further, eligible RE resources located in mass-based states may earn ERCs if the power is demonstrated to be delivered with the intention to meet load in a rate-based state; this also does not require any relationship between the two states' plans. These rules were designed expressly to maintain consistency with the approach the EPA took to the BSER. *Id.* at 64897-64898. Finally, in the extremely unlikely event that a state finds itself in a completely incompatible situation with other state programs, the EPA has said it will work with the state or states to ensure that there is a mechanism to account for emission reductions. 80 FR 64732 n.377.

With respect to Petitioners' concerns over whether it is demonstrated that the final Rule is still achievable and cost-effective if interstate trading is implemented, *see* Basin Electric Power Cooperative 28, it is clear that emissions trading, where used appropriately, has the effect of making air pollution control programs more cost-effective, and the broader the market, the more efficiencies become available. *See, e.g.*, 80 FR 64988-64989 (discussing history of trading under the CAA). Therefore, if the EPA had analyzed or modeled more comprehensive trading approaches as implementation scenarios—such as through regional or national interstate trading programs—the result would be that the Rule would have lower costs than the EPA already projects under its conservative assumptions. *See* CPP RIA 3-11 (analyzing costs of the CPP assuming that state plans do not allow for interstate trading). Requests for more quantitative analysis on this point would do no more than confirm what is already widely understood and therefore lack central relevance.

Regarding their second argument, Petitioners fail to adduce any evidence that would undermine the EPA's conclusions that states can reasonably be expected to adopt trading programs. The EPA's record shows that many, if not all, state plans will provide for trading because it is the most cost-effective method for implementing the building blocks, and there is no basis to Petitioners' claim that trading programs and markets will not develop. Commenters across the spectrum urged the EPA to allow for trading as a means of compliance. 80 FR 64733 n.380. Given that industry and state stakeholders view trading as a cost-effective method for compliance, their interest in the option is itself evidence that states are likely to establish successful trading programs.

Furthermore, Petitioners do not dispute that in every case where the utility industry has been allowed to trade to comply with CAA requirements, vigorous trading markets have rapidly developed. *Id.* 64734-64735. Petitioners' attempts to distinguish these programs on the ground that they were federally imposed or based on at-the-unit control strategies, is misplaced. For instance, the three transport rules implementing CAA section 110(a)(2)(D)(i)(I) established emission standards and either provided that states could join a multi-state trading program if they wished, which all affected states have done (the NOx SIP Call), or provided that states

could adopt a non-trading program and opt out of a multi-state trading program, which no affected state has done (CAIR and CSAPR). For example, in the NO_x SIP call, 63 FR 57356 (Oct. 27, 1998), the EPA promulgated a model trading rule that states could adopt, and all states did so.[176] These trading programs also relied on generation shifting in addition to at-the-unit control strategies, similar to building blocks 2 and 3. *See* NO_x SIP Call, 63 FR 57356, 57362, 57401 (Oct. 27, 1998); Clean Air Interstate Rule (CAIR), 70 FR 25162, 25276-25277 (May 12, 2005); Cross-State Air Pollution Rule (CSAPR), 76 FR 48279-48280 (Aug. 6, 2011); Legal Memorandum at 95-102.

There is also currently robust trading to meet state renewable-energy standards even though each state adopted its own program without any overarching federal requirement. 80 FR 64735. This demonstrates that the states and the utility industry recognize that trading is an efficient and cost-effective mechanism to achieve compliance with emission requirements, and that they are quite capable of implementing a trading program for CO_2 emissions. *See Small Refiner Lead Phase-Down Task Force v. EPA*, 705 F.2d 506, 535-36 (D.C. Cir. 1983) (upholding as reasonable the EPA's prediction that a trading market would develop based on competitive nature of industry, experience with other CAA programs, and support for trading in comments). The EPA has taken numerous actions to facilitate the development of trading programs under the CPP, including proposing model trading programs that states can adopt. 80 FR 64838-64840, 64892-64894, 64910-64911. Given the enthusiasm for trading shown in comments and the states' past participation in CAA trading programs, it would be unreasonable to think that states will not design plans that facilitate a robust trading market. Further, the northeast states in the RGGI program have established an interstate trading program to reduce CO_2 emissions from power plants. Moreover, as indicated in the State Progress and Trends Appendix, many states were engaged in discussion with other states about developing interstate trading programs to implement the CPP before the U.S. Supreme Court stayed the Rule.

XV. Trading Limitations

Petitioners UARG, Basin Electric Power Cooperative, Southern Company, Entergy, AEP, Oglethorpe, and Texas request reconsideration of a number of the final rule's requirements regarding interstate trading. The EPA is denying these requests and explaining the reasons for denial in the following subsections.

A. Limitations on Trading Between Mass-Based and Rate-Based Plans

Petitioners Entergy, Southern Company, AEP, Oglethorpe and Basin Electric Power Cooperative contend that the EPA did not provide notice regarding the final rule's prohibition on trading between mass-based plans and rate-based plans, and between plans that adopt a rate-based goal without entering into a multi-state plan and aggregating their goals. However, the EPA did provide notice of these prohibitions, and therefore Petitioners had sufficient opportunity to raise their objections during the public comment period.

Both the proposal and final Rule explain that "interstate effects," or differing characteristics across states and sources, could create risks of increased emissions under this rule through double counting of emission reduction measures or through foregone emission reductions due to movement of generation from source to source. 79 FR 34921; 80 FR 64911. The final Rule includes several ways to address the concerns of double counting and distortionary incentives that may lead to increased emissions, including prohibition on trading

[176] "The NO_x Budget Trading Program: 2008 Highlights," at 1, https://www.epa.gov/sites/production/files/2015-09/documents/2008_highlights.pdf.

between mass-based states and rate-based states. *Id.* Because the proposal explicitly solicited comment on these means of addressing the concern of double counting or alternatives, the EPA clearly took comment on the concept of double counting and potential measures to address this issue. In fact, a number of commenters provided input on this issue, further demonstrating the EPA's solicitation of comment on the concern of double counting and appropriate subsequent finalization of measures to minimize the concern. Therefore, it is apparent that the Petitioners were afforded ample notice of the rate-to-mass and rate-to-rate trading prohibitions and thus it was not impracticable for them to raise their objections during the rulemaking, and the EPA is denying the petitions on this basis.

Furthermore, the Petitioners provide little to no information on what the EPA should have finalized otherwise to address adverse interstate effects. In response to this solicitation of comment and commenters' concerns, the final Rule explains that sources may only trade with sources in other states that have plans with equivalently denominated mass-based allowances or rate-based ERCs. While Petitioner Entergy contends no concerns regarding notice and comment with this requirement, Petitioner cites this final Rule preamble language and states that the EPA should devise a construct under which allowances and ERCs are interchangeable, without offering any information suggesting that such a construct can reasonably be achieved or that the EPA's lack of such a construct is unreasonable. For example, the Petitioner's assertion that interchangeability between ERCs and allowances is critical because "for states where Entergy operates […] limited renewable energy development potential in these states means that compliance will depend upon interstate trading of ERCs or allowances" is fundamentally flawed and misguided. The final Rule clearly allows affected EGUs to directly access ERCs generated by renewable energy and other eligible resources located in other states without interstate trading. The final Rule clearly contains this feature as the preamble states, "consistent with assumptions used in calculating the CO_2 emission performance rates in the emission guidelines, affected EGUs and states can take full credit for the MWh resulting from eligible measures they are responsible for deploying, *no matter where those measures are implemented*." (emphasis added). 80 FR 64896-97; *see also* footnote 942, 40 CFR 60.5800-5805. In other words, affected EGUs can deploy renewable energy and other eligible resources in other states, and receive credit for those resources without engaging in interstate trading even if those resources are not located in the same state as the affected EGUs. Therefore, the Petitioner is incorrect in its assertion that the limitations on trading inhibit sources' ability to comply with the rule in this respect.

Regardless of Petitioners' failure to even hint at what the EPA might have finalized in the alternative, and failure to support why these issues are of central relevance, the EPA's finalized limitations are reasonable in light of the concerns regarding adverse interstate effects. The Rule further explains that mass-based plans will trade *uniform* (emphasis added) allowances, and that in mass-based plans any emission reduction measures that are implemented are automatically accounted for in reduced stack emissions of CO_2 from affected EGUs, which avoids concerns about double counting the same mass reductions in two different mass-based states. 80 FR 64912. Similarly, the final rule explains that rate-based plans require an explicit adjustment of reported CO_2 emission rates from affected EGUs, to reflect the measures that substitute lower- or zero-emitting generation or energy savings. The crediting methodology in the final rule accordingly prevents double counting of emission reductions because the reported emissions from each unit are represented in the numerator of each of those units' emission rates, and those real emissions capture whatever emission reduction impact occurred with regard to any particular

MWh of RE or demand-side EE savings for affected EGU generation. 80 FR 64913. Essentially, by limiting interstate trading to states with the same compliance metric, the EPA minimized the risk of double counting and foregone reductions by ensuring that state plans deal with a common currency (i.e. allowances or ERCs) that reflects actual emission reductions. The Petitioners do not explain how the EPA could have allowed mass-based states to trade with rate-based states and vice versa while minimizing adverse interstate effects such as double counting or distortionary effects that lead to forgone emission reductions. The Petitioners offer no methodology or information supporting how states could convert ERCs to equivalent allowances and vice versa. The EPA's decision to restrict interstate trading between plans using a common currency is reasonable in light of the concerns regarding adverse interstate effects, and therefore the petitions on this issue are also denied on the grounds that the objection is not of central relevance.

B. Limitations on Trading Between Rate-Based Plans

Petitioner Southern Company contends that the final Rule's limitations on sources under rate-based plans trading with other rate-based plans was not noticed under the proposal. Petitioners Basin Electric Power Cooperative and Entergy do not contend a notice issue with this limitation but instead simply request that the EPA remove this limitation considering alleged constraints with achieving the rule. The final Rule requires that for interstate trading to occur between rate-based plans, such trading may only occur between states that adopt the performance rates or between states that adopt a multistate plan with an aggregated rate-based goal. The final Rule explains that the purpose of these limitations is to address "interstate effects" by minimizing double counting of emission reduction measures or foregone emission reductions due to movement of generation from source to source. 80 FR 64911.

Petitioner Southern Company is incorrect with respect to the assertion that the EPA did not propose the limitations on rate-based interstate trading, as the EPA did propose that a methodology for crediting interstate trading between rate-based states could account for avoided CO_2 emissions from an identified region as a whole, and solicited comment on various options and alternatives to address interstate effects. Notably, the proposal took comment on methodologies for aggregating rate-based goals for multi-state trading, and noted a concern regarding the fact that the mix of generation for affected EGUs differed across states and could influence the weighted average emission rate goal (i.e. the rate-based goal for multiple states in the aggregate). 79 FR 34911-12. Furthermore, the proposal clearly invited comment on a crediting approach for interstate trading wherein states would provide an adjustment based on the estimated CO_2 emissions that are avoided from the power pool or identified region as a result of RE and demand-side EE measures. In other words, the proposal invited comment on whether states could adjust the emission rate for affected EGUs in a multistate region, i.e. under an aggregated rate-based goal. The proposal noted that this approach implicitly assumes that the avoided CO_2 emissions come from the electric power pool or other identified region as a whole, rather than an individual EGU. 79 FR 34920. Additionally, the proposal requested comment generally on possible options and alternatives to address interstate effects on CO_2 emissions from affected EGUs while minimizing the likelihood of double counting. 79 FR 34921. The EPA received comments in response from commenters concerned both by double counting and potential interstate effects in the form of distortionary incentives that result in increased emissions. In response to these comments on the proposal, the EPA took steps in the final rule to minimize double counting and such distortionary interstate effects. Namely, allowing rate-based interstate trading only between states that adopt the performance rates or a weighted average

joint rate-based goal assures that all the participating states are issuing ERCs using the same subcategorized performance rates, and that the sources in each state have equivalent incentives for trading ERCs. 80 FR 64912. Having the same reference rate for ERC calculations prevents double counting and creating perverse incentives to build cleaner resources in states with more stringent average performance rates because such resources would receive more ERCs for the same generation in such states compared with states with less stringent average performance rates. Therefore, given the proposal's clear solicitation of comment on methods to appropriately credit emissions avoided in a rate-based interstate trading construct, and the proposal's solicitation of comment on approaches to minimize adverse interstate effects such as double counting, Petitioner is incorrect that the EPA failed to give notice on the final rule's limitations on trading between rate-based plans, and the EPA is denying the petition on this basis.

Furthermore, Petitioners' objections are not of central relevance because they have not provided any reason for the EPA to change the rules on rate-based interstate trading. Nor is the EPA aware of any reason – in fact, the rules are reasonable to address the risk of double counting and adverse interstate effects. As previously explained, these rules serve to minimize differences between state programs and thus minimize adverse interstate effects such as double counting and distortionary incentives which result in eroded emission reductions. Petitioners do not attempt to explain or suggest how, absent these rules, rate-based states could trade with other rate-based states without foregoing emission reductions or risking double counting emission reduction measures. Petitioners merely state that the EPA should remove the requirement that states with a rate-based trading program that are not participating in a multistate plan impose on EGUs emission standards equal to the subcategory performance rates. Petitioners Basin Electric Power Cooperative and Entergy offer no information on how this requirement hinders achievability of the rule and do not at all consider the EPA's rationale for finalizing this requirement. To the contrary, these constraints provide a level playing field for sources and ERC-generating resources without hindering achievability of the rule's requirements. For example, existing NGCC units operating in a state that adopts the performance rates have a unique and additional opportunity to be issued "Gas Shift ERCS" ("GS-ERCs") that can be used to achieve compliance or can be sold, traded, or otherwise acquired by steam units who in turn can also use GS-ERCs for compliance. 80 FR 64905; 40 CFR 60.5795(a)(2). NGCC units that operate below their emission rate and are located in a state adopting the performance rates are eligible to receive GS-ERCs for the increment of generation by NGCC units that displaces/substitutes for generation from steam units (i.e. the increment of generation reflecting Building Block 2). As previously discussed, affected EGUs located in rate-based states can also directly acquire, without trading, ERCs from resources located in other rate-based states. 80 FR 64896-97; *id.* n.942; 40 CFR 60.5800-5805. This ability exists regardless of whether the other state adopts the performance rates or a rate-based goal, as an ERC-eligible resource can always be issued ERCs by the same state in which the affected EGU is located rather than the state in which the eligible resource is located.

It is also important that while there are many ways in which affected EGUs can acquire ERCs for compliance even with the EPA's limited constraints on trading, affected EGUs can also achieve their emission rates by taking actions directly at the unit. For example, affected EGUs can install CCS, undertake heat rate improvements, or restrict hours of operation, and additionally, steam units can co-fire with natural gas or shift generation to existing NGCC units.

Given the EPA's reasonableness in ensuring the final rule addresses adverse interstate effects, and the Petitioners' lack of information of what the EPA could have finalized otherwise

to address relevant and integral concerns, the EPA is also denying the petition on the grounds that the objection is not of central relevance.

C. Limitations on Crediting Resources Located in Mass-Based States

Petitioners Southern Company and Basin Electric Power Cooperative also contend that the EPA provided no notice of the limitation on creditable resources located in mass-based states. The EPA finalized a general prohibition on trading between mass and rate-based states, with the exception that rate-based states could issue ERCs to renewable energy resources located in mass-based states, subject to the condition that the renewable energy generation is demonstrated to be delivered with the intent to serve load in a rate-based state. The final Rule explained that this exception was due to the "unique role" of renewable energy in the BSER. 80 FR 64897–98. The final Rule further explained that this exception to the prohibition to trading between mass and rate-based states is because a restriction on crediting renewable energy located in mass-based states "could cut some states off from regional RE supplies that are assumed in the BSER building block 3 and incorporated in the CO_2 emission performance rates and state CO_2 goals." 80 FR 64913. The EPA accordingly determined that "allowing crediting [of renewable energy resources] between rate- and mass-based states, as long as the risk of foregone CO_2 emission reduction actions in rate-based states are minimized, will assure a supply of eligible RE MWhs that will further enable affected EGUs and states to meet obligations under the final rule."

However, Petitioners' assertion regarding notice of this limitation is incorrect. The proposal recognized the interstate nature of the electricity system and wholesale electricity markets, as well as how programs and measures in a state plan may affect the performance of an interconnected electricity system in another state. 79 FR 34921. Accordingly, the proposal identified the need to account for interstate effects associated with measures in a state plan in a consistent manner to allow states to take credit for the CO_2 reductions resulting from these programs while minimizing the likelihood of double counting. *Id.* To achieve this goal, the EPA sought comment on a number of options explicitly identified in the proposal as well as alternatives. 79 FR 34921-22.

These options identified in the proposal include asking if states could credit out-of-state renewable energy if they could demonstrate no double counting and, if so, what should such demonstration entail. 79 FR 34922. The proposal also suggested that, consistent with the BSER, states could only credit in-state energy efficiency (as opposed to allowing states to credit energy efficiency resources located in another state). *Id.* Therefore, the Petitioners have not demonstrated it was impracticable to raise any objections regarding this requirement at the time of proposal and the EPA is denying the petitions on these grounds.

Furthermore, the Petitioners provide little to no explanation or support for why these issues are of central relevance or what information they would have provided to demonstrate the EPA should finalize different requirements. With respect to the contention that the EPA provided no notice of restrictions on non-renewable energy resources, such as nuclear, from generating ERCs if the resource is located in a mass-based state, Petitioner Southern Company merely states in conclusory fashion that this restriction is "of particular concern to Southern Company because its subsidiary Georgia Power Company is currently constructing two nuclear units in Georgia." The Petitioner makes no further explanation of this point. Petitioner incorrectly states that the EPA finalized "without justification" the restriction on non-renewable energy resources generating ERCs if such resources are located in a mass-based state, and totally fails to explain why the EPA's finalization of such restriction is unreasonable. For the reasons stated previously, the EPA proposed and finalized such restriction in response to concerns about double-counting and

foregone reductions, and limited crediting of resources located in mass-based states to renewable energy resources because of the role of RE in the BSER. Because Petitioners fail to show the EPA did not provide notice on this issue and fail to show why the EPA should have finalized different requirements, the EPA is denying these petitions.

D. Rules Regarding Emission Rate Credits (ERCs)

Petitioner AEP contends that the EPA did not provide notice regarding provisions authorizing EPA to duplicate renewable energy and energy efficiency credit validation and auditing functions that are already adequately performed by expert state and federal agencies, and require states to use the EPA's system; imposing monitoring and reporting obligations on affected sources without adequate opportunity for comment; and restricting the due process rights of market participants by mandating pursuit of administrative appeals to the EPA. Petitioner is factually incorrect that the final rule authorizes the EPA to duplicate RE and energy efficiency credit validation and auditing functions, the final Rule requires states interested in rate-based trading to perform these functions, and as Petitioner points out, state agencies already know how to adequately perform these functions. As further described below, the final rule requirements regarding issuance of ERCs leverage existing state programs. Petitioner is also factually incorrect that the final Rule mandates pursuit of administrative appeals to the EPA. Nowhere in the final rule resides this requirement. With respect to monitoring and reporting obligations on affected EGUs, Petitioner is incorrect that the EPA did not take notice on this requirement, as the proposal explicitly states "the EPA is proposing that both mass-based and rate-based plans must include CO_2 emission monitoring, reporting, and recordkeeping requirements for affected EGUs." 79 FR 34910. Petitioner further provides no information to suggest why these issues are of central relevance or what the EPA should have finalized otherwise. Because the EPA expressly took comment on this requirement and Petitioner is factually incorrect with respect to other supposed requirements, the EPA is denying the petition with respect to these three issues.

Petitioners UARG and Texas contend that the final Rule's various requirements regarding issuance of ERCs were not properly noticed in the proposal. Petitioner UARG claims that the EPA provided no notice of the following requirements and that they were created "out of whole cloth":

- The dates after which resources other than affected EGUs must be built and generate (or save) electricity in order to qualify for ERCs, 40 C.F.R. § 60.5800(a);
- Varying eligibility requirements for resources depending on whether the ERC generating resource is in a state implementing a rate-based or mass-based state plan, *id.* § 60.5800(3);
- The types of resources (including specific renewable energy resources) that are eligible for ERCs, *id.* § 60.5800(a)(4), or ineligible for ERCs, *id.* § 60.5800(c) (note that AEP's petition also makes this same contention);
- Additional requirements for demonstrating eligibility of biomass, waste-to-energy, and CCS to generate ERCs, *id.* § 60.5800(d);
- Creation of ERCs in areas with no affected EGUs, *id.* § 60.5800(e);
- Applications for ERC issuance eligibility, *id.* § 60.5805(a);
- Registration and reporting of eligible ERC-generating resources, *id.* § 60.5805(b)-(c);
- The requirement that ERCs be issued only for energy actually generated or saved, *id.* § 60.5805(e);

- Inclusion of a mandatory adjustment mechanism in the state plan in the event ERCs are issued based on an error, *id.* § 60.5805(g); Qualifications for independent verifiers of ERC resource eligibility, *id.* § 60.5805(i);
- Specifications for ERC tracking systems, *id.* § 60.5810.

These requirements in the final Rule intend, in part, to ensure the integrity of rate-based trading programs. For example, the accounting methodology to determine ERC issuance ensures that displaced generation is appropriately reflected, and the resultant adjusted rates are consistent with the goal-setting calculation. This is consistent with the role of renewable energy resources in the BSER and addresses interstate effects because it inherently accounts for how generation replacement and CO_2 emission reduction impacts may cross state borders. 80 FR 64895-96. The Rule also finalized eligibility requirements for resources to be credited ERCs, and explained that these requirements align eligibility with certain factors and assumptions used in establishing the BSER, and by extension, application of the BSER to the performance levels established for affected EGUs in the emission guidelines, as well as state rate and mass CO_2 goals. *Id.* The Rule discussed various types of resources that were eligible and not eligible for ERC issuance, depending on integral factors like whether the resource displaces generation from affected EGUs and thus results on emission reductions from the relevant sector subject to the Rule. Finally, the final Rule explained a number of requirements related to a plan for evaluation, measurement, and verification (EM&V) of zero-emitting generation or energy savings by eligible resources to determine whether ERCs should be issued. The EM&V requirements along with the other requirements, as the rule explained, ensure that a rate-based trading program provides for the implementation and enforcement of a rate-based emission standard as required under section 111(d), and also ensures that the rate-based emission standards are verifiable, enforceable, non-duplicative, and permanent. 80 FR 64904.

Petitioners contend that the EPA did not propose a number of these rate-based trading requirements and therefore they must be reconsidered. The Petitioners are incorrect in their assertions. The EPA both generally and explicitly proposed these requirements. Generally, the proposal described that rate-based trading programs must ensure that the emission standards are quantifiable, verifiable, enforceable, non-duplicative and permanent. 79 FR 34830, 34913. Requirements in the final rule go to this aspect of the proposal, such as the requirements regarding ERC eligibility applications, tracking systems, and independent verifier requirements.

Furthermore, with respect to these requirements, the proposal clearly laid out that "the EPA is proposing that a state plan that includes enforceable RE and demand-side EE measures must include an evaluation, measurement, and verification (EM&V) plan that explains how the effect of these measures will be determined in the course of plan implementation." 79 FR 34920. The proposal goes on to describe that utilities and states have conducted ongoing EM&V of demand-side EE and RE measures and programs for several decades, and clearly solicits comment "on the suitability of these approaches in the context of an approvable state plan, and on whether harmonization of state approaches, or supplemental actions and procedures, should be required in an approvable state plan." 79 FR 34921. The proposal goes on to direct readers to "examples of potential reporting obligations for affected entities implementing RE and demand-side EE measures in an approvable state plan […] provided in the State Plan Considerations TSD" and states the EPA is "seeking comment on the examples and suitability of potential approaches described in the TSD and any other appropriate reporting and recordkeeping requirements for affected entities beyond affected EGUs." *Id.* Therefore, the proposal explicitly

solicits comment on the suitability of specific examples of existing EM&V processes and measures, as well as alternatives, by the express terms of the preamble. Further, the agency directed the public to the State Plan Considerations Technical Support Document, which was part of the docket and record for the proposal. The State Plan Considerations TSD includes numerous examples of potential approaches and elements of approaches that the above-quoted preamble language solicited commented on, including certification of renewable energy credits by independent verifiers. *See* State Plan Considerations TSD, at 79. The TSD also discusses tracking systems and associated elements in numerous places throughout the document; therefore, Petitioners are incorrect in their assertion that the proposal failed to take comment on the specific requirements relating to rate-based trading, including the requirement that eligible resource applications and M&V reports be reviewed by independent verifiers or requirements regarding tracking systems.

Regarding the creation of ERCs in states without affected EGUs, in its supplemental proposal for the proposed rulemaking, the EPA explicitly sought comment on whether or not jurisdictions without affected fossil fuel generation units subject to the proposed emission guidelines should be authorized to participate in state plans. Therefore, Petitioner UARG is incorrect that the EPA did not take notice on the creation of ERCs in states without affected EGUs.

Regarding which types of resources are eligible to receive ERCs, the proposal identified a number of measures in addition to BSER-measures that could also lead to CO_2 emission reductions from EGUs, including, for example, electricity transmission and distribution efficiency improvements, retrofitting affected EGUs with partial CCS, the use of biomass-derived fuels at affected EGUs, and use of new NGCC units. The proposal explicitly "solicits comment on whether these measures are appropriate to include in a state plan to achieve CO_2 emission reductions from affected EGUs. In addition to the specific requests for comment related to specific technologies below, we also request comment on other measures that would be appropriate." Therefore, Petitioner UARG is incorrect that the EPA did not take notice on which measures would be eligible to be credited ERCs. 79 FR 34923.[177]

The EPA thus took comment on the requirements relating to rate-based trading programs that Petitioner UARG claims were not subject to proper notice. Regardless, Petitioner UARG provides no information on what the EPA should have otherwise finalized regarding rate-based trading program requirements, especially in light of the integral objective of preserving the integrity of rate-based trading programs to ensure the emission standards meet the requirements of section 111(d). Furthermore, it is important to note that even with the EPA's reasonable and limited constraints regarding the requirements for ERCs, affected EGUs are still able to take measures directly at the source and without interstate trading in order to achieve their emission rates. These measures and steps are described in the prior subsection.

E. Mass-based Trading Program Requirements

Petitioner UARG contends that the EPA provided no notice of the following requirements for mass-based trading programs:

- Eligibility criteria for set-aside allowances, 40 C.F.R. § 60.5815(c);

[177] Geographic eligibility of ERC-generating resources and the eligibility date of such resources are discussed elsewhere in this document. *See* section XIV (regarding certain geographic eligibility limitations); section XIX (regarding timing limitations).

- Provisions for adjusting allowance allocations in response to errors, *id.* § 60.5815(d);
- Provisions addressing allowance banking between compliance periods for affected EGUs, *id.* § 60.5815(e);
- A prohibition on allowance borrowing from future compliance periods by affected EGUs, *id.* § 60.5815(f); and
- Provisions governing allowance tracking systems, *id.* § 60.5820.

As described previously, the proposal requested comment on trading program components discussed in the State Plan Considerations TSD. This TSD discusses tracking systems and associated elements in numerous places throughout the document. See e.g. State Plan Consideration TSD, at 18, 61, 127. Therefore, Petitioner UARG is incorrect that the EPA did not provide notice regarding provisions governing allowance tracking systems.

The State Plan Considerations TSD also explicitly addressed banking, stating that some states permit the carryover of renewable energy produced in one year to satisfy RPS requirements in a subsequent year. The TSD further posited that accounting for year-to-year carryover should be addressed in a state plan, in order to determine the renewable energy generation that occurred in a respective reporting year or compliance period. Page 64.

Petitioner UARG provides no information whatsoever on why these provisions are of central relevance, and provides no information suggesting what the EPA could have finalized otherwise for mass-based trading programs. Therefore, the EPA is also denying the petition on these grounds.

XVI. State Reliability Assessment in Designing Plans

A. Reliability Issues

1. Introduction

Petitioners raised multiple reliability issues in their reconsideration requests. We summarize these requests and respond to them in the sections below. Petitioners had adequate opportunity to comment. In addition, the petitions are not of central relevance because they do not provide any information that could lead EPA to revise the final Rule.

Throughout the CPP rulemaking process, the EPA carefully considered reliability issues. In the proposed rule, the EPA stated that the proposal allowed states the flexibility to control carbon pollution while also permitting them to ensure electric reliability. 79 FR 34833. The EPA stated that "the proposed guidelines would achieve meaningful CO_2 emission reduction while maintaining the reliability and affordability of electricity in the U.S." *Id.* For example, the proposed rule described engagement with multiple stakeholders, including a proposal submitted by the ISO/RTO Council with a "set of recommendations they believe can help balance the needs of lower emissions, economic dispatch, and reliability...." *Id.* at 34888 (citing an ISO/RTO Council document proposing a reliability safety valve). The EPA concluded that the proposed rule will "not raise significant concerns over regional resource adequacy or raise the potential for interregional grid problems. The EPA believes that any remaining local issues can be managed through standard reliability planning processes. The flexibility inherent in the rule is responsive to the CAA's recognition that state plans for emission reduction can, and must, be consistent with a vibrant and growing economy and reliable, affordable electricity to support that economy." *Id.* at 34900. The EPA requested comments on reliability issues. *Id.* The

proposed rule also included a Resource Adequacy and Reliability Analysis Technical Support Document where we considered resource adequacy and reliability issues in 2020 for proposal policy scenarios in comparison to the base case.[178]

The EPA made changes in the final Rule based upon the comments that we received from stakeholders, with many aspects of the final Rule's design intended to support electric system reliability. 80 FR 64874-64879. These changes responded directly to stakeholder comments regarding reliability and are consistent with our commitment that compliance with the final Rule will not impact the ability of industry to maintain electric system reliability. In order to meet this commitment, the final Rule: (1) provided flexibility in how the applicable CO_2 emission performance rates or the statewide goals are met; (2) provided sufficient time to ensure electric system reliability; (3) required each state to demonstrate that it has considered reliability issues in developing its state plan; (4) provided a mechanism to seek a state plan revision to address changes in circumstances that could have reliability impacts if not accommodated in the plan; (5) provided a reliability safety valve mechanism for states to come to the EPA during an immediate, unforeseen, emergency situation that threatens reliability to notify the EPA that an affected EGU or EGUs may need to temporarily comply with modified emission standards; and (6) committed to an ongoing relationship with FERC and DOE as the rule is implemented to help ensure continued reliable electric generation and transmission.

2. State Reliability Assessment in Designing Plans

In the final Rule, the EPA required each state to demonstrate as part of its final plan submission that it considered reliability issues in designing its plan. As described more fully below, multiple commenters, including ISOs/RTOs discussed reliability concerns in the context of state plan design. These commenters recommended that "as states are developing state plans, their activity include the consideration of the reliability needs of the region in which affected EGUs operate and of the potential impact of actions to be taken in compliance with state plans." 80 FR 64877. The EPA noted that a "particularly effective way in which states can make this demonstration is by consulting with the relevant ISOs/RTOs or other planning authorities as they develop their plans and documenting this consultation process in their state plan submissions." *Id.* The EPA noted that, while we are requiring that states demonstrate that they have considered reliability in developing their plans, we will not evaluate state plan submissions substantively regarding reliability impacts. *Id.* at 64877 n.868.

Southern Company asserts that the EPA did not provide notice of the state plan reliability assessment requirement. Southern Company 38. Additionally, Southern Company claims that the EPA is not authorized to disapprove a state plan based on reliability because the EPA has no expertise in reliability. *Id.* at 39. AEP asserts that there is no objective standard for judging assessment of this requirements and therefore states do not understand what is required. AEP 7. Basin Electric Power Cooperative asserts that this is the EPA "passing the buck" with regard to reliability assessments. Basin Electric Power Cooperative 57.

The reliability provisions in the final Rule, including the requirement that states consider reliability when they design their state plans, are a logical outgrowth of the proposal and therefore Petitioners had notice and an opportunity to comment on reliability issues. In the proposal, the EPA stated that we believed that the proposed rule would "not raise significant

[178] *See* Technical Support Document: Resource Adequacy and Reliability Analysis, *available at* https://www.epa.gov/sites/production/files/2014-06/documents/20140602tsd-resource-adequacy-reliability.pdf.

concerns over regional resource adequacy or raise the potential for interregional grid problems." 79 FR 34900. The EPA requested comment with regard to reliability issues and received a number of comments expressing views on reliability issues and suggesting changes to the proposal in response.

Multiple commenters recommended that states consider reliability in state plan development. For example, the ISO/RTO Council recommended that the EPA require a state plan component that examines its impact on grid reliability. ISO/RTO Council Comments, EPA-HQ-OAR 2013-0602-23206, at 2. The National Association of Regulatory Utility Commissioners requested that the final rule be flexible enough to allow the states to take into account the makeup of their power generation and the role of states in resource planning. National Association of Regulatory Utility Commissioners Comments, EPA-HQ-OAR 2013-0602-22791, at 3, Appendix A. Although NERC did not submit comments for the record, the American Public Power Association' comments cited NERC in its recommendation that states as well as ISOs/RTOs should perform analyses to examine potential resource adequacy concerns. American Public Power Association Comments Docket ID No. EPA-HQ-OAR-2013-0602-22871, at 181. The National Rural Electrical Cooperative Association also recommended that states consider the availability, and dispatchability, among other things, of emissions control approaches in developing their state plans. National Rural Electrical Cooperative Association Comments, EPA-HQ-OAR- 2013-0602-33118, at 168.

Additionally, Petitioners' assertions are not centrally relevant to our finding in the final Rule that states must demonstrate that they considered reliability in developing their final state plan submissions. Petitioners have provided us with no additional information that would change how we designed this requirement. As an initial matter, the EPA disagrees with assertions that the EPA does not have the requisite reliability expertise. Here, the EPA performed its core function of limiting pollution to protect human health and the environment and properly considered, among other things, "energy requirements," as Congress instructed it to do. 42 U.S.C. § 7411(a)(1). Also, the EPA engaged in extensive consultation with FERC, DOE, grid operators, utilities and other stakeholders prior to making any judgments relating to "energy requirements"; responded to their comments; and set up a process to work with FERC and DOE to continue to monitor reliability issues. 80 FR 64671, 64693-64694, 64706-64707, 64800, 64874-64881. Additionally, as the EPA specifically enumerated in the final Rule, we will not evaluate state plan submissions substantively regarding reliability impacts. 80 FR 64877 n. 868. Further, the EPA does not agree with Petitioners that we are shifting the burden to states with regard to reliability issues. The EPA carefully considered reliability issues in designing the final rule and this requirement is only one aspect of an extremely comprehensive program. The EPA has provided states with great flexibility in how they design their state plans and therefore they are in the best position as they prepare their final state plan submissions to consider reliability in how they develop their state plans.

Petitioners have not explained how their concerns are centrally relevant, and the EPA is denying reconsideration on this issue.

3. Reliability Safety Valve

As noted above, the EPA included a reliability safety valve in the final Rule. The EPA first referenced a reliability safety valve when we cited the ISO/RTO Council proposal on a reliability safety valve in the proposed rule. 79 FR 34888 n.236. We also generally solicited comments regarding reliability issues in the proposed rule. 79 FR 34900. In addition to the ISO/RTO Council, multiple commenters suggested that the EPA should include a reliability

safety valve in the final Rule. *See, e.g.*, The National Rural Electric Cooperative Association Comments, EPA-HQ-OAR-2013-0602-33118, at 163; State of Florida Public Service Commission Comments, EPA-HQ-OAR-2013-0602-23650, at 20; Bryan Hughes of the Texas House of Representatives Comments, EPA-HQ-OAR-2013-0602-27067, at 2; Southern Company Comments, EPA-HQ-OAR-2013-0602-22907, at 193; New York Independent System Operator Comments, EPA-HQ-OAR-2013-0602-22967, at 4-5; Southwest Power Pool Comments, EPA-HQ-OAR-2013-0602-23546, at 2. Additionally, the five FERC Commissioners sent a May 15, 2015 letter to Acting Assistant Administrator Janet McCabe regarding the EPA's Clean Power Plan proposal and a discussion of the structure of a potential reliability safety valve.[179]

The EPA included a reliability safety valve in the final rule that is available to states with affected EGUs providing reliability-critical generation in emergency situations. 80 FR 64877-64879. The reliability safety valve provides "i) a 90-day period during which the affected EGU will not be required to meet the emission standard established for it under the state plan but rather will meet an alternative standard, and ii) a period beginning after the initial 90 days during which the reliability-critical affected EGU may be required to continue to operate under an alternative standard rather than under the original state plan emission standard, as needed in light of the emergency circumstances, and the state must during this period revise its plan to accommodate changes needed to respond to ongoing reliability requirements." 80 FR 64877-64878.

Petitioners state that the EPA did not provide notice and comment with regard to the general concept of a reliability safety valve or the specific design elements of the reliability safety valve. *See, e.g.*, UARG 14-15; Southern Company 38-39. UARG also lists multiple other components of the reliability safety valve (e.g., state initial notification to the EPA in 48 hours, the 90-day limit to the emergency period, and emissions after the 90-day period counting against the state's overall emission goal), stating that there was no opportunity to comment on any of these details. UARG 14-15.

We disagree with Petitioners' assertions that they did not have notice and an opportunity to comment on the reliability safety valve. As noted above, the EPA solicited comment on potential reliability issues surrounding the proposed rule. The EPA also referenced and cited the ISO/RTO Council's reliability safety valve mechanism in the proposed rule. Multiple commenters reviewed the proposed rule and recommended that the EPA include a reliability safety valve in the final Rule. This indicates that Petitioners had notice that the EPA might include a reliability safety mechanism in the final Rule and the opportunity to comment on both the inclusion of a potential reliability safety valve and how such a mechanism should be designed. Indeed, as we describe more fully above, multiple commenters did so.

Petitioners also raise multiple concerns regarding specific design elements of the reliability safety valve. For example, UARG asserts that what qualifies as an emergency situation is unclear. UARG 15.

Wisconsin DNR and PSC assert that limiting the reliability safety valve to states that do not have trading programs requires states to "'buy their way out' of reliability issues at unknown expense." Wisconsin DNR and PSC 5. Wisconsin DNR and PSC also state that it is unclear how the reliability safety valve interacts with the NERC mandatory reliability standards requirements. *Id.* at 6. They also assert that the EPA should revise the reliability safety valve so that sources rather than states directly notify the EPA of the need for a reliability safety valve.

[179] FERC May 15, 2015 Letter to EPA, *available at* https://www.ferc.gov/media/headlines/2015/ferc-letter-epa.pdf.

Id. Wisconsin DNR and PSC also assert that "there is no reason to limit how long states or utilities have to provide a second notice to EPA to confirm the need for a source to continue operation." *Id.*

Petitioners have failed to show that their concerns are centrally relevant or would have changed the way in which the EPA designed the final Rule reliability safety valve. UARG asserts that the type of event that qualifies as an emergency situation that threatens reliability is unclear. The EPA disagrees with this assertion. In the final Rule, we provided criteria as well as descriptive examples that we noted "illustrate key attributes of the kinds of circumstances in which the reliability safety valve would apply." 80 FR 64878. Petitioners have provided no further information that would change the criteria that we included in the final Rule for accessing the reliability safety valve. Additionally, the EPA cannot envision every possible situation that might trigger the need for a state to utilize a reliability safety valve. If the EPA were to have made the criteria too prescriptive, then states in emergency situations may be unable to use the reliability safety valve. By providing criteria, as well as illustrative examples of the type of situation that may qualify for a reliability safety valve, the EPA has provided needed parameters for the usage of the reliability safety valve as well as necessary flexibility to allow states to address reliability safety valve in the event of an unforeseen reliability emergency.

Wisconsin DNR and PSC assert that the EPA should not limit the use of the reliability safety valve to states without trading programs. Contrary to Petitioners' assertions, the EPA did not limit the reliability safety valve to states without trading programs. However, the EPA did state that we did "not anticipate that EGUs operating under a plan that permitted emissions trading would meet these criteria." 80 FR 64878. The EPA believes that trading programs add inherent flexibility in meeting emission reduction requirements while maintaining reliability. While Petitioners have not provided any information that dissuade us from this belief, we reiterate that we did not limit the use of the reliability safety valve to states without trading programs. Wisconsin DNR and PSC have not shown that their concerns are centrally relevant or would have changed the way in which the EPA designed the final Rule reliability safety valve.

UARG lists multiple components of the reliability safety valve design on which it claims it did not have the opportunity to comment. We disagree with these claims. The EPA provided notice that we might include a reliability safety mechanism in the final Rule and the opportunity to comment on both the inclusion of a potential reliability safety valve and how such a mechanism should be designed. Therefore, UARG had notice and an opportunity to comment on this aspect of the final Rule. Additionally, UARG did not provide additional information on how the EPA should have changed those components. It merely asserts that it did not have an opportunity to comment on the specifics. The general request for an opportunity to comment does not meet the requirement that Petitioners demonstrate their information is centrally relevant to our findings on the reliability safety valve and would have changed how we designed that aspect of the final Rule. UARG has not shown that their concerns are centrally relevant or would have changed the way in which the EPA designed the final Rule reliability safety valve.

Wisconsin DNR and PSC assert that it is unclear how the reliability safety valve interacts with NERC mandatory reliability standards requirements. The EPA did not establish a reliability standard violation as a criterion for triggering the reliability safety valve. That is because not all violations of NERC standards would necessitate that facilities operate under a standard other than what is required by an approved state plan. The reliability safety valve is separate and apart from NERC's mandatory reliability standards. However, a state may include

evidence that it will violate a mandatory reliability standard absent the use of a reliability safety valve in its notice of the need for a reliability safety valve. Wisconsin DNR and PSC have not shown that their concerns are centrally relevant or would have changed the way in which the EPA designed the final Rule reliability safety valve.

Wisconsin DNR and PSC assert that the reliability safety valve needs to be more flexible and address more situations. Wisconsin DNR and PSC 6. We disagree with Wisconsin DNR and PSC's assertion. The reliability safety valve is just one aspect of the final Rule design that addresses reliability. We made it available if there is an unforeseeable emergency that threatens grid reliability, but we did not mean to make it available for less serious situations. States and sources can solve non-emergency situations through other flexibilities in the program. Wisconsin DNR and PSC have not shown that their concerns are centrally relevant or would have changed the way in which the EPA designed the final Rule reliability safety valve.

Wisconsin DNR and PSC state that the EPA should change the reliability safety valve to have sources notify the EPA directly, delete the 90-day limit, and never have to make up emissions. Wisconsin DNR and PSC 5-6. The EPA disagrees with these assertions. The EPA designed the reliability safety valve to be used only when there is an unavoidable conflict between maintaining reliability and the state plan requirements. We believe that states are in a better position than individual sources to determine whether there are options available within the state plan to meet emission reduction requirements in the event of a reliability emergency or if the state needs to request a reliability safety valve. Additionally, the EPA finds that an initial 90-day reliability safety valve period where emissions do not need to be made up is appropriate. This timeframe gives the state and sources an opportunity to review the circumstances and consider and put in place appropriate remedies. As the final Rule notes, there may be circumstances where more than 90 days will be needed, but, in that event, the state must request to extend the reliability safety valve period and then would need to change its state plan in light of the circumstances that have arisen. We do not believe that it is unduly burdensome for the additional emissions to have to be made up after the initial 90-day period. The EPA designed the reliability safety valve requirements to both maintain the integrity of emission reduction requirements while also ensuring that the reliability of the electric system. Wisconsin DNR and PSC have not shown that their concerns are centrally relevant or would have changed the way in which the EPA designed the final Rule reliability safety valve.

We deny the Petitions for Reconsideration on the reliability safety valve.

4. Stakeholder Concerns and Reliability Analysis Issues

Petitioners assert that the EPA did not consider or respond to reliability-related comments. Basin Electric Power Cooperative generally objects to a lack of notice of the EPA's "new approach to addressing reliability" in the final Rule. Basin Electric Power Cooperative 1, 47. It further states that the EPA ignored concerns of agencies tasked with ensuring reliability. *Id.* at 47. The EPA disagrees with Petitioners' claims. We carefully considered all comments regarding the proposed rule and ensured that we designed the final Rule so that it would not interfere with electric system reliability. 80 FR 64874-64881. In the proposed rule, the EPA discussed reliability and asked broadly for comment. The EPA did receive a number of comments that addressed reliability. 79 FR 34889-34900. The EPA met with a large number of stakeholders and experts regarding reliability issues, including FERC, NERC, and DOE.[180] The

[180] The following is a summary of EPA meetings with FERC, before the proposal, after the proposal and before the final rule, and after the final Rule:

Pre-proposal meetings

- **February 7, 2014:** The Chairman and others from FERC met with EPA officials. EPA officials described in very general terms aspects of the proposal.
- **February 18, 2014:** FERC staff met with EPA staff as a follow-up to learn more about the proposal.
- **March 6, 2014:** FERC staff met with EPA and DOE staff to discuss certain concepts proposed in a paper by RTOs related to the Proposal.
- **April 16, 2014:** FERC staff met with EPA staff to review parts of the draft of the proposal and to ask about certain issues and information in the proposal.
- **April 23, 2014:** FERC staff participated in a telephone conference with staff from EPA and OMB regarding a draft of the proposal. FERC staff provided oral comments on the proposal, which focused primarily on reliability. FERC staff commented on the draft's contemplated increases in the capacity factor for natural gas combined cycle units, renewable generation, and coal heat rates. In particular, FERC staff commented on pipeline and other infrastructure adequacy given the potential increased utilization of NGCC units and RE generation in the draft proposal. FERC staff also commented on the advisability of regional collaboration among states and some form of "reliability safety valve."
- **May 29, 2014:** FERC and EPA staff met. EPA staff provided FERC staff with an oral summary of the draft proposal.

Post-proposal meetings, including FERC technical conferences

- **July 18, 2014:** FERC and EPA staff met with FERC staff providing EPA with an oral update on public response to the proposal.
- **October 7, 2014:** FERC staff met with EPA and DOE staff to discuss questions regarding the proposal, including aspects relevant to electric reliability that EPA planned to ask in a supplemental issuance. Subsequently, FERC staff had two or three brief phone calls or conversations with EPA staff regarding this issuance, primarily on the expect date of EPA's issuance.
- **December 15, 2014:** FERC / DOE / EPA staff meeting.
- **February 19, 2015:** FERC national technical conference on Clean Power Plan. OAR Acting Assistant Administrator McCabe participates and EPA staff attend.
- **February 25, 2015:** FERC western technical conference on Clean Power Plan in Denver. OAR Associate Assistant Administrator Joe Goffman participates and EPA staff attend.
- **March 11, 2015:** FERC Eastern technical conference on Clean Power Plan. Ms. McCabe participates and EPA staff attend.
- **March 13, 2015:** Conference Call EPA and FERC staff. Discussed coordination on CPP and reliability.
- **March 31, 2015:** FERC Central technical conference on Clean Power Plan. Ms. McCabe participates and EPA staff attend.
- **March 16, 2015:** Meeting with DOE.
- **April 6, 2015:** Staff call between EPA and FERC to discuss development of CPP coordination strategy.
- **April 17, 2015:** EPA/FERC staff meeting: Follow up discussion on reliability and the Clean Power Plan.
- **April 21, 2015:** EPA and DOE staff call to discuss CPP reliability coordination strategy.
- **May 11, 2015:** EPA/FERC staff call on energy efficiency.
- **May 20, 2015:** EPA/FERC staff meeting.
- **July 13, 2015:** EPA and FERC staff call on CPP coordination document.

Post-final rule meetings with FERC and/or DOE

- **November 2, 2015:** EPA/FERC/DOE reliability meeting
- **January 11, 2016:** EPA/FERC/DOE reliability meeting.
- **March 22, 2016:** EPA/FERC/DOE reliability meeting.
- **May 20, 2016:** EPA/FERC meeting on the interaction between the Clean Power Plan and markets.
- **June 16, 2016:** EPA/FERC/DOE reliability meetings.
- **July 26, 2016:** EPA/FERC meeting on leakage issue.
- **August 11, 2016:** EPA/FERC/DOE meeting on reliability.

EPA also reviewed multiple analyses of the reliability impacts of the proposal, including the NERC study cited by Petitioners. 80 FR 64879-64881. The EPA utilized all of this information to inform the changes that we made in the final Rule to address reliability. We outlined above the multiple safeguards that we have provided in the final Rule to address any reliability concerns that may arise. Finally, we note that the EPA, FERC, and DOE have agreed to coordinate efforts to help ensure continued reliable electricity generation and transmission during the implementation of the final Rule. 80 FR 64879.

Basin Electric Power Cooperative includes an in-depth discussion of NERC's Phase I Report. Basin Electric Power Cooperative 46-56.[181] Petitioner states that, in April 2015, NERC issued a Phase I Report that assessed the impact of the Clean Power Plan on resource adequacy and transmission adequacy. *Id.* at 48. It states that NERC's key findings include, " '[T]he proposed CPP is expected to accelerate a fundamental change in electricity generation mix in the United States and transform grid-level reliability services, diversity and flexibility'"; "'Industry needs more time to develop coordinated plans to address shifts in generation and corresponding transmission reinforcements to address proposed CPP CO_2 interim and other emission targets....'"; and "'Energy and capacity will shift to gas-fired generation requiring additional infrastructure and pipeline capacity.'" *Id.* at 48-49 (citing NERC Phase I Report at vii-ix). Basin Electric Power Cooperative states that NERC expected thousands of miles of new transmission lines would be needed to meet the rule's requirements and that 2020 would not be enough time to build the required infrastructure. *Id.* at 49. It asserts that NERC included details with regard to the timing of building infrastructure projects in Chapter 5 of the Phase I Report. *Id.* Basin Electric Power Cooperative also noted that NERC recommended that the EPA include a formal reliability assurance mechanism "to ensure reliability during both the plan development and implementation periods, as may be necessary." *Id.* at 50. It states that NERC recommended that "'policy makers ensure that state or regional implementation plans provide demonstrated assurances that reliability can be sustained through the CPP's implementation period. Plans that require greater infrastructure development of either gas pipelines, transmission, supply resources, or other assets will require time to ensure these infrastructure accommodations can be made with certainty. A reliability assurance mechanism, along with sufficient timelines to accommodate infrastructure development, can facilitate a reliable transition and ensure BPS [bulk power system] reliability.'" *Id.* at 50 (citing NERC Phase I Report at 57).

We disagree with Basin Electric Power Cooperative's claims that we failed to consider NERC's recommendations in the final Rule. As an initial matter, we note that NERC's Phase I report was an analysis of the proposed rule rather than the final Rule. As such, NERC was not responding to or analyzing the multiple safeguards that we provided in the final Rule to address any reliability concerns that may arise. Furthermore, there were a number of issues with NERC's Phase 1 report which we described in the final Rule preamble. *See* 80 FR 64879-64880. Most saliently, NERC's analysis assumed that states did not make use of the flexibility that the proposal afforded them. Rather, NERC assumed that each state developed a plan that simply required that affected EGUs implement the building blocks. Neither the proposal nor the final Rule required states and sources to implement the building blocks. Instead, we established emission reduction requirements based upon the BSER and provided flexibility for how states

[181] North American Electric Reliability Corporation, April 2015, *Potential Reliability Impacts of EPA's Proposed Clean Power Plan, Phase I* (NERC Phase I Report), *available at* www.nerc.com/news/Pages/Assessment-Uses-Scenario-Analysis-to-Identify-Potential-Reliabilitiy-Risks-from-Proposed-Clean-Power-Plan.aspx.

and sources would meet those requirements. Logically, we expect that states and sources will pursue the most cost-effective, reliable, and efficient ways to obtain these emission reductions. An analysis that eliminates the flexibility inherent in the Clean Power Plan eliminates important aspects of the proposal and final Rule and fails to capture real world conditions. We note that multiple other studies that analyzed the proposal without such rigid assumptions concluded that reliability will be maintained. the EPA discussed some of these in the final Rule. *See* 80 FR 64880.

Basin Electric Power Cooperative also stated that RTOs expressed concerns about the Clean Power Plan. It states that the EPA noted the Midcontinent Independent System Operator's (MISO) concerns in the Clean Power Plan, but failed to address all of MISO's concerns about the timing to build new capacity additions if coal retirements are part of compliance strategies for 2020. According to Basin Electric Power Cooperative, MISO stated that new gas plants take three to six years to construct. This timeline may be longer if new transmission or natural gas pipeline is needed. Basin Electric Power Cooperative 51.[182] It also states that MISO's comments requested the elimination of the interim compliance period of 2020-2029 and noted the long amount of time needed to build new generation capacity and infrastructure. *Id.* at 51.[183]

We disagree with Basin Electric Power Cooperative's assertions that we failed to address MISO's concerns in the final Rule. Basin Electric Power Cooperative is correct that MISO requested the elimination of the interim compliance period as it was proposed. The EPA's final Rule addressed MISO's concerns about timing by delaying the start of the interim compliance period to 2022. Further, we note that the beginning of the interim compliance period is not a deadline by which states must be in compliance with the interim goals. Rather, it is the beginning of a glide path in which states must achieve the CO_2 emission goals over the period of 2022 to 2029. The glide path provides states and sources additional time to meet the emission reduction requirements, helping to ensure the reliability of the electric system is maintained. We also note that the current emission trends indicate that, long before the interim compliance date, states and sources are already well on their way to achieving the Clean Power Plan emission reduction requirements. *See* Power Sector Trends Appendix, at Section 1.

In addition, we note that the MISO study also had several issues that limited its usefulness, including an assumption that each of the states would develop plans that would have generators implement the building blocks to reach the emission reduction requirements. MISO concluded rightly, however, that alternative compliance options could avoid adverse impacts. Basin Electric Power Cooperative is incorrect that we did not consider the concerns expressed by MISO and others about timing. As explained above and in detail in the final Rule, the EPA made significant changes in the compliance schedule as suggested by MISO and other commenters. Additionally, since promulgation, MISO has embarked on a proactive effort to work with the states in its footprint to more fully explore compliance options.[184]

Basin Electric Power Cooperative also asserts that the final Rule incorrectly claimed that a resource adequacy analysis by Southwest Power Pool (SPP) assumed planned retirements, but

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[182] Citing MISO, *Analysis of EPA's Proposal to Reduce CO2 Emissions from Existing Electric Generating Units* at 3 (2014), *available at* www.misoenergy.org/WhatWeDo/EPARegulations/Pages/111(d).aspx.

[183] Citing Letter from John R. Bear, President and CEO, MICO, to the Honorable Gina McCarthy, Administrator, U.S. EPA (Nov. 25, 2014), EPA-HQ-OAR-2013-0602-22547.

[184] *See, e.g.*, MISO's Analysis of the Final Clean Power Plan, July 2016, https://www.misoenergy.org/Library/Repository/Meeting%20Material/Stakeholder/PAC/2016/20160720/20160720%20PAC%20Item%2002a%20Clean%20Power%20Plan%20Study%20Report.pdf.

did not account for building new generation capacity. *Id.* at 51 (citing 80 FR 64880). Basin Electric Power Cooperative states that in actuality the SPP analysis included a scenario where retired capacity would be replaced by a combination of existing unused capacity and new gas-fired and wind resources. *Id.* at 51-52.[185] It states that SPP was concerned that this could affect transmission reliability and that the reserve margin would fall below the minimum reserve margin requirement. It states that SPP found that new generation and transmission expansion would be needed to maintain reliability during summer peak conditions if the EPA's projected generator retirements occur. *Id.* at 52.

We disagree with Basin Electric Power Cooperative's assertions. SPP's analysis had two parts. First, SPP assumed that the EPA's projected retirements occurred but that the EPA's projected capacity additions did not. It is simple to understand why this illogical scenario would result in resource adequacy problems. The second part of SPP's analysis better reflects how our electricity system is planned and operates. When resources retire, other resources are developed to replace the retired capacity. In the second part of its analysis, SPP assumed that the EPA's projected retirements occurred but the remaining existing capacity was used more. In addition, they assumed that there was some additional capacity reflecting planned new capacity in SPP, but it appears that the new capacity was not adequate to meet the load. It is important to recognize that our model balances retirements with capacity additions to maintain SPP's reserve margin. This represents how the system is planned and operated in the real world. System planners do not just sit blithely by as electric capacity retires without considering ways to address potential capacity shortfalls and develop new resources. If a study only considers a part of this equation (i.e., capacity retirements), then the result will not necessarily maintain the reserve margin. For this reason, SPP concludes that new generation will be necessary if the EPA's retirement projections occur. Based on our analysis, we agree that some new capacity additions may be needed. However, the final Rule does not require major investment in new infrastructure in order to meet the emission reduction requirements, especially in light of developments since the CPP was finalized, *see* Power Sector Trends Appendix.

Basin Electric Power Cooperative states that the EPA largely ignored the concerns of NERC and RTOs. *Id.* It also notes that the EPA did not include a mechanism to adjust the emission standards or compliance timeframes, making an ongoing relationship with DOE and FERC irrelevant. *Id.* It also states that the EPA dismisses the reports of NERC and RTOs and instead relies on reports by consulting firms hired by entities with business interests that will benefit from the Clean Power Plan. *Id.* It states that parties have not had an opportunity to comment on the EPA's dismissal of experts' concerns in the final Rule and that the EPA should grant reconsideration. We disagree with Basin Electric Power Cooperative's assertions regarding our consideration of the comments that we received with regard to reliability issues. We carefully considered all comments and any accompanying materials.

Basin Electric Power Cooperative then discusses a Brattle Report cited in the Clean Power Plan. *Id.* at 53.[186] It asserts that the Brattle Report would tend to increase rather than decrease the amount of renewables and therefore the amount of needed transmission. It also states that the Brattle Report speaks to NERC's earlier report, not the later Phase I Report. It

[185] Citing *SPP's Reliability Impact Assessment of the EPA's Proposed Clean Power Plan* at 2 (Oct. 8, 2014), *available at* www.spp.org/publications/CPP%20Reliability%20Analysis%20Results%20Final%20Version.pdf.

[186] Citing Brattle Group, *EPA's Clean Power Plan and Reliability: Assessing NERC's Initial Reliability Review* (Feb. 2015), *available at http://info.aee.net/hs-fs/hub/211732/file-2486162659-pdf/EPAs-Clean-Power-Plan-Reliability-Brattle.pdf?t=1434398407867*) ("Brattle Report").

also claims that the Brattle Report lists technological and operational procedures that might help maintain reliability without dealing with specific reliability challenges. Basin Electric Power Cooperative asserts that the Brattle Report concedes that unpredictable reliability concerns could occur during implementation. It also claims that the Brattle Report does not make specific observations about North Dakota and Wyoming where Basin Electric Power Cooperative has major generating facilities. It claims that the Brattle Report dismisses the need for new transmission infrastructure especially for siting renewables. It disputes Brattle's assertions that distributed generation can be helpful to solving transmission constraints because it states that the Brattle Report provides no explanation for how those resources would get built. Basin Electric Power Cooperative disputes Brattle's assertion that natural gas can be built in less than two years. It states that the Brattle Report was drafted for Advanced Energy Economics, which will benefit from the CPP. Basin Electric Power Cooperative 53-54.

Basin Electric Power Cooperative states that the EPA also brushes off the concerns of MISO and SPP, touting the flexibility in the CPP. *Id.* at 55. It notes that the EPA states that the Analysis Group Report shows that "despite the large amount of coal-fired resources in MISO that must be retired, 'the entities responsible for electric system reliability in MISO are prepared to collaboratively address any reliability issues that arise,' using the 'strong tool kit' available to 'assure high-quality electric service.'" *Id.* at 55 (citing 80 FR 64880). Basin Electric Power Cooperative states that it is the entities with the supposed tool kit that are claiming there are not enough tools to facilitate compliance with the final rule and ensure reliability. It also states that the Analysis Group Report was funded by the Energy Foundation which funds groups building the "new energy economy." Basin Electric Power Cooperative states that the Analysis Group Report contradicts itself by saying on the one hand that MISO faces complicated Clean Power Plan compliance issues and, on the other hand, MISO's strong tool kit and history of constructive collaboration means that MISO states should be able to comply without compromising reliability. Basin Electric Power Cooperative 55-56.

Basin Electric Power Cooperative states that "The Analysis Group concedes that MISO's existing heavy reliance on coal for electricity generation 'exposes many of the MISO states to potentially greater amounts of retirements, more significant fleet turnover, and changes in the system's capacity mix and system operations under the Clean Power Plan.' *Id.* at 11. Petitioner goes on to raise a number of related issues specific to the MISO region. *See generally* Basin Electric Power Cooperative at 55-56. Finally, Basin Electric Power Cooperative asserts that FERC Commissioner Clark has raised similar concerns about the final Rule's impact on reliability. *Id.* at 58. However, we note that Commissioner Clark later stated, "I think cost is the bigger challenge than reliability, not that reliability is a slam dunk. It's not," Clark said. "But engineers are very good at making the system work. It always becomes a question of at what cost."[187]

As an initial matter, we note that the NERC report cited by Petitioners was an analysis of the proposed rule and that NERC "assumes considerably less flexibility than actually is provided to states and EGUs in this final rule." 80 FR 64880. Additionally, we disagree with Basin Electric Power Cooperative's assertions regarding the Brattle Report and the Analysis Group Report. Further, we note that we referenced these reports as a further confirmation that reliability would be maintained during the implementation of the Clean Power Plan. We independently analyzed reliability issues that stakeholders raised regarding the Clean Power

[187] Energy Wire, FERC's Clark stepping down, warns of CPP costs, *available at* http://www.eenews.net/stories/1060031020.

Plan and found that there would be adequate resources to meet system demand. *See, e.g., Technical Support Document: Resource Adequacy and Reliability Analysis*, August 2015, *available at* https://www.epa.gov/sites/production/files/2015-11/documents/tsd-cpp-adequacy-reliability.pdf.

Since promulgation of the final Rule, NERC has embarked on efforts to help states, resource planners, and others involved in CPP implementation by providing analysis that will help policy makers assess potential risks to the bulk power system and to identify measures to mitigate risk.[188] Further, since promulgation of the final Rule, multiple studies have looked at reliability and the CPP. PJM for example conducted an analysis at the request of the Organization of PJM States. PJM examined seven possible compliance pathways all of which maintained resource adequacy and did not compromise the way the PJM market operates.[189]

A recent publication by the Duke University's Nicholas Institute for Environmental Policy Solutions examines load growth in the electricity sector and finds that no approach to meet the final Rule requirements need interfere with the ability of sector to meet electricity demand.[190] In addition, a recent Bipartisan Policy Center analysis modeled an array of CPP compliance scenarios and concluded that state energy policies, falling natural gas prices, and the extension of federal tax incentives for renewables mean many states are currently on track to comply with the CPP. In fact, they concluded that, in the early years, the CPP likely would not be binding.[191]

These and other studies complement our own analysis and our conclusion that the tools and flexibility in the CPP as promulgated are consistent with maintaining electric system reliability. *See generally* Power Sector Trends Appendix. Basin Electric Power Cooperative has not raised any issues that are centrally relevant and therefore we deny its Petition for Reconsideration on these issues.

5. Miscellaneous Reliability Issues

Basin Electric Power Cooperative states that the EPA's changes in the final Rule do not help ensure reliability. First, it states that the EPA included no analysis to show how flexibility to design state plans, including the use of other measures besides the BSER, helps ensure reliability. Basin Electric Power Cooperative 56. Second, it states that two additional years will not help reliability given the long time needed to develop new generation and infrastructure. *Id.* Third, as noted earlier, it considers the requirement that states demonstrate that they considered reliability in developing their state plans to be "passing the buck." *Id.* at 57. Fourth, it asserts that the ability to revise a state plan requires consumers to wait for years in uncertainty while suffering from reliability concerns in the meantime. *Id.* Fifth, it states that the reliability safety valve offers no meaningful protection. Sixth, Basin Electric Power Cooperative states that,

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[188] NERC, Reliability Considerations for Clean Power Plan Development, January 2016; http://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/Reliability%20Considerations%20for%20State%20CPP%20Plan%20Development%20Baseline%20Final.pdf.

[189] PJM Interconnecton, *EPA's Final Clean Power Plan, Compliance Pathways Economic and Reliability Analysis*, September 1, 2016, http://www.pjm.com/~/media/library/reports-notices/clean-power-plan/20160901-cpp-compliance-assessment.ashx.

[190] The Clean Power Plan and Electricity Demand: Considering Load Growth in a Carbon-Constrained Economy, January 2016, *available at* https://nicholasinstitute.duke.edu/sites/default/files/publications/ni_pb_16-01.pdf.

[191] Macedonia, J, et al. *Modeling the Evolving Power Sector and Impacts of the Final Clean Power Plan*, Bipartisan Policy Center, Washington, DC, June 2016. http://bipartisanpolicy.org/library/clean-power-plan-analysis/. *See also* Petitions for Reconsideration, Power Sector Trends Appendix.

although the EPA has agreed to an ongoing relationship with DOE and FERC to ensure continued reliability, there is no provision to allow relief from standards if DOE and/or FERC raise concerns. *Id.*

We answer concerns regarding the reliability safety valve and the requirement that states demonstrate that they considered reliability in designing their state plans above. With regard to the assertion that EPA did not analyze how the flexibility to design state plans helps ensure reliability, we note that commenters requested that the EPA include this flexibility in the final Rule. The National Association of Clean Air Agencies (NACAA),[192] for example, specifically requested flexibility so that the states would have "wide latitude to identify their overall compliance strategies in response to their local circumstances." The National Association of Clean Air Agencies, EPA-HQ-OAR-2013-0602-24085, at 2. The EPA cannot envision each and every possible state plan design and how it would interact with the electricity system within a given state. States know best what their unique electricity system issues are. For example, a state may determine that there is a reliability-critical unit in a load pocket in the state and therefore set a different emission standard for that particular unit in the state plan. That such flexibility supports reliability is both self-evident and amply supported by the record.

Basin Electric Power Cooperative states that two additional years will not be enough time to ensure reliability given that amount of time needed to develop new generation and build additional infrastructure. As an initial matter, we note that the EPA both provided two additional years before the start of the interim period and "adjust[ed] the interim goals to provide a gradually phased-in initial reduction requirement and a more gradual glide path to the final 2030 goals." 80 FR 64876. This additional time in combination with a more gradual glide path provides states and sources with a great deal of flexibility in the process to ensure that reliability is maintained. Additionally, the EPA does not expect that major new infrastructure will be needed in order to meet the final Rule requirements. Our analysis in both building block 2 and 3 indicates that there will not need to be substantial amounts of new infrastructure built to comply with the final rule.[193] *See also W. Va. v. EPA*, No. 15-1363, Culligan Decl. ¶¶ 7-19 (D.C. Cir. filed Dec. 3, 2015). Additionally, as a result of business-as-usual shifts to cleaner generation, as described in the Power Sector Trends Appendix, the CPP is projected to have a modest impact on generation mix, further lowering any potential reliability impacts of the CPP.

Basin Electric Power Cooperative also states that, while the final Rule asserts a plan amendment can be made, consumers will wait years for these plan revisions to be approved, bearing the reliability risk and cost in the meantime. Basin Electric Power Cooperative at 57. We disagree with this assertion. For example, if, after a 90-day reliability safety valve period, the affected EGU must continue to emit beyond the requirements of the state plan, the EPA will work with the state on a case-by-case basis to determine an alternative emission standard for the affected EGU until a new state plan is approved. This provision and a plan amendment are some of the many safeguards in place to ensure system reliability. In contrast to Basin Electric Power Cooperative's assertions, states can also ask for expedited review of their state plan revisions if it is necessary for reliability reasons. 80 FR 64877. Petitioners had notice regarding the ability to make state plan revisions and have not provided us any additional information that is centrally relevant to the reliability provisions.

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[192] The National Association of Clean Air Agencies is a national nonprofit association of state and local air pollution control agencies.

[193] *See, e.g.*, Greenhouse Gas Mitigation Measures Technical Support Document, *available at* https://www.epa.gov/sites/production/files/2015-11/documents/tsd-cpp-ghg-mitigation-measures.pdf.

Basin Electric Power Cooperative states that the EPA states that it will work in coordination with DOE and FERC, but that the final Rule includes no provisions that provide relief from rule requirements if these entities provide input that such relief is needed for reliability reasons. Basin Electric Power Cooperative 56-57. We disagree with the claim that such a provision is needed to ensure that reliability is maintained. The EPA included many provisions in the final Rule that will assure that reliability is not jeopardized. As the final Rule notes, the EPA, FERC, and DOE agreed to closely coordinate with each other to ensure reliability. As fully enumerated above, the EPA consulted with both agencies regularly during the process of drafting the final Rule. The EPA values the cooperative relationship with DOE and FERC regarding the Clean Power Plan, but does not agree that we should have included a specific provision that provides relief from rule requirements if DOE and/or FERC provide input saying such relief is needed for reliability reasons. If, in the unlikely situation such an issue arises, the EPA will work with the state and affected EGUs to address any potential reliability concerns.

Despite Basin Electric Power Cooperative's assertions to the contrary, the EPA carefully considered all comments and made a number of changes between the proposal and final rule to specifically to address comments. The EPA provided a number of analyses in the technical support to the final to that effect. Basin Electric Power Cooperative has not provided any additional information that is centrally relevant to our reliability findings in the CPP. Therefore, we deny its Petition for Reconsideration on this issue.

Finally, AEP asserts that, because neither states nor sources control dispatch, and because of other factors, the EPA should reconsider alternative approaches that provide more flexibility. AEP 7. The final Rule provides states and sources with a large degree of flexibility in how they meet the emission reduction requirements. It does not require states or sources to control electricity dispatch in order to meet the CPP emission reduction requirements.

Petitioners have not provided any information that is centrally relevant on these issues and therefore the EPA denies their Petitions for Reconsideration on these issues.

B. Specific Reliability Analysis/Modeling Issues

Wisconsin DNR and PSC assert that the EPA failed to use appropriate modeling to assess the electric reliability cost and impacts of the final rule. Wisconsin DNR and PSC 3-6. They assert that the EPA should assume NGCC capacity factors can increase five percent per year (which is the historical rate, and protects reliability) and not 22 percent per year. Wisconsin DNR and PSC 8-9. We disagree with these assertions and more fully respond to them in the section V of this document (regarding Building Block 2).

Wisconsin DNR and PSC also express a reliability concern because they state that the EPA's compliance modeling included energy efficiency, and therefore less generation. Wisconsin DNR and PSC 4-5. We disagree that the inclusion of energy efficiency in our modeling for the RIA potentially causes a reliability concern. The EPA reasonably included energy efficiency in our modeling for the final Rule, as it is expected to be a low cost compliance option and consistent with programs that many states already have in place. RIA, at 3-12. States have great flexibility in how they design their state plans. While we expect that many states and sources will take advantage of energy efficiency as a reasonable and cost-effective method to achieve the final Rule's emission reduction requirements, we are not requiring any specific methodology for compliance. In addition, use of energy efficiency as part of a state's approach to final Rule implementation has the added benefit of helping to assure reliability. Further, as noted below, if a state needs any particular unit or units for reliability-

specific reasons, it can design its state plan to ensure that that unit or units continue to operate as needed.

Wisconsin DNR and PSC also noted that the EPA's modeling shows coal units retiring that MISO and Wisconsin modeling say must continue operating for reliability reasons. Wisconsin DNR and PSC 4-5. We disagree with Petitioners. Our modeling ensures that there are sufficient generating resources available to maintain reliability; thus, the Clean Power Plan already provides sufficient flexibility for states to deploy resources to maintain reliability. There are many ways that a state can choose to implement the CPP. For example, if a model assumes that a state does not include energy efficiency in its plan, there will be plants that will need to operate that might not with a more energy-efficient state plan. The EPA is not requiring any specific units to retire. Instead, the final Rule provides a great deal of flexibility for states to design their state plans to ensure that units that are needed for reliability purposes can continue to operate. Wisconsin DNR and PSC have not provided us with any additional information that is centrally relevant and would change our findings in the CPP.

Wisconsin DNR and PSC assert that the EPA's modeling fails to account for infrastructure build-out (e.g., natural gas demand and throughout all regions and transmission infrastructure). *Id*. We disagree with these claims. Our model incorporates a detailed representation of the fossil-fuel supply system that is used to forecast equilibrium fuel prices. The model includes a representation of the North American natural gas supply system, accounting for potential power sector and non-power sector gas demand, gas production, and price levels. This module consists of 118 supply, demand, and storage nodes and 15 liquefied natural gas re-gasification facility locations that are tied together via natural gas pipelines, and accounts for pipeline buildout where the buildout is cost-effective. RIA, at 3-2. The model also considers coal supply and demand. RIA, at 3-2. The EPA also does not expect that substantial amounts of new transmission will be needed to meet the final rule's emission reduction requirements. *See* Greenhouse Gas Mitigation Measures TSD at section 4.6.3. The model includes only current inter-regional transmission capacity and additional capacity planned through 2018.[194] Therefore, the model does not build additional renewable capacity if the transmission infrastructure is not available to deliver it.[195] For example, the model did not allow renewables to be sited where major new transmission would be needed to be built deliver the generation to load.

Wisconsin DNR and PSC assert that the EPA used IPM, which is not intended as a tool to evaluate system reliability. They state that reliability constraints must be evaluated through manual evaluation and modeling of peak demand loads and generation resource dispatch. They also assert that the EPA's model did not model transmission constraints. Wisconsin DNR and PSC 4-5. EPA disagrees with the assertion that the EPA model did not model transmission

[194] IPM documentation, Section 3.3, *available at* https://www.epa.gov/airmarkets/power-sector-modeling.

[195] "IPM addresses reliable delivery of generation resources for the delivery of electricity between the 64 IPM regions, based on current and planned transmission capacity, by setting limits to the ability to transfer power between regions using the bulk power transmission system." Technical Support Document: Resource Adequacy and Reliability Analysis, August 2015, at 3. "The modeling framework incorporates a host of constraints on the deployment of RE
resources, including resource constraints such as resource quality, land use exclusions, terrain variability, distance to existing transmission, and population density; system constraints such as interregional transmission limits, partial reserve margin credit for intermittent RE installations, minimum turndown constraints for fossil fuel-fired EGUs, and short-term capital cost adders to reflect the potential added cost due to competition for scarce labor and materials; and technology constraints such as construction lead times and hourly generation profiles for non-dispatchable resources by season." 80 FR 64808.

constraints. The model contains a detailed set of 64 regions and the transmission constraints between these regions. (*See* IPM documentation, Sections 3.2 and 3.3, *available at* https://www.epa.gov/airmarkets/power-sector-modeling). The EPA performed multiple runs of IPM to estimate the costs, benefits, and economic and energy market impacts of implementing the final rule. The EPA assessed the impacts of the final Rule on resource adequacy and on interregional power transfers and found that this would not be a concern. *See Technical Support Document: Resource Adequacy and Reliability Analysis*, August 2015, *available at* https://www.epa.gov/sites/production/files/2015-11/documents/tsd-cpp-adequacy-reliability.pdf. Further, we note that, an in-depth, location-specific reliability analysis of system impacts cannot be assessed until states design their plans. Moreover, the EPA included many safeguards in the final Rule in the unlikely event that there are reliability issues. For example, states must demonstrate that they considered reliability in designing state plans. Second, there are flexibilities in the timing of implementation as well as the ability to continue running units needed for reliability through trading. Additionally, in the event of an unforeseeable emergency, the reliability safety valve and state plan amendments are available to states.

Wisconsin DNR and PSC assert that the EPA did not assess the fact that electricity exporting states can comply by reducing generation, which could affect reliability in importing states. Wisconsin DNR and PSC 4-5. Petitioners' assertions are incorrect. The EPA's modeling simultaneously addresses both exports and imports of energy and capacity. In particular, it incorporates information from RTOs and other reliability authorities on capacity transfers between regions in order to address the ability to share reserves between regions. *See* IPM documentation, Section 3.3, *available at* https://www.epa.gov/airmarkets/power-sector-modeling) and *Technical Support Document: Resource Adequacy and Reliability Analysis*, August 2015, *available at* https://www.epa.gov/sites/production/files/2015-11/documents/tsd-cpp-adequacy-reliability.pdf.

Petitioners assert that the EPA failed to consider nuclear retirements which will impact reliability issues in Wisconsin. Wisconsin DNR and PSC 5, 8. We disagree with Petitioners' assertions. Our IPM modeling predicted that nuclear capacity will retire in Wisconsin under both the base case and the Clean Power Plan scenarios.[196] In both cases, we found that Wisconsin and its sources remain in a position to meet the requirements of the Clean Power Plan cost-effectively and with an adequate capacity reserve margin to maintain electric reliability.

Wyoming asserts that analysis shows that the CPP will cause reliability problems in the West. Wyoming 7-8. Wyoming states that it requested the Northern Tier Transmission Group (Northern Tier) to assess the effects of its enumerated assumptions[197] and determine the effect on the Northern Tier footprint. Wyoming states that Northern Tier found "'severe generation deficits by the year 2024 in the Northwest U.S. [i.e., Washington, Oregon, Idaho, Montana, Wyoming, northern Nevada, and Utah.]'" Wyoming 8. Wyoming states that Northern Tier found that BSER will result in insufficient generation in the Western Interconnection and

[196] We address non-reliability related issues that Petitioners raised regarding the Kewaunee retirement in a separate section.

[197] According to the Northern Tier letter to David Walker of the Wyoming Public Service Commission, these assumptions included: (1) "all existing coal-fired generation ceased by 2027"; (2) "All existing gas-fired generation operating at 75% of capacity by 2027, assume no new gas-fired generation"; and (3) "Renewable generation may be added at any location, but must be supported by existing facilities". Wyoming Attachment A at 1.

therefore is not adequately demonstrated. *Id.*

In its analysis for Wyoming, Northern Tier states that it developed three power flow cases, utilizing "load levels and dispatch of generation based on output of the WECC Transmission Expansion Planning Policy Committee (TEPPC) 2024 production cost model." Wyoming Petition for Reconsideration, Attachment A, at 1. Northern Tier further states that "the power flow cases represent the following system conditions: 1. Conditions with maximum NTTG footprint net export[;] 2. Peak coincident summer load within NTTG footprint[;] 3. Peak coincident winter load within NTTG footprint". *Id.* Finally, Northern Tier states that it calculated the resource levels in the Northwest U.S. based upon data from the three different cases and the following assumptions: 1. "All coal-fired generation offline"; 2. "All existing and planned gas-fired generation online with output equal to 75% of capacity and 100% capacity"; and 3. "All other existing and planned resources (e.g. hydro, wind, solar) dispatched as originally in the power flow cases". Wyoming Petition for Reconsideration, Attachment A, at 1-2. Under these assumptions, Northern Tier predicts "severe generation deficits by the year 2024 in the Northwest U.S.". Wyoming Petition for Reconsideration, Attachment A, at 2. Northern Tier further notes that there are other reliability-related concerns that it did not take into account such as: 1. "Requirements for holding operating or planning generation reserve capacity"; 2. "Issues due to transmission constraints or electrical system performance under normal or contingency conditions"; 3. "Assessment to determine if capacity of existing gas pipelines is sufficient to operate all gas units at 100% at the same time"; and 4. "Growth of load between 2024 and 2027 that may result in larger resource deficits". *Id.*

As an initial matter, we believe that a model's results are only as good as the assumptions that are included as the basis for the modeling. In this instance, Northern Tier's modeling and analysis included inaccurate and inappropriate assumptions. First, nothing in the EPA's modeling and analysis indicates that all coal-fired generation will be offline in the Northern Tier footprint by 2027. This assumption is not in accord with the fundamental assumptions of the Clean Power Plan nor is it a realistic assessment of what is likely to occur when states comply with the final rule. Second, it is unrealistic to assume that no new natural gas will be built in the future and, in fact, the final Rule does not restrict the ability to build new natural gas to meet electricity demand. Third, the assumption that renewables may be added to any location but must be supported by existing facilities is inconsistent with how the EPA modeled building block 3 in the final Rule. In fact, the EPA's model did not allow renewables to be sited where major new transmission needed to be built between IPM regions beyond what was planned for the near term.[198] Finally, as noted above, the EPA has designed the final Rule to include multiple features that protect reliability and ensure adequate resources are available.

Wyoming asserts that the Western Interconnection includes subregions heavily dependent upon coal that can fail autonomously. It states that eliminating coal would cause reliability problems in those subregions. Wyoming at 8. As noted above, states can design their programs to consider the attributes of the power industry within their borders, regions, and subregions. The final Rule does not require nor anticipate that all coal be eliminated. There are multiple aspects of the final Rule that protect reliability and ensure adequate resources are available. Wyoming has not provided us with any new information that is centrally relevant to our findings and therefore we deny its Petitioner for Reconsideration on this issue.

Basin Electric Power Cooperative asserts that, for both the rate and mass-compliance scenarios, IPM predicts almost no new wind due to the CPP, and less new wind in the mass-

[198] IPM documentation, Section 3.3, *available at* https://www.epa.gov/airmarkets/power-sector-modeling.

based scenario than in rate-based scenario. Basin Electric Power Cooperative 25. It states that this contrasts with the BSER which assumes a large increase in renewables, largely driven by an increase in wind generation. *Id.* at 26. Basin Electric Power Cooperative claims that the EPA uses this modeling to show little costs and no reliability problems, but the EPA has not explained the shift in assumptions between BSER and compliance. *Id.* Therefore, it asserts that the RIA modeling does not show that BSER has been adequately demonstrated. *Id.* We believe that Basin Electric Power Cooperative is confusing the BSER and the modeling we conducted to support the development of BSER with the design of state programs and potential compliance scenarios included in the RIA. The EPA utilized IPM to both establish the BSER and to analyze the impact of the rule for the RIA. The EPA utilized IPM to model each building block in order to determine BSER. In contrast, the EPA's RIA analysis models the likely compliance routes that states and entities will take to meet the final rule's emission reduction requirements in a reliable and cost-effective manner. Sources can meet the final Rule requirements by building a small fraction of the wind estimated under the BSER modeling for Building Block 3. Basin Electric Power Cooperative has not provided us with any new information that is centrally relevant to our findings and therefore we deny its Petition for Reconsideration on this issue.

Basin Electric Power Cooperative asserts that the EPA did not give notice of RIA modeling, which is needed for cost and reliability assessments. *Id.* at 24-26. This is not correct. The EPA developed a draft RIA for the proposed CPP which was available for comment. The EPA then modified the RIA to reflect the final CPP and comments that we received. Petitioners had notice and opportunity to comment with regard to the final RIA.

Petitioners have not provided us with any new information that is centrally relevant to our findings and therefore we deny the Petitions for Reconsideration on reliability issues.

XVII. Remaining Useful Life/Stranded Assets

A. Introduction

Ameren, Basin Electric Power Cooperative, Kansas, Mississippi PSC, New Jersey, Southern Company, Texas, UARG, and West Virginia petitioned the EPA for reconsideration of the final Rule's implementation of the "remaining useful life" (RUL) provision. Under this provision, emission guidelines must "permit the State in applying a standard of performance to any particular source under a plan submitted under this paragraph to take into consideration, among other factors, the remaining useful life of the existing source to which such standard applies." 42 U.S.C. 7411(d)(1). Petitioners also ask for reconsideration of our analysis showing that the emission guidelines give states sufficient flexibility to avoid "stranded assets," assets that are prematurely retired before they are fully depreciated.

Petitioners give three reasons why their objections were impracticable to raise during the comment period. First, Petitioners allege that the EPA's proposal stated that implementing the RUL provision was "unnecessary," while the final Rule instead explains how the guidelines implement the provision. Second, they allege that there was no notice in the proposal that trading was one of the mechanisms the final rule provides for states to consider RUL. Third, Petitioners state that the EPA's stranded asset analysis was not available for comment.

As to the objections themselves, Petitioners make several arguments concerning the RUL provision:

- The statute requires the EPA to allow states to adjust the goals or relax emission standards for a particular source based on RUL and other factors.
- RUL and other factors must be considered by the EPA when determining the

BSER.

- The RUL provision demonstrates that the BSER for existing sources must be less stringent than the BSER for new sources.
- Trading is not a sufficient mechanism to address RUL because states may not enable trading or markets may not arise.
- Excluding pre-2012 RE from being eligible to generate ERCs violates the intent of the RUL provision to safeguard existing assets.
- The revised initial compliance date of 2022 isn't sufficient to address the RUL issue.
- The EPA's position that stranded assets are a separate concern from the RUL provision is illogical.

Petitioners also make several arguments regarding the EPA's stranded asset analysis:

- The methodology used in the stranded asset analysis was unclear.
- The stranded asset analysis used an erroneous "book life" (i.e. depreciation period).
- Certain specific EGUs will be forced to retire due to the CPP, stranding their assets.
- Ratepayers will be forced to pay for stranded assets.
- Stranded assets would be taken under the Fifth Amendment to the U.S. Constitution.

The EPA denies the Petitions for Reconsideration with respect to all of these issues. Petitioners had adequate opportunity to comment on each of them. In addition, the issues raised are not of central relevance because they do not provide any information that could lead EPA to revise the final Rule. Our detailed responses are given below.

B. Goal Setting/Adjustment

Kansas and West Virginia: In summary, Petitioners Kansas and West Virginia argue that RUL, existing assets of particular EGUs, and other unit-specific factors should have been considered by the EPA in determining the BSER:

> The Department believes that this is a fundamental issue that EPA has failed to address in the Final Rule. It does not address the problem at the front end of the 111(d) process by incorporating adjustments for EGUs with recently installed or soon-to-be installed controls into the state goal calculations or in the compliance periods. The Final Rule should take into consideration the amount of funds spent on controls as a proportion of the value of the EGU and the generally accepted timeframe used by utilities to retire the financial instruments used to fund the control devices installed. Facilities that have recently installed or are installing new scrubbers comprise 84% of Kansas' 2012 generation. This is a far greater impact than the flexibility contained in the Final Rule can reasonably be expected to account for in the short time between the plan submittal deadline and the first year of the compliance period.

Kansas 3. The final CPP imposed uniform standards for coal and for gas units across the country by disregarding unit-specific characteristics, such as technology employed, age of facility, remaining useful life, among other things. West Virginia 2.

Response: Petitioners fail to demonstrate that it was impracticable to comment on this issue during the comment period. The proposed Rule did not consider the particular remaining useful life or the depreciation status of particular assets of an EGU in its proposed determination of the BSER (including the corresponding compliance periods). *See generally* 79 FR 34878-92. In particular, the proposal notice quoted the statutory definition of "standard of performance." 79 FR 34789. The notice continued:

> The U.S. Court of Appeals for the D.C. Circuit (D.C. Circuit or Court) has handed down case law over a 40-year period that interprets this CAA provision, including its component elements. Under this case law, the EPA determines the BSER based on the following key considerations, among others:
>
> • The system of emission reduction must be technically feasible.
> • The EPA must consider the amount of emission reductions that the system would generate.
> • The costs of the system must be reasonable. The EPA may consider costs at the source level, the industry level, and, at least in the case of the power sector, the national level in terms of the overall costs of electricity and the impact on the national economy over time.
> • The EPA must also consider that CAA section 111 is designed to promote the development and implementation of technology, including the diffusion of existing technology as the BSER, the development of new technology that may be treated as the BSER, and the development of other emerging technology.

Id. None of these factors includes the RUL or the age of a particular facility, and costs are limited to the costs of the system, not sunk costs (i.e., assets). Thus, the issue, not considering such factors in setting the BSER, was squarely presented in the proposal notice.

Petitioner also fails to demonstrate that the objection is of central relevance. First, as explained above, RUL and existing assets are not listed as factors in the definition of "standard of performance" and therefore there is no explicit statutory obligation for the EPA to consider them in determining BSER. *See Motor Veh. Mfrs. Ass'n v. State Farm Ins.* 463 U.S. 29 (1983) (agency cannot consider factors Congress did not intend to be considered). At least with respect to RUL, the structure of the statute supports this: section 111(d)(1) sets forth the conditions under which RUL and other factors can be considered, that is, in applying a standard of performance, not in determining the BSER. That the statute provides a mechanism for considering RUL in state plans creates an inference that RUL need not be considered in determining the BSER.

At most, it could be said the definition of "standard of performance" is silent on the issue of whether RUL should be considered in determining the BSER, in which case the question is whether the EPA's interpretation is reasonable. For the reasons given in the final Rule and associated Legal Memorandum, the EPA's interpretation of how RUL should be permitted to be considered in state plans for these emission guidelines is reasonable.

The emission guidelines, and in particular our determination of BSER, are also reasonable with respect to the issue of potentially stranded assets. Please see the stranded asset analysis in the docket for the final Rule, along with the discussion of it in the notice for the final Rule and in responses elsewhere here. In summary, the analysis shows that states can design

their plans so as to avoid stranded assets.

Finally, to the extent that Petitioners are attempting to object that, in order to implement the RUL provision, the EPA must allow states to adjust the performance rates or goals, we respond below. For these reasons, Petitioners have failed to demonstrate that reconsideration under CAA section 307(d)(7)(B) is warranted or appropriate for these issues.

Ameren, Southern Company, and Kansas: [T]he CPP fails to consider the statutory requirement that useful life be considered in setting the standard, not just in implementation of the state plans. The EPA has changed the logic as to how they consider remaining useful life and this is a significant change from the proposal. Because this divests owners of property rights without due process, this issue deserves to be addressed through comment. Ameren Pet. at 21. The statute and the regulations authorize states to take unit-specific factors into account in setting existing source performance standards. The availability of an emissions trading program does not authorize the EPA to rescind these provisions of the law for EGUs. Southern Company 24. EPA's interpretation of Section 111(d) is contrary to the text of the statute and Congressional intent as it relates to a state's right to establish its own standards of performance and to address stranded assets. The text of Section 111(d) provides, "[t]he Administrator shall ... establish a procedure ... under which each State shall submit to the Administrator a plan which establishes standards of performance for any existing source for any air pollutant." *Id.* A plain reading of the text makes clear that Congress intended for states to establish standards of performance under Section 111(d), and for the EPA to establish a procedure for states' submission of plans to implement the standard. However, in its final Rule, the EPA established both a procedure and binding emission targets that apply to affected sources. Therefore, the EPA's proposal is inconsistent with the delegation of authority provided for in Section 111(d). Kansas 3.

Response: In this response, the EPA assumes that the Ameren Petition's reference to "setting the standard" refers to the emission standards established in a state plan, and not to determining the BSER. Please see the previous response regarding RUL and the determination of BSER. In any case, the Southern Company and Kansas Petitions clearly refer to setting the emission standards in a state plan.

Petitioners have failed to demonstrate that it was impracticable to comment on this issue. The proposal stated that goal adjustment based on RUL and other factors was not warranted, due to the other flexibilities available in the proposed rule that could be used to consider these factors. 79 FR 34926. The notice explicitly mentioned trading as one of these flexibilities. *Id.* ("In addition, the proposed guideline allows states to regulate affected EGUs through flexible regulatory approaches that do not require affected EGUs to incur large capital costs (e.g., averaging and *trading programs*).") (emphasis added). Furthermore, the proposal noted the distinction between initial capital investments and annual costs in a way that is consistent with the discussion of trading and RUL in the final rule. *See id.* Thus, it was practicable to comment on this issue.

Petitioners also fail to demonstrate that this issue is of central relevance. First, the final Rule allows states to choose a rate-based or mass-based goal approach instead of simply adopting the uniform performance rates. Under a rate-based goal approach, a state can set emission standards that vary from the performance rates in order to take into account RUL and other factors, so long as the goal is achieved. 80 FR 64871/3. And under a mass-based approach, states can allocate allowances based on RUL and other factors. Legal Memorandum at 41. Petitioners' objection appears to be solely to the uniform performance rates (hence their

mischaracterization of the rule as "prohibiting" consideration of RUL). However, the statute requires only that the emission guidelines "permit" states to consider RUL and other factors. *Id.* at 37-38. Thus, it does not require that every state plan option adequately address the RUL provision, only that some options adequately address the provision. Petitioners fail to demonstrate that options other than the uniform performance rates are inadequate to address the RUL provision and therefore have not demonstrated that the objection is of central relevance.

Furthermore, the statute does not support Petitioners' argument that states must be allowed to consider RUL and other factors in "setting" the standards for individual sources, by which Petitioners mean relaxing the numerical emission standard. Instead, it provides that EGs must permit states to consider RUL and other factors when "applying" – not setting – a standard of performance to a particular source. Deciding whether to enable trading, when compliance starts, how many allowances to allocate are all decisions about how to apply a standard of performance. As explained in the Legal Memorandum for the final Rule, the word "apply" means "to bring to bear; put into practical operation, as a principle, law, rule, etc." or "to bring (a rule, a test, a principle, etc.) into contact with facts; to bring to bear practically; to put into practical operation." Legal Memorandum at 37. Enabling trading, phasing in compliance, and allocating allowances are all decisions about how the emission standard will operate in practice.

And, even under a uniform performance rate, enabling trading adequately takes into consideration RUL. 80 FR 64871/1. This can be seen through a simple analogy: a flat tax on income provides exactly the same rate for everyone, but it takes into account ("considers") each individual's income when the individual's tax burden is computed. This is precisely how trading considers RUL: the uniform rates are the same for each affected EGU, but total compliance costs vary based on RUL. There is no need for an individualized emission standard in order for RUL to be adequately considered for each particular source. *Id.* at 64874/1.

Petitioner Southern Company's reference to the variance provision in the framework regulations (40 CFR part 60, subpart B) is beside the point. The framework regulations explicitly allow the EPA to make the variance provision inapplicable. 40 CFR 60.24(f) ("Unless otherwise specified in the applicable subpart …"); 80 FR 64870/2. And this was discussed in the proposal, 79 FR 34925/2, making it practicable to comment on this issue during the comment period. While the variance provision may be a reasonable way to implement the RUL provision for some pollutants and some source categories, the final rule shows that it is not the only way. Given the cumulative and long-lasting impact of CO_2 emissions, and given the EPA's record demonstrating that the BSER is achievable by all affected EGUs, it would be unreasonable to allow source-specific variances or goal adjustment.

Finally, Petitioner Ameren's brief complaint about lack of due process is without merit. First, as explained above, it was practicable to comment on this issue; thus, Ameren had due process (to the extent any was required) during the original comment period. Second, the final Rule does not deprive Petitioner of property, as it imposes no legally enforceable obligations on affected EGUs. To the extent that a state plan or a federal plan could affect Ameren's property rights, Ameren would have the opportunity to be heard with respect to that plan. Finally, at its core due process requires "some kind of hearing." *Wolff v. McDonnell*, 418 U.S. 539, 557-58 (1974); *see also* Henry J. Friendly, SOME KIND OF HEARING, 123 U. Pa. L. Rev. 1267 (1975). That is precisely what Ameren has through judicial review of the final rule and potential judicial review of this reconsideration response.

For these reasons, Petitioners have failed to demonstrate that reconsideration under CAA section 307(d)(7)(B) is warranted or appropriate for these issues.

Southern Company: According to the EPA, the performance rates, state rate and mass goals, the 2022 compliance date, and emissions trading all justify its attempted prohibition against consideration of remaining useful life and other unit-specific factors. EPA now explains that past section 111(d) rules have established "presumptive performance rates" whereas the CPP relies on "collective performance rates." However, there appears to be little, if any, difference between "collective performance rates" and "presumptive performance rates." Both are emission rate limits designed based on the BSER for categories and/or subcategories of emission units for implementation by states. It is unclear how moving from state-wide goals to national performance rates provides greater flexibility for states to consider RUL at the unit level. The EPA suggests that the different state goals provide a source of flexibility as well; however, the state goals are simply the national performance standards applied to generating units in the state. The EPA also notes that in the final Rule it has given EGUs two more years to comply with the initial targets, which will help ensure that states can consider RUL. However, the additional two years does not enable the states to address RUL of the sources that will be in operation in 2022 and subject to the standards. The EPA apparently just hopes the issue will go away. Southern Company 23.

Response: For the reasons given elsewhere, Petitioner has not demonstrated that it was impracticable to comment on this issue during the comment period. The rate-based and mass-based goals, trading, and compliance period were all features of the proposed Rule. The EPA explains elsewhere why it was practicable to comment on the final Rule's uniform performance rates and 2022-2030 compliance period. Citations to portions of the proposed Rule notice regarding the goals and trading, including in the discussion of the RUL provision, are provided in our other responses in this section. Customizing the glide path was also proposed. 79 FR 34904/2.

Petitioner also fails to demonstrate that this issue is of central relevance. The final Rule does not "prohibit" consideration of RUL and other factors. What it does prohibit is adjustment of the goals, but it allows for consideration of RUL and other factors through other reasonable mechanisms: trading, customized glide paths, allowance allocation, and so on.

Collective performance rates allow for trading, unlike the presumptive performance rates in past emission guidelines. They also allow (under a rate-based program) states to vary standards for particular affected EGUs, so long as the rate-based goal is achieved, which is another mechanism for states to consider RUL and other factors.

The EPA does not claim that the addition of the uniform performance rates enhances states' ability to consider RUL. Instead, the EPA was pointing out that even if states simply adopted the uniform performance rates—in other words, not taking advantage of all the flexible mechanisms provided by the Rule for states to consider RUL—states could still adequately take RUL into account by enabling trading. 80 FR 64871/1.

Finally, the additional two years (i.e., compliance starting in 2022 instead of 2020) is not the sole compliance period flexibility in the final Rule. The EPA also permitted states to customize the glide path to full compliance in 2030. This allows states to give affected EGUs with relatively short RUL relaxed standards during the interim period, and the same effect continues in attenuated form after 2030. *See* Legal Memorandum at 42.

For these reasons, Petitioner has failed to demonstrate that reconsideration under CAA section 307(d)(7)(B) is warranted or appropriate for these issues.

Texas: The EPA asserts in the final Rule that its approach to setting the emission guidelines adequately accounts for the RUL of affected EGUs, but provided no opportunity to comment. In fact, the consideration of RUL is statutorily required of states under Section 111(d). ERCOT's modeling indicates the potential retirement of at least 4,000 MW of coal-fired capacity due specifically to compliance with the final Rule, beginning in 2025. The final emission guidelines underestimate this potential coal capacity retirement for Texas, and multiple unit retirements could occur in a short timeframe. The EPA's final emission guidelines preclude the state from considering the RUL of these units. Instead, in promulgating the final emission standards, the EPA made assumptions that eliminate the states' ability to meet their statutory duty to consider RUL of individual emission units. Texas 7.

Response: Petitioner has not demonstrated that it was impracticable to comment on this issue during the comment period. As explained in the response to Ameren above, the proposal did not allow goal adjustment as a mechanism to consider RUL but instead relied on other flexibilities.

Petitioner also fails to demonstrate that the objection is of central relevance. First, as explained in the previous response, the proposed Rule and final Rule did not eliminate a state's ability to consider RUL. They both provided various flexibilities for considering RUL, but explained why goal adjustment was not warranted. Petitioner fails to address this point and therefore has not met their burden.

Petition is also mistaken in stating that states are statutorily required to consider RUL. Compare section 111(d)(1) – guidelines must "permit" states to consider RUL – with section 111(d)(2) – the EPA "shall" consider RUL in a federal plan. To "permit" is "to let (something) be done or occur," as in "the law permits the sale of such drugs." or "to allow or give consent to (a person or thing) to do or undergo something." Legal Memorandum at 37. Allowing or giving consent to an action is not the same as requiring it to be performed.

Furthermore, section 116 allows states to impose more stringent emission standards than are required under the Act. The legislative history for section 111(d) confirms this: "Unless the State decides to adopt and enforce more stringent standards, the State plan would be expected to take into account the remaining useful life of the source (or sources)." Legal Memorandum at 34 (quoting H. Rep. 95-294 at 195).

We respond to the claims about potentially stranded assets and the ERCOT modeling below. For these reasons, Petitioner has failed to demonstrate that reconsideration under CAA section 307(d)(7)(B) is warranted or appropriate for these issues.

Kansas: Section 111(d) clearly provides states the opportunity to address RUL in their state plans. The preamble to the final Rule minimizes the potential for this problem to occur and does not provide a pathway for states to address stranded assets in any meaningful way in any of the six types of state plans described. The EPA has stated that the flexibility provided in the state plan development process adequately allows for consideration of the RUL of the affected facilities and other source-specific factors and, therefore, that separate application of the RUL provision by states in the course of developing and implementing their state plans is unnecessary. The Department strongly disagrees that the flexibility in the state plan development process sufficiently allows for addressing RUL considerations. Kansas 3.

Response: For stranded asset issues, please see below. Petitioner fails to demonstrate that it was impracticable to comment on this issue: as explained above, the proposed Rule did not allow goal adjustment but instead relied on other flexibilities to implement the RUL

provision.

Petitioner also fails to demonstrate that this objection is of central relevance. Petitioner misstates the preamble to the final Rule by claiming it stated that separate application of the RUL provision was "unnecessary." Instead, the preamble stated that the flexibilities were adequate to allow states to consider RUL and other factors, and therefore separate application of the provision to adjust the goals was unnecessary. 79 FR 34925/1.

Petitioner's objection to the adequacy of the flexibilities is not based on any information or argument; instead it simply claims without basis that the flexibilities are not adequate. For example, simply enabling trading is, by itself, a reasonable way to address RUL. 80 FR 64871/1; see also next subsection. Petitioner therefore has not demonstrated that this objection is of central relevance.

For these reasons, Petitioner has failed to demonstrate that reconsideration under CAA section 307(d)(7)(B) is warranted or appropriate for these issues.

C. Trading

UARG, Ameren: The EPA also relied on expected use of trading to implement the Rule in order to justify its conclusion that the agency properly addressed the RUL of affected EGUs and to reduce the expected costs of compliance. 80 FR 64733-34. UARG 11. The Preamble states "with trading, an affected EGU with a limited remaining useful life can avoid the need to implement long-term emission reduction measures and can instead purchase ERCs or other tradable instruments, such as mass-based allowances, thereby allowing the state to meet the requirements of this rule." Ameren disputes this conclusion since the source-specific emission rate also applies and there is no guarantee there will be adequate numbers of allowances at prices that will allow EGUs with remaining useful life to avoid having to shut down to meet the interim or final state goals. Ameren 21.

Response: First, Petitioners fail to demonstrate that it was impracticable to comment on this issue during the comment period. Trading is discussed extensively as a flexibility mechanism in the proposed Rule. 79 FR 34837 ("States may also identify strategies that are not explicitly mentioned in any of the four building blocks and may use those as part of their overall plans (e.g., market-based trading programs …)."); *id.* at 34840 (discussing the relationship of the interconnected grid and trading); *id.* at 34892 (discussing trading as one way to implement BSER); *id.* at 34897 (describing trading as a flexibility under a mass-based program); *id.* at 34900 (describing trading as a flexible state plan element); *id.* at 34916 (discussion trading in multi-state plans such as RGGI); *id.* at 34922 (noting trading of RE certificates); *id.* (noting additional flexibilities under a mass-based trading program).

Furthermore, trading was also discussed by stakeholders prior to the proposal, as explained in the proposal notice. 79 FR 34837-38 (suggesting model trading rules; flexible compliance). Trading is also a component of existing GHG mitigation programs (RGGI, California). *Id.* at 34838. And trading is a component of existing programs for criteria pollutants, such as the title IV acid rain program, the NOx SIP Call, and CAIR. *Id.* at 34880.

Most importantly, the proposal stated that goal adjustment based on RUL and other factors was not warranted, due to the other flexibilities available in the proposed rule that could be used to consider these factors. 80 FR 34926. The notice explicitly mentioned trading as one of these flexibilities. *Id.* ("In addition, the proposed guideline allows states to regulate affected EGUs through flexible regulatory approaches that do not require affected EGUs to incur large

capital costs (e.g., averaging and *trading programs*).") (emphasis added). Furthermore, the proposal noted the distinction between initial capital investments and annual costs in a way that is consistent with the discussion of trading and RUL in the final rule. *See id.*, *id.* n.305.

Petitioners also fail to demonstrate that this objection is of central relevance. The EPA's record demonstrating that the BSER is achievable, including availability of trading markets, is addressed elsewhere. Petitioners present no information to indicate that trading is an unreasonable mechanism for addressing RUL. See 80 FR 64871/1 (explaining that trading gives sources with a short RUL proportionately lower total costs of compliance); *Id.* at 64873/3-74/1 and Legal Memorandum at 39 (explaining how trading works analogously to the implementation of RUL in the BART Guidelines).

Furthermore, the statute only requires the EPA to "permit" states to consider RUL, not to ensure that states will. See Legal Memorandum at 37 (discussing the definition of "permit"). In turn, the statute does not require states to consider RUL (see response to Texas petition above), and if a state chooses not to, that is the state's prerogative. Subject to constitutional limits, states have the entire range of police powers, including forcing retirement of facilities. Thus, Ameren is mistaken in stating that the EPA must "guarantee there will be adequate numbers of allowances" in order to implement the RUL provision. While the EPA expects that will be the case—and the record demonstrates this—the RUL provision does not require the EPA to ensure that it will be so. For the same reason, Petitioner UARG is mistaken in stating the EPA relied on "expected" use of trading to implement the RUL provision.

For these reasons, Petitioners have failed to demonstrate that reconsideration under CAA section 307(d)(7)(B) is warranted or appropriate for these issues.

Southern Company: The EPA relies heavily on the availability of emissions trading as a mechanism for states to address remaining useful life and other unique issues. The Agency asserts that units with a limited remaining life can simply purchase allowances as opposed to investing new control technology to meet the standards. That assertion assumes on its face that there is a control technology that could allow some units to over comply, thus generating credits and/or allowances that could be transferred to other units. This technology, however, does not exist. As a result, in order to meet the standards, owners/operators must shift generation away from their steam boilers to natural gas and renewable resources, which will ultimately result in "stranded assets." In the Southern Company system, the operating companies have invested significant capital resources into their most efficient coal-fired units for the benefit of their customers, but those resources and associated investments will not benefit the customers who pay for them if the units are forced to retire early. The stringency of the EPA's performance rates (including emission allowances or emission rate credits based on those rates) eliminates any flexibility that might otherwise be available through a more traditional trading program based on achievable emission rates. The statute and the regulations authorize states to take unit-specific factors into account in setting existing source performance standards. The availability of an emissions trading program does not authorize the EPA to rescind these provisions of the law for EGUs. The EPA must reconsider its new justifications for its determination in the final Rule that emissions trading alone is sufficient to take into account RUL. Southern Company 23-24.

Response: For the same reasons given in the previous response, Petitioner has not demonstrated that it was impracticable to comment on these issues.

Petitioner also fails to demonstrate that this issue is of central relevance. The EPA's

discussion of trading as an implementation mechanism for RUL was not predicated on the existence of a control technology that can allow some units to over-comply and generate credits. For one thing, credits can also be generated by qualifying RE projects. In any case, the statute requires emission guidelines to permit states—not affected sources—to consider RUL. States can do so by enabling trading, as well as through a customized glide-path. For rate-based plans, states can vary the standards based on RUL and other factors, and for mass-base plans, states can allocate allowances based on RUL and other factors. That some affected EGUs might over-comply and free up credits or allowances is in addition to these mechanisms that states can employ to consider RUL and other factors.

Petitioners' argument also seems to assume that emission guidelines must be based on a retrofit control technology. As explained in the preambles to the proposed and final Rules, and the legal memoranda, this is not the case.

With respect to the argument that the statute and regulations allow states to relax emission standards, please see the response above. Regarding RUL and stranded assets, please see the section below. Regarding the achievability of the BSER and generation-shifting, please see our responses elsewhere.

For these reasons, Petitioner has failed to demonstrate that reconsideration under CAA section 307(d)(7)(B) is warranted or appropriate for these issues.

D. RUL and Stringency

Kansas and New Jersey: In brief, Kansas and New Jersey state that the RUL provision shows that existing sources must have a less stringent standard than new sources, and older sources must have a less stringent standard than newer sources:

> The EPA ignored Congressional intent on this issue by failing to consider remaining useful life and stranded assets as required by Section 111(d) of the Clean Air Act. Section 111(d) expressly directs states and the EPA to consider "the remaining useful life" of existing sources. 42 U.S.C.A. § 7411(d). This language clearly conveys two things: 1) Congress intended for existing sources to be given less stringent standards than new sources; and 2) within a class of existing sources, older sources are to have less stringent standards than more recent sources. The final Rule applies a single performance standard to all existing sources, thereby ignoring the fact that older existing sources likely have a different "remaining useful life" than newer existing sources.

Kansas 2-3.

> The EPA is ignoring the clear intent of Congress by setting a performance rate for existing power plants (under Section 111(d)) that is more stringent than the performance rate for new power plants (under Section 111(b)). Section 111(d) expressly instructed states and the EPA to consider "the remaining useful life" of existing sources. This language clearly conveys two things: 1) Congress intended for existing sources to be given less stringent standards than new sources; and 2) within a class of existing sources, older sources are to have less stringent standards than more recent sources. The EPA inverted both of these commonsense inferences; the final Rule creates performance standards for existing sources that are more stringent than the standards for new sources.

In addition, the EPA applies a single performance standard to all existing sources, thereby ignoring the fact that older sources likely have a different "remaining useful life" than newer sources. Indeed, the EPA's final Rule completely ignores the intent of the Congress and represents an egregious and unjustified expansion of its regulatory authority.

New Jersey 3.

Response: Petitioners have not demonstrated that it was impracticable to comment on this issue. As discussed below, the relative stringency between the BSER for new sources and the BSER for existing sources was presented by the concurrent combination of the proposed NSPS for new sources and the proposed emission guidelines. With respect to the claim that the statute unambiguously requires older sources go be given less stringent standards than newer sources, as explained above that issue was presented by the proposal. The proposal did not allow goal adjustment based on the age of the facility.

Petitioners have also failed to demonstrate that this issue is of central relevance. With respect to the relative stringency between the BSER for new sources and for existing sources, the RUL provision is irrelevant to that issue. The RUL provision addresses the issue that for a particular level of the BSER for existing sources, the cost of complying with an emission standard reflecting that level might be unreasonable for some existing sources for source-specific reasons. 80 FR 64872/1; Legal Memorandum at 35. Thus, use of the RUL provision depends on the level at which the BSER is set for existing sources in a particular category and source-specific factors for sources within that category. Thus, it is entirely dependent on the existing source category and has no relation to new sources.

Petitioners' argument regarding the relative stringency of emission standards for older existing sources as compared to newer existing sources is just another version of the argument in section B above, that the statute requires emission guidelines to allow states to relax emission standards. As explained above, the statute does not require this. Furthermore, the final Rule does allow states to relax emission standards for one source so long as the overall goal is met.

For these reasons, Petitioners have failed to demonstrate that reconsideration under CAA section 307(d)(7)(B) is warranted or appropriate for these issues.

Southern Company: In response to the proposed Rule, Southern commented extensively on the failure of the proposal to allow states to take into account RUL and other facility-specific factors when implementing the final guidelines. In the proposed Rule, the EPA claimed that it provided states significant flexibility in how to implement the standards such that RUL should not be an issue. Southern Company disagreed with that conclusion, noting, among other things, that the EPA's claims of flexibility were belied by the stringency of the proposed standards. That is, the flexibility was illusory; the standards were so stringent that there were no real alternatives to compliance.

The EPA asserts that it has addressed those concerns such that the final Rule contains sufficient flexibility to avoid the need for states to separately take into account RUL and other source-specific factors. Southern respectfully disagrees with this assertion by the EPA. As discussed previously in this petition, the new source-category-specific performance rates are not achievable by any existing source in the country, cannot be met through the application of any adequately demonstrated and cost-effective control technology, and may only be achievable *in theory* through a combination of the EPA's three building blocks, an emissions trading program,

and an unprecedented reduction in demand for electricity. As a result, the final guidelines for existing sources remain more stringent than the final standards for new and modified sources. As under the proposal, the result will be premature retirements and stranded assets. The final Rule's new justification for disallowing consideration of unit-specific factors, such as remaining useful life, does not adequately address Southern Company's concerns. Southern Company 22-23.

Response: Petitioner has not demonstrated that it was impracticable to comment on this issue during the comment period. In fact, the Petitioner states that the issue was present in the proposed rule: "EPA's claims of flexibility were belied by the stringency of the proposed standards. That is, the flexibility was illusory; the standards were so stringent that there were no real alternatives to compliance."

Petitioner also has not demonstrated that this issue is of central relevance. Please see responses regarding the achievability of the BSER elsewhere. The argument that "the standards were so stringent that there were no real alternative to compliance" appears to be related to this Petitioner's argument above that sources will not be able to over-comply and free up ERCs or allowances for other sources to use to under-comply. Please see our response in section C. Regarding stranded assets, please see the next two sections.

Finally, Petitioner does not provide any information to indicate that the flexibilities in the final Rule are inadequate to reasonably take into account RUL and other factors. For these reasons, Petitioner has failed to demonstrate that reconsideration under CAA section 307(d)(7)(B) is warranted or appropriate for these issues.

E. RUL and Stranded Assets

Mississippi PSC: In summary, Mississippi PSC argues that our interpretation that RUL is primarily about the marginal costs of compliance, not sunk costs, does not make sense:

> When it comes to the problem of new or newly retrofitted units, the EPA further contends that Congress was primarily concerned with the marginal costs of compliance and not with past sunk costs. This interpretation makes little sense, because vertically integrated utilities (which continue to serve all Mississippi customers) will, absent a rare finding of imprudence, recover all of their sunk costs from ratepayers over their projected remaining useful lives, even if such plants retire early and never generate again. These costs may be "sunk" in the sense that Mississippi Power Company has already paid them or is committed to paying them, but customers will continue to reimburse the company for those costs into 2046. MPSC stresses the impact these costs would inevitably have on ratepayers under the final rule, especially in the state with the highest poverty rate and in which residential customers spend the most on electricity relative to median income.

Mississippi PSC 5.

Response: Petitioner has not demonstrated that it was impracticable to comment on this issue during the comment period. The proposed Rule notice, in its discussion of the RUL provision, focused on the cost of compliance, not sunk costs:

> Under the proposed guideline, states would have the flexibility to adopt a state plan that relies on emission reducing requirements that do not require affected EGUs with a short remaining useful life to make major capital expenditures or incur unreasonable costs.

> The agency requests comment on whether there are circumstances other than a major capital investment that could lead to a prospective state plan imposing unreasonable costs considering a facility's remaining useful life. Where annual costs predominate and/or capital costs do not constitute a major expense, the EPA believes that the remaining useful life of an affected EGU will not significantly affect its annualized cost of control and therefore should not be a factor in determining control requirements for the EGU.

80 FR 34926, 34926 n.305.

Thus, not only did the proposal focus on cost of compliance, the EPA invited comment on other circumstances such as those raised in the Mississippi PSC Petition.

Petitioner also fails to demonstrate that this objection is of central relevance. First, no other technology standard in the Act for existing stationary sources is explicitly based (in whole or in part) on sunk costs. Second, Congress cannot have expected states and the EPA to become accountants, determining whether past investments were justified and have been correctly depreciated.

Congress' intent in the RUL provision instead was to address source-specific factors that potentially could make the cost of complying with an emission standard reflecting the BSER unreasonable. 80 FR 64872/1; Legal Memorandum at 35. This issue is most commonly presented by a determination of the BSER based on application of retrofit control technology. For example, if the BSER-level control technology has only a slightly better control efficiency than an existing, installed control, the slight marginal gain in emission reductions may not be worth the additional cost of completely replacing the existing control with a new control. 40 FR 53344/3. Petitioners offer no information to rebut this interpretation.

Thus, the RUL provision does not compel the EPA to allow states to relax emission standards to completely avoid sunk costs. Finally, even if the statute did compel the EPA to take into account sunk costs—which it does not—at most it could be read to require accounting for assets that have not been fully depreciated. Our stranded asset analysis shows that states can develop plans that prevent premature retirement of those assets. We respond below to Petitioner's objections to the stranded asset analysis.

For these reasons, Petitioner has failed to demonstrate that reconsideration under CAA section 307(d)(7)(B) is warranted or appropriate for these issues.

Basin Electric Power Cooperative: The EPA has now truncated States' authority under their State plans by permitting States to issue ERCs only for ***new*** investments, dismissing the value of ***existing*** investments. Specifically, the final Rule restricts issuance of ERCs to those "resources that increased installed electrical generation nameplate capacity ... on or after January 1, 2013." *Id.* (§ 60.5800). As a result of this restriction, RE resources built prior to 2013 cannot be used to generate ERCs and aid in compliance with the final Rule. This exclusion of the value of existing investments from generating these necessary ERCs lies in direct conflict with the statute and express congressional intent to protect existing investments. *See* H.R. Rep. No. 95-294, at 195 (1977), *reprinted in Legislative History of the Clean Air Act Amendments of 1977* (the Administrator's guidelines and State plans "must take into account the remaining useful life of existing sources"). Basin Electric Power Cooperative 41.

Response: Please see our responses regarding use of the 2012 baseline elsewhere, and please see the previous response regarding the relationship of RUL and existing assets for why Petitioners have failed to demonstrate that it was impracticable to comment on this issue during the comment period, and for why this issue is not of central relevance.

In addition, this specific existing asset – an investment in renewable energy pre-2012 – is not within the scope of the RUL provision. First, that the final Rule does not allow pre-2012 RE assets to generate ERCs does not cause those assets to vanish; instead, those assets can continue to operate as always. Second, the RUL provision concerns the RUL "of the existing source to which such standard applies." Under the final Rule, emission standards in state plans apply to affected EGUs, not to RE facilities. Thus, the RUL provision is not relevant to Petitioner's concern.

For these reasons, Petitioner has failed to demonstrate that reconsideration under CAA section 307(d)(7)(B) is warranted or appropriate for these issues.

F. The EPA's Stranded Asset Analysis

Background: In the proposal notice, the EPA discussed the potential for stranded assets and how state plan flexibilities could minimize them. 79 FR 34834/2, 34837/1, 34897/2, 34904/2. The potential for stranded assets was also raised by stakeholders during the pre-proposal outreach. *Id.* at 34847/3. Thus, this issue was fully noticed, and therefore Petitioners that raise issues relating to specific assets that Petitioners allege may become stranded have not demonstrated that it was impracticable to raise these specific issues during the comment period.

Some commenters raised a concern that, due to the stringency of the proposed Rule, there would be significant potential for stranded assets. 80 FR 64872/2. While, as discussed above, nothing in the statute requires the EPA to design an emission guideline so that there is no potential for stranded assets, the EPA nonetheless analyzed the potential for stranded assets under the final rule. *Id.*; Memorandum to Docket, "Stranded Assets Analysis," EPA-HQ-OAR-2013-0602-36478 (July 2015). The analysis defined a stranded asset as "a coal-fired EGU that retires before it (or a capital-intensive pollution control that it has installed) is fully depreciated." The analysis set the depreciation period, or "book life," at 40 years for a coal-fired EGU and 20 years for a pollution control device. The analysis then compared the amount of coal generation included in the final Rule's national emission performance rate calculation in each interconnection to the amount of coal generation from coal-fired EGUs that would not be fully depreciated in 2025 and/or 2030. In each case, the amount of coal generation remaining after the BSER calculation was greater than the amount of generation from EGUs that were not fully depreciated. This demonstrated that states could design plans so as to meet the rate-based goals and completely avoid stranded assets.

We next respond to Petitioners' objections to the stranded assets analysis. To the extent that objections to the analysis itself were impracticable to raise during the comment period – and it should be noted that the data the analysis was based on was available in the docket for the proposed rule – Petitioners fail to demonstrate that the objections are of central relevance. Thus, Petitioners have failed to demonstrate that reconsideration under CAA section 307(d)(7)(B) is warranted or appropriate for issues related to stranded assets.

Mississippi PSC: Petitioner Mississippi PSC states the EPA improperly relied on an internal stranded assets analysis that was not available to the public until the final rule appeared in the FR. The analysis is opaque as to methodology of a detailed description of results. This

issue is of central relevance to the outcome of the rule. Reconsideration should be granted. Mississippi PSC 2.

Response: The analysis was not available at proposal because it was conducted in response to comments that the EPA received on stranded assets; EPA is entitled to respond to comments. The stranded assets memorandum accurately describes the straightforward methodology used to calculate the results, and the cited data is found in the docket for the proposal. As the cited data was available for comment, and the stranded asset issue was referenced in the proposal, it was practicable to comment on this issue.

Petitioners also have not demonstrated that the stranded assets analysis is of central relevance to the rule. As discussed above, section 111 does not require EPA to show that the guidelines will not result in stranded assets. Furthermore, the EPA did not use the stranded assets analysis to determine the emission levels that are achievable considering cost; it represents an auxiliary analysis to respond to public comments. The EPA establishes that the rule's requirements are "achievable considering cost" through the reasoning and analyses in the preamble relating to the BSER and derivation of the CO_2 emission rates and state goals. The EPA presented cost analyses for each building block and a model plant analysis examining the cost of the combined building blocks.

Finally, even if the stranded asset analysis were of central relevance, the objections raised by Petitioners to the analysis are not, as demonstrated by the other responses in this section.

Mississippi PSC: Coal plants have an estimated useful life of 65 years. Sixty-five years is the standard used across the Southern Company System, which includes Mississippi Power Company. That standard has been in place for decades. The EPA, however, assumed a book life of 40 years (20 years for pollution retrofits) and further assumes that 40 years is twice as long as a unit's debt life and depreciation schedule. The EPA claims that this is a conservative estimate. Final Rule at 64872. The EPA's estimate considerably understates the reality in Mississippi. Mississippi PSC 2.

Response: Petitioner has not demonstrated that it was impracticable to comment on this issue during the comment period. As the issue of stranded assets was fully noticed, it was practicable to comment on the appropriate period for depreciation.

Petitioner does not distinguish between the useful life of a plant and its economic book life. As explained above, the RUL provision addresses a separate concern from stranded assets, that the cost of compliance with an emission standard reflecting the BSER might not be reasonable for a facility with a relatively short RUL.

For the purposes of a stranded assets analysis, the EPA appropriately used the book life, which is a reasonable representation of the period of time over which an investment is depreciated. Furthermore, the EPA used an appropriate and conservative estimate of book life. The reasons for the 40-year book life for coal-fired EGUs are given in the memorandum. To use each state's particular depreciation period would defeat the purpose of a national analysis.

Mississippi PSC: Mississippi ratepayers will be paying for plant upgrade costs of Plant Daniel into 2046, which has units with RUL of 28 and 31 years. Mississippi PSC 3.

Response: As explained above, the stranded asset issue was fully noticed. Petitioner fails to demonstrate that it was impracticable to comment on this specific facility during the comment period.

Petitioner also fails to demonstrate that this objection is of central relevance. First,

Petitioners are again confusing RUL with stranded assets. Second, in making this assertion, Petitioner notes that: "MPSC cannot and will not prejudge the outcome of cost recovery matters before it or likely to come before it." However, this is exactly what MPSC is doing in making this assertion. The Commission has the authority to disallow cost recovery on these investments if they are no longer useful to the ratepayers.

Mississippi PSC: Plant Daniel is currently undergoing a $660 million new scrubber project to comply with MATS. However, the proposed rule is predicated on the closure of Plant Daniel's coal-fired units. Mississippi PSC 3-4.

Response: It is of course practicable to comment on an issue that is in the proposed rule; thus Petitioner has not met their burden here.

Furthermore, Petitioner fails to demonstrate that this objection is of central relevance. The proposal was not predicated on closure of any units. The final rule has been adjusted to ensure achievability as described in the preamble. 80 FR 64718. The stranded assets analysis demonstrates that the goals can be met without stranded assets as defined in the analysis. Plant Daniel was included in this analysis; the EPA did not exclude any units, except those with announced retirements.

Mississippi PSC: The "stranded assets analysis" provides little to no explanation of its assumptions, methodology or even detailed results. Mississippi PSC 6.

Response: This is simply not true; the Petitioner may have this impression because other comments show that the Petitioner misunderstands the nature of the analysis. The memorandum outlines the methodology used, presents references for its assumptions, and presents the results of the analysis.

Mississippi PSC: The EPA is essentially denying states the opportunity to consider RUL with unsupported assertions that the problem does not exist. Mississippi PSC 6.

Response: First, please see our responses above – Petitioner mischaracterizes the final Rule as denying states the ability to consider RUL. Second, Petitioner has not demonstrated that it was impracticable to comment on this issue or that the issue is of central relevance. Petitioner's statement is incorrect: the stranded assets analysis shows that the final rule CO_2 emission rates and state goals provide room for states to consider RUL.

Mississippi PSC: The analysis looks at nationwide emissions and countermeasures. The EPA concludes that if all states adopt the most efficient measures on a nationwide basis, not necessarily the most economic plan for each individual stat, and if all states adopt compatible emissions trading mechanisms, the ensuing economic balance will ensure that coal-fired generation will still exist somewhere in the U.S. The EPA's brief analysis appears to ignore the improbability that states developing their own plans will manage to develop the plan that is most economically efficient nationwide. Mississippi PSC 7.

Response: Petitioner fails to demonstrate that this issue is of central relevance. Petitioner gives an incorrect description of the EPA's stranded assets analysis. The stranded assets analysis did not assume or model the most economically efficient outcome on a nationwide basis. In fact, it was not an economic analysis.

The stranded assets analysis is conceptually straightforward. It compares two things:

- the amount of coal generation included in the final Rule's national emission

performance rate calculation in each electricity interconnection, and

- the amount of coal generation from coal-fired EGUs that, under the book life assumptions in the analysis, are not fully depreciated in 2025 and/or 2030.

If the amount of coal generation remaining after the BSER calculation is greater than the amount of generation from EGUs that is not fully depreciated in a given year, it demonstrates that the final Rule allows the flexibility for states to preserve these units as part of their plans. As explained elsewhere, the EPA does not have to ensure that states will choose the plan options that minimize stranded assets.

Mississippi PSC: Mississippi remains concerned that if a lack of trading partners limits it to measures it can take within the state, it will have little choice but to craft a plan that would displace all conventional coal in the state, including Plant Daniel, with natural gas at tremendous cost to ratepayers, who would have to pay both stranded costs and the costs of whatever generation replaced it. Mississippi PSC 7.

Response: Petitioner has not demonstrated that it was impracticable to comment on this issue during the comment period. Multi-state or interstate trading was identified as a compliance flexibility in the proposed Rule. *E.g.*, 79 FR 34834/2.

Petitioner also fails to demonstrate that this objection is of central relevance. The EPA determined that trading is a component of the BSER. All states have the authority to allow trading within their borders and to cooperate with other states – regardless of those states' locations (the final Rule does not require them to be neighbor states) – to allow interstate trading. States can do this through adopting trading-ready plans, through adopting compatible linked programs, or through joint plans. However, the CPP does not mandate that state plans allow trading. If a state chooses to incur higher economic impacts by not engaging in trading, that is the state's decision.

Mississippi PSC: The nationwide snapshot the EPA presents in its analysis tells us nothing about the impact the CPP will have on stranded assets or consumer rates in any individual state, even with nationwide trading. The study does not show whether particular plants would remain economic to run or what the rate impacts would be if they did. Mississippi PSC 7.

Response: Petitioner fails to demonstrate this objection. The analysis is not designed or intended to predict economic impacts. Rather, the analysis shows that states, if they wish, can cooperate with other states to design plans that achieve the goals without resulting in stranded assets.

Mississippi PSC: The vaunted flexibility of the final Rule is illusory as applied to Mississippi. MPSC addressed specific instances where the individual building blocks, as they would have to be applied in Mississippi, work against the goal of maintaining Plant Daniel. Building Blocks 1, 2 and 3 in Mississippi are unavailable or limited**.** Mississippi PSC 7-8.

Response: The achievability of the BSER (including individual building blocks) is addressed elsewhere.

Mississippi PSC: The EPA's analysis concludes that there is no stranded asset problem because, based on the results of model runs that have not been detailed or subject or review or comment is assumed that state actions could achieve an aggregate model result where

undepreciated generation assets could be kept in service. Mississippi PSC 8.

Response: As explained in the methodology section, the EPA's stranded asset analysis is based on 2012 unit-level generation data – the same data that was published for comment with the proposed Rule and published with the final Rule. The only model projections included in this analysis are projections of future retrofits that have not yet been installed and that the EPA projects may be necessary for compliance with MATS in 2016. These model projections are included in the docket of the final Rule. It was reasonable to layer those projections into this analysis so that the EPA could fully consider the all environmental retrofits that may not be fully depreciated by 2030, not just those retrofits that were installed at the time of the analysis.

It is true that the analysis does not estimate costs, such as rate impacts, of a no-stranded-assets scenario. States may need to communicate in developing their plans to achieve a no-stranded assets scenario, if they wish. States are not required to do this, but are free to do so.

Mississippi PSC: What is missing from the EPA's analysis is any assessment of what options are truly available for compliance in any particular state, and what they will realistically cost. If a state's inability to satisfy the assumed level of emissions reduction under any building block is dismissed as irrelevant because the state can always pursue some other undefined course of action, the result is a shell game where the EPA can insist that its rule provides all the flexibility a state requires to reduce emissions without ever looking at the feasibility of its plan in particular states or the realistic costs associated with compliance. Mississippi PSC 8.

Response: Petitioner fails to demonstrate that this issue (as it relates to stranded assets) was impracticable to raise during the comment period, given that the stranded asset issue was fully noticed.

Petitioner also fails to demonstrate that this issue is of central relevance. It is not a stranded assets issue; it is an issue of what economic analysis is required to show that the Rule's requirements are achievable. We address issues related to determination of the BSER elsewhere; in any case this Petitioner has not raised any particular issue regarding that determination.

Mississippi PSC: The EPA implies that if there is a conceivable, but not demonstrated, way to keep an undepreciated plant in service, there is therefore no stranded asset problem, but this is simply not the case. The stranded asset problem is fundamentally that ratepayers will be forced to pay for assets, including large, recent capital investments made to comply with other EPA rules, which either provide no service at all, because they will be forced to retire under CPP compliance, or that are kept in service, but at extraordinary cost. The EPA has only demonstrated that plant retirement could be delayed, at a cost. The EPA has not evaluated what that cost would be and what states would bear what burden. Mississippi PSC 8-9.

Response: Petitioner fails to demonstrate that this issue was impracticable to raise during comment period. As the stranded asset issue was fully noticed, Petitioner could have commented that the EPA had to evaluate the cost of state plan options.

Petitioner also fails to demonstrate that this issue is of central relevance. The stranded assets analysis indicates that the CPP does not "force" retirement of undepreciated units. Groups of states can choose plan approaches that avoid stranded assets; for example, through trading, allowance allocations, differential requirements for different EGUs, and so on. That a state might choose, for whatever reason, to not adopt such a plan approach is that state's prerogative. So long as a state plan complies with the final Rule, the EPA must approve it, even if the state plan results in stranded assets that could have been avoided through another plan design.

The Petitioner implies that to justify the Rule, the EPA is required to evaluate – on a state by state basis - the cost of avoiding stranded assets. This is incorrect because the statute neither bars rules that would result in stranded assets, nor requires analysis of the cost of avoiding stranded assets.

Kansas: For Kansas, the single largest objection to the final Rule is the issue of stranded generation assets. Kansas is in the midst of a period of great transition for its large coal-fired EGUs. The six largest coal-fired EGUs in Kansas have made and continue to make significant investments in criteria pollutant emission reduction equipment in the past three to four years to comply with the regional haze program. In addition, the Cross State Air Pollution Rule, Kansas City ozone maintenance plan rules, and the Mercury and Air Toxics rule have also contributed to massive investments in pollution control equipment at Kansas' largest coal EGUs in recent years. More than three billion dollars is earmarked for these projects that have either just been completed or are under construction. Paying off the bonds and other credit instruments used to fund controls installed between 2012 and 2016 cannot be expected to be completed by the early compliance period starting in 2022. Investments of such magnitude are typically financed for much longer periods of time. The result is a large potential for stranded investments in the state of Kansas as a result of redispatch to non-coal EGUs. Kansas 2.

Response: First, Petitioner does not identify any issue for which it was impracticable to comment. The investments in pollution control equipment appear to all have been anticipated and therefore it was practicable to comment on them, as the stranded asset issue was fully noticed in the proposed Rule. It was also practicable to comment on the effect of the compliance date on stranded assets, as we proposed a 2020 initial compliance date.

Second, Petitioner fails to demonstrate that this issue is of central relevance. As explained elsewhere, stranded assets are not necessarily a RUL issue. Furthermore, Petitioner offers no information to show that the final Rule will cause these particular assets to retire before they are fully depreciated. As shown by our analysis, states can design plans to protect facilities with short RUL or facilities that would represent stranded assets due to retirement before the end of their book life, using mechanisms such as trading, allowance allocations or less stringent requirements for particular facilities.

Texas: ERCOT's modeling indicates the potential retirement of at least 4,000 MW of coal-fired capacity due specifically to compliance with the final Rule, beginning in 2025. The final emission guidelines underestimate this potential coal capacity retirement for Texas, and multiple unit retirements could occur in a short timeframe. Texas 7.

Response: As explained above, Petitioner has not shown that it was impracticable to comment on this issue during the comment period. In fact, ERCOT carried out modeling of the proposed Rule.

Petitioner has also not shown that this issue is of central relevance. First, please see the discussion of the relation of RUL and stranded assets above. Second, Petitioner has not established that the potential retirement is due to compliance with the final Rule. Instead, it appears that the modeling reflects industry trends. Please see the Power Sector Trends Appendix for more details.

Summary: For the reasons given above, Petitioners have failed to demonstrate that reconsideration under CAA section 307(d)(7)(B) is warranted or appropriate for issues related to our stranded asset analysis.

G. Miscellaneous Stranded Asset Issues

Mississippi PSC: If an EGU is forced to retire before the end of its RUL, that fact does not excuse ratepayers from continuing to pay all of the associated costs until the plant is paid for in full. … As noted above, ratepayers will continue to pay the costs of stranded plants and must also pay for substitute generation that will meet the demand that the uneconomic plant is no longer meeting. Mississippi PSC 2.

Response: Petitioner has not demonstrated that it was impracticable to comment on this issue during the comment period. As explained above, the potential for stranded assets and means to avoid them were discussed in the proposal.

Petitioner also fails to demonstrate that the objection is of central relevance. First, Petitioner (as elsewhere above) appears to be confusing book life with RUL. A plant could be fully depreciated and still have remaining useful life. If such a plant retires, there is no cost to ratepayers because the assets have all been paid for. Furthermore, Petitioner does not identify any legal relevance for the question of who pays for the cost of compliance. Ultimately, that is up to the state.

For these reasons, Petitioner has failed to demonstrate that reconsideration under CAA section 307(d)(7)(B) is warranted or appropriate for these issues.

Mississippi PSC: Section 111(d) requires that the EPA's rules allow states to consider remaining useful life in the development of their plans. The EPA should consider the impacts on coal-fired units, such as those at Plant Daniel, that have seen significant investment in reliance on prior EPA actions. The utilities making these investments—and the rate-payers who are ultimately paying for them—had a reasonable, investment-backed expectation that these upgraded, coal-fired units, would be able to operate through the end of their useful lives. The EPA appears to have failed to quantify and ignored the stranded costs associated with premature retirements of these facilities, although EPA acknowledges that coal-fired capacity will retire as uneconomic to maintain. Mississippi PSC 9.

Response: As the potential for premature retirements and stranded assets was discussed in the proposal, Petitioner has not demonstrated that it was impracticable to comment on this issue during the comment period.

Petitioner also fails to demonstrate that this issue is of central relevance. As discussed in the preamble to the final Rule, the docket memorandum analyzing stranded assets, and our responses above, state can avoid stranded assets. Please also see our discussion of the relationship of RUL and stranded assets above. Finally, by using the language "reasonable, investment-backed expectation," we assume Petitioner refers to a potential taking under the Fifth Amendment. Please see our responses regarding takings elsewhere.

For these reasons, Petitioner has failed to demonstrate that reconsideration under CAA section 307(d)(7)(B) is warranted or appropriate for these issues.

XVIII. Equivalence, Leakage, new source complement

A. Introduction

Petitioners Southern, UARG, Entergy, AEP, and Texas petition for reconsideration of the "leakage" requirement in the final Rule. This requirement is codified at 40 CFR 60.5790(b)(5), and requires that states adopting a mass-based emission budget trading program

as part of their state plan must also in their plan address potential increased CO_2 emissions from new sources, beyond the emissions expected from new sources if affected EGUs were given emission standards in the form of the subcategory-specific CO_2 emission performance rates. This "leakage" requirement is consistent with the EPA's authority to offer alternative compliance options under Section 111(d) provided they result in emission performance meeting the requirements of the Rule and Section 111(d). The Rule's fundamental requirement is that states develop plans to limit CO_2 from existing plants by securing a degree of emission limitation, expressed in the form of uniform rates, that EPA determined is achievable through application of the BSER. Under the uniform rates, existing sources are incentivized to shift generation to lower or non–emitting sources, which creates emission rate credits that existing sources can use to lower their effective emission rate. Responding to comments requesting flexibility to implement the Rule through mass-based trading limits, the EPA calculated a mass-based goal for each state as an equivalent compliance alternative to the uniform rates. 80 FR 64822-23.

The final Rule contains three options for states to address leakage: 1) adopt a "new source complement" which is a cap for existing and new sources that states can adopt as a matter of state law, 2) allocate allowance set asides in a manner that mitigates leakage (e.g., for zero emitting resources), and 3) adopt a custom approach which addresses leakage.

The EPA calculated performance rates for affected EGUs and calculated equivalent rate-based goals and mass-based goals. The EPA calculated equivalent mass-based goals by determining the amount of each state's mass limit that would be equivalent to the CO_2 emission performance rates in terms of emissions performance. 80 FR 64822; n. 761 (referencing CO_2 Emission Performance Rate and Goal Computation TSD for CPP Final Rule).

EPA calculated the mass goals using a two-step process:

- First, the EPA multiplied each state's 2012 generation by its rate-based state goal to calculate the resulting mass emissions.
- Second, the EPA accounted for the fact that under rate-based emission standards, existing sources have the flexibility to increase their generation – and therefore their emissions – without exceeding their emission rate standards, provided they are able to pair that increase in generation and emissions with emission reduction opportunities, such as by acquiring emission rate credits (ERCs). The EPA accounted for this flexibility for purposes of the mass-based goals by quantifying a "bump-up" of additional allowable emissions beyond the level identified in step one. The EPA calculated the bump-up by recognizing that the two interconnections with more stringent emission rates, which got the benefit of the higher emission rate from the region with the least stringent rate, would have additional RE capacity. The EPA recognized that sources in those two regions could increase their generation, and therefore their emissions, by the maximum amount that could be offset by ERCs from the additional RE capacity. That amount of increased emissions was the bump-up amount. 80 FR 64822.
- The EPA added these two numbers to create the mass-based goals.

However, the EPA recognized that sources in a mass-based trading program have different incentives, with different implications for overall emissions, than sources with rate-based limits, and that the mass-based goal would not be equivalent if these incentives were not addressed. *Id.* at 64823. Specifically, sources with rate-based limits have limited incentive to shift generation to new fossil-fuel-fired sources because those sources do not create emission

rate credits. In contrast, sources in an existing-source mass-based trading program have incentives to shift generation to any generator outside the program, including new fossil-fuel-fired sources, because doing so lowers their mass emissions, which frees up allowances they can then sell to other existing sources. Accordingly, without provisions to protect against leakage, sources in mass based trading states could meet their mass limits, but, in the aggregate, have a higher effective emission rate[199] than the uniform rate. Under these circumstances, the mass-based trading plans would not provide equivalence with the uniform rates and would violate the requirements of Section 111(d). *Id.* at 64820-21. Moreover, without provisions to protect against leakage, the greater incentive to shift emissions to new fossil fuel fired sources under mass-based trading plans could result in higher overall emissions (emissions from new sources resulting from the shifted generation plus emissions authorized by the allowances from existing sources) than under the uniform rates – which would again undermine the purpose of the Rule and Section 111(d).

Accordingly, the Rule requires that a state choosing a mass-based trading program must include measures to address such emissions "leakage," thereby ensuring an emissions performance equivalent to the uniform rates. *Id.*

B. Leakage Requirement and Authority

The Petitioners maintain that there was no opportunity to comment on this requirement, and that comments would have shown this requirement is unlawful because the EPA has no authority under § 111(d) to regulate new sources.

The EPA is denying these requests. There was adequate notice that the EPA might require states to address leakage from affected EGUs to new sources (indeed, as shown below, the EPA received comments both pro and con to this effect). Moreover, the objection is not of central relevance because it is substantively mistaken. The leakage requirement is not about the EPA's supposed regulation of new sources under section 111(d) as the Petitioners allege.

First, the Petitioners had sufficient opportunity to raise their objections during the public comment period. The proposal explicitly requested comment on

> how emissions changes under a rate-based plan resulting from substitution of generation by new NGCC for generation by affected EGUs should be calculated toward a required emission performance level for affected EGUs. Specifically, considering the legal structure of CAA section 111(d), should the calculation consider only the emission reductions at affected EGUs, or should the calculation also consider the new emissions added by the new NGCC unit, which is not an affected unit under section 111(d)? Should the emissions from a new NGCC included as an enforceable measure in a mass-based state plan (e.g., in a plan using a portfolio approach) also be considered?

79 FR 34924. This language clearly solicits comment on whether when calculating an emission performance level *for affected EGUs*, emissions from new sources (new NGCC units, specifically) should be accounted for as part of this calculation. The leakage requirement in the final rule stems from this quoted language as the final requirement entails ensuring the affected

[199] This rate would be the existing sources' average emission rate adjusted to reflect generation shifts to lower and zero-emitting sources. Although the effective emission rate of sources in a mass-based program is not evaluated for those sources' compliance, it is a useful point of comparison for determining whether a mass-based trading program is an equivalent compliance alternative to the uniform rates.

EGUS' emission performance level (i.e. achievement of their emission standards by affected EGUs) in a mass-based emission budget trading program addresses emission changes by affected EGUs resulting from substitution of generation by new NGCC units.

The EPA received comment in response to this explicit request for comment, including by UARG, one of the Petitioners now. In fact, UARG's comment quoted the request for comment at 79 FR 34924, and summarily commented that new NGCC should be factored into the denominator similar to RE and nuclear under rate, and that emissions from new NGCC under a mass-based program should not be counted at all. *See* UARG Comment, Docket No. EPA-HQ-OAR-2013-0602-22768 at 159-160. In further response to the EPA's solicitation of comment in the previously cited portion of the proposal, which by its own terms requested comment on whether the legal structure of section 111(d) allows for the calculation of the emission performance level by affected EGUs to consider emissions from new sources, UARG's comment contended that the EPA does not have the legal authority to subject new sources to section 111(d) plans.[200] *Id*. The EPA also received comment on this issue of leakage from many commenters. See, e.g., EPA-HQ-OAR-2013-0602-23225 (NRDC), EPA-HQ-OAR-2013-0602-23140 (EDF), EPA-HQ-OAR-2013-0602-23963 (NextGenClimate America), EPA-HQ-OAR-2013-0602-22395 (RGGI).

Therefore, in view of the explicit solicitation of comment in the proposal and subsequent receipt of comment on the issue, including from at least one Petitioner, it is apparent that the Petitioners were afforded ample notice of the leakage requirement and, thus, it was not impracticable for them to raise their objections during the rulemaking. Moreover, they explicitly commented on the issue of legal authority to cover new sources, which they now claim they were denied.

Nevertheless, in addition to being afforded the opportunity to comment on the leakage requirement at the time of proposal, Petitioners' arguments for why the leakage requirement is of central relevance are substantively incorrect or are misplaced.

Petitioners contend that the EPA legally cannot regulate new sources under section 111(d) and must regulate such sources only under section 111(b). The Petitioners appear to misunderstand or mischaracterize the leakage requirement as the EPA's regulation of new sources under section 111(d). The final rule does not require or authorize the states to include entities other than affected EGUs, including new sources, in their section 111(d) state plans, as made clear in the final rule itself. *See, e.g.*, 80 FR 64785. Contrary to Petitioners' mischaracterization of the leakage requirement as regulation of new sources under section 111(b), as explained in the final Rule the requirement is about ensuring that an alternative means of compliance (i.e. the mass-based goal) for *existing* sources reflects the degree of emission limitation achievable by the BSER, as required under section 111(d). Finally, we note that despite petitioners' assertions, the new source complement is only one of multiple ways to comply with this requirement. *See* 40 CFR 60.5790(b)(5).

Finally, while Petitioners make the conclusory statement that the leakage requirement is of central relevance because it affects one of the main compliance pathways of the CPP, the Petitioners do not attempt to explain or provide support for how the EPA otherwise could have addressed the leakage concern and ensure that the equivalence of the mass-based goal with the performance rate is not undermined so that it no longer meets the requirements of section 111(d).

C. Stringency of 111(b) rule vs. 111(d) rule

Petitioner UARG is arguing that the leakage requirement attempts to backdoor

[200] This denial later explains why this contention, which Petitioners similarly make in their petitions, is also misplaced and misconstrues the leakage requirement.

regulations on new sources. UARG states in support of this argument that the EPA has historically had a new source standard that is as stringent or more stringent than the existing source standard. In addition to mischaracterizing the relative stringency of the standards *supra* Section IX, this is irrelevant to the context behind the leakage requirement. As previously described, there is greater incentive under plans that adopt a mass-based emission budget program for affected EGUs to shift generation to new emitting EGUs rather than among themselves or to zero-emitting resources, which undermines the equivalence the EPA established in calculating the mass-based goals. This incentive is greater than compared to plans that adopt a rate-based program because new EGUs do not produce Emission Rate Credits (ERCs) (in contrast to other low- or zero-emitting generators that are an appropriate compliance pathway) which are usable by affected EGUs toward compliance with their emission standard. Because this incentive is caused by the type of compliance obligation (mass rather than rate) an affected EGU is subject to, the stringency of a new source standard compared to the stringency of the existing source standard is immaterial to the leakage problem defined in the rule. Therefore, Petitioner's argument on this point is incorrect.

D. Implementation of BSER Measures

Petitioner UARG argues that the leakage requirement is about the EPA trying to mandate implementation of the BSER measures. This is incorrect. As the EPA clearly states repeatedly throughout the rule, states and sources are not required to implement the measures identified asBSER, but rather have full discretion under section 111(d) to implement CO_2 reduction measures of their choosing in order for affected EGUs to achieve a standard of performance, including measures not included in the BSER. 80 FR 64735. However, in order to meet the requirements of section 111(d), the standard of performance must reflect the degree of emission limitation achievable by the BSER, and as previously described, leakage from existing affected EGUs to new EGUs undermines the equivalence of the mass-based goals with the performance rates. Therefore, while sources have discretion to implement compliance measures of their choosing and are not restricted to implementing measures used to calculate the BSER, sources must also achieve an emission standard that reflects the degree of emission limitation reflecting the BSER. Therefore, the leakage requirement does not require that sources implement BSER measures, but does require that sources not undermine the mass-based goals' reflection of the application of the BSER used to calculate them.

E. Equivalence in Emissions Outcome

Petitioner Entergy also contends that the leakage requirement is unnecessary to achieve equivalence between rate and mass because rate-based programs can also result in higher emissions if more new RE, EE, and nuclear is developed beyond the EPA's projections for the BSER. In making this contention, Petitioner mischaracterizes the leakage requirement. The leakage requirement is *not* about ensuring numerically equivalent emissions outcomes between mass and rate programs. As the rule describes, rate and mass are two different forms of compliance and while both are evaluated for whether they reflect the degree of emission limitation achievable by the BSER, they are not both evaluated for total emissions from affected EGUs. Rate by its very nature is not evaluated on a purely emissions basis (i.e. tons of CO_2 per year), but rather on an emissions associated with generation basis (i.e. lbs of CO_2 per MWh).

Furthermore, Petitioner Entergy's argument that a mass-based state plan approach is more stringent than a rate-based state plan approach fails because Petitioner overlooks the practical limits to increases in fossil generation under a rate-based approach, the ability for generation increases under a mass-based approach, and the voluntary nature of the mass-based state plan

approach. Each of these factors undermine Petitioner's simplistic argument that a mass-based approach is more stringent than a rate-based approach.

Under a rate-based approach, an affected EGU may be required to procure ERCs in order to achieve its emission standard, whether it continues at its original or increased generation levels. As a result, the generation by affected EGUs depends upon an adequate level of incremental low- and zero-emitting generation to produce enough ERCs. Further, the increased generation by affected EGUs is limited by demand, as the supply of generation from all resources cannot exceed demand. Thus, while a rate-based approach allows for increased generation from an individual affected EGU, the potential for generation increases is not unlimited in practice and ERCs do not lead to more emissions from the affected EGU fleet as a whole, as ERC-eligible generation avoids the overall need for generation from affected EGUs.

Petitioner's argument suggests a rate-based approach allows unlimited generation growth by existing fossil sources, while a mass-based approach is more stringent because it limits such generation growth. A state plan that utilizes a mass-based trading program limits emissions, but allows for increased generation. First, the calculation of each state's mass-based state goal allows for increased generation by affected EGUs, furthering the EPA's establishment of a mass-based state goal equivalent to the assumptions underlying the calculation of the performance rates and rate-based goals. As a result, mass-based goals were developed to allow generation growth from affected EGUs. Second, in many cases it is more economic for demand to be met by low- and zero-emitting generation rather than emission-intensive generation. In this way, petitioners overstate the stringency of mass-based goals by overlooking the ability for increased generation from low- and zero-emitting generation under the mass-based goal. In addition, the ability for interstate trading can alleviate any stringency felt by a mass-based state goal, as interstate trading allows affected EGUs in one state to take advantage of low-cost emission reductions in other participating states.

For these reasons, Petitioner's argument that the leakage requirement is not necessary to for a mass-based program to be equivalent with the rate-based program because a mass-based program is more stringent from an emissions perspective is flawed. As previously explained, the EPA established mass-based goals equivalent with the performance rates and rate-based goals, and the leakage requirement ensures that this equivalence is not undermined in such a way that the mass-based goals no longer meet the requirements of section 111(d).

F. Policy

Petitioner contends the leakage requirement is bad policy because based on the EPA's RIA, it would result in only 1 percent reduction of nationwide emissions at the cost of significant administrative rates, increased electricity rates, and discouragement of mass-based plans. EPA disagrees with this comment and has provided in the preamble to the final rule and above the rationale for the leakage requirement for mass-based trading programs. This comment does not meet section 307's requirements for reconsideration.

G. Alternative Methodologies to Address Leakage

Petitioner contends that though the EPA provides states with the option to adopt its own methodology to address leakage, in reality there is no such alternative methodology. According to Petitioner, because there is no alternative methodology and EPA does not have the authority to cover new sources, EPA is illegally mandating the set asides. This claim is incorrect. The assertion that there is no alternative methodology to the set aside option is both baseless and unsubstantiated by Petitioner. For example, renewable portfolio standards can be leveraged to counteract the potential for leakage to new fossil-fired EGUs. Additionally, allowance

allocation-based strategies can provide a monetary incentive for generation/savings that counteract leakage. It conveniently takes advantage of the fact that the mass-based emission trading program already provides a commodity with economic value, i.e. allowances, that must be distributed as part of the program. A materially similar effect can be achieved by providing that same incentive through other non-allocation-based means. Such effect on leakage is not unique to allowance allocations. For these reasons, Petitioner is wrong that there is no alternative methodology to set asides for addressing leakage, and therefore the EPA is not illegally mandating the set asides.

H. New Source Complement (NSC)

Petitioner Southern Company contends that the new source complement option was not a logical outgrowth of the proposed Rule. Petitioner is incorrect. As previously described, the EPA clearly took comment as follows:

> "considering the legal structure of CAA section 111(d), should the calculation (of whether affected EGUs achieve their required emission performance level) consider only the emission reductions at affected EGUs, or should the calculation also consider the new emissions added by the new NGCC unit, which is not an affected unit under section 111(d)? Should the emissions from a new NGCC included as an enforceable measure in a mass-based state plan (e.g., in a plan using a portfolio approach) also be considered?"

79 FR 34924. Consistent with this solicitation of comment on the broader leakage requirement, the proposal included two methodologies for translating the performance rates and rate-based goals into equivalent mass-based goals. One methodology consisted of assuming only affected EGUs would be included in a mass-based program. The other methodology, "in light of the fact that the CPP takes comment on the inclusion of new, fossil fuel-fired sources as a component of state plans, the second approach produces mass equivalents that are inclusive of emissions from existing affected and new fossil fuel-fired sources." Translation of the Clean Power Plan Emission Rate-Based CO_2 Goals to Mass-Based Equivalents Technical Support Document at 2. Therefore, both the proposal and the accompanying TSD provided ample notice of the new source complement option and goals that are inclusive of both existing and new sources.

Regardless, Petitioner fails to explain why the new source complement option is of central relevance and fails to provide sufficient information on what other new source complements the EPA should have finalized. Petitioner claims that the new source complements the EPA finalized are overly stringent on new generation and will "significantly constrain economic growth." However, Petitioner fails to recognize the optionality of adopting the NSC; states have the option of adopting set asides or any custom approach that addresses leakage, including the option to adopt a custom NSC rather than the one that the EPA finalized for their state. 80 FR 64888-89. The optionality of the methods by which states may choose to address leakage, including by adopting a custom NSC, means that the NSCs that the EPA finalized in no way prejudice Petitioner or anyone else. Therefore, on this basis, as well as the fact that the EPA provided notice of the option to include new sources in a mass-based program and what the goals for such a program might look like, the EPA is denying this petition.

Petitioner Southern Company also makes other factually incorrect assertions with respect to the NSC.

Petitioner argues that if states regulate new sources under the NSC as a matter of state law, the EPA cannot force states to implement this program. Petitioner provides no information

where the EPA has made an assertion otherwise, and the EPA acknowledges it is correct that the EPA cannot force states to implement state-only law. However, if the assumptions underlying the original basis on which a state plan was approved change or turn out to be incorrect, then the EPA may have recourse regarding the approved state plan.

Petitioner argues that the EPA provided no guidance on the longevity of the new source complement caps. As the leakage requirement serves to ensure that the equivalence of the mass-based goal with the performance rate is not undermined, it follows that any leakage mitigation measure should be in place as long as there is an obligation for affected EGUs to meet a mass-based goal. Petitioner provides no information as to what other scenario would be reasonable.

Petitioner argues that the assumptions underlying the NSC differ from those underlying the mass goals and must be noticed, and that the NSC assumes new NGCC generation only and biases against new steam which must seek allowances from a smaller artificially projected pool.

Petitioner's assertions regarding the assumptions underlying the NSC are incorrect. The 'materially different' assumptions reflect the materially different nature of what each methodology is quantifying. The petitioner describes the NSC methodology incorrectly. The EPA did not project incremental generation from new NGCC units, it projected the incremental need for new generation in future years after the BSER is applied. The EPA assumed an emissions intensity of 1,030 lbs/MWh-net to convert this generation need to an emissions total because new NGCCs are the dominant new build technology for satisfying incremental demand from the power sector. That does not mean they are the only technology. The relevant issue is not whether an assumed emissions intensity is 'biased' against any particular technology but rather whether that emissions intensity estimate represents a reasonable assumption for how that need for incremental generation is met on average. The EPA believes an emissions intensity of 1,030 lbs/MWh-net for incremental generation leads to a generous NSC for all emitting technologies for a number of reasons. The first is that recently constructed NGCCs typically realize emissions performance that is significantly lower than the NSPS standard of 1,030 lbs/MWh-net. The second is that there are a variety of other technologies that would satisfy incremental generation as defined in the NSC calculation but not be subject to the combined mass limit, including distributed resources, offshore wind, and unaffected existing fossil fuel-fired units. For purposes of calculating the NSC, these would all be ways to meet incremental demand that would not add any emissions to the NSC (functionally making them all 'zero-emitting'). These two factors in the EPA's modeling of both the base and policy cases have a greater impact on the average emissions intensity of covered generation than the modest amount of new fossil steam EGUs projected, meaning that the 1,030 lbs/MWh-net emissions estimate for incremental generation successfully reflects and accommodates all new emitting technologies.

Petitioner also contends EPA's new source complements are inconsistent with EPA's own compliance modeling of the expected impacts of the final Rule, and states that for example, the EPA's compliance modeling results in over 10,000 MW of new NGCCs in Florida by 2050. Petitioner claims this far exceeds Florida's NSC which equates to approximately 520 MW of NGCCs.

The petitioner is confusing multiple concepts. The first is that the NSC sets a limit on emissions from new sources. It does not. The NSC is an amount added to the mass goal that establishes a combined mass limit, of which new sources may account for any share. Comparing new source emission projections to the new source complement by itself reveals nothing about either metric. Second, the petitioner seems to presume that different forms of compliance should

produce identical behavior. This is also false. The different forms of compliance produce different incentives that will then impact the generating fleet in unique ways. This is an intended and appropriate flexibility of the CPP. For these various reasons regarding notice and petitioner's factually incorrect assertions, the EPA denies the petitions regarding the NSC.

I. Set Asides

Petitioner Southern Company contends that the allowance set-aside option to address the leakage requirement was not noticed and therefore should be reconsidered. Petitioner fails to recognize the optionality of adopting the allowance set-aside approach; states have the option of adopting set asides or any custom approach that addresses leakage, including the option to adopt a custom NSC rather than the approach that EPA finalized for their state. 80 FR 64888-89. The optionality of the methods by which states may choose to address leakage, including by adopting allowance set asides, in no way prejudice Petitioner or anyone else. As described previously, the EPA provided notice of the leakage requirement. Because the EPA provided notice for the general requirement, and finalized that states could adopt essentially any method of addressing leakage, the EPA is not required to ascertain and provide notice on each and every possible option to address the requirement.

Petitioner further argues that set asides increase the stringency for coal-fired plants by impacting the number of available allowances to comply with their emission standards. EPA disagrees with Petitioner that the set asides make the program more stringent. The stringency of the program is determined by the level at which the mass-based budget is set, not how allowances are allocated provided that they are ultimately made available to affected entities. The allowances in a set aside for eligible RE gain value if the eligible RE entities make them available to coal-fired plants and others that need them. Furthermore, as the final Rule describes, set-aside allowances can *help* affected EGUs achieve the mass-based goal. Even if a set aside did make a program more stringent, the allocation of allowances is purely a state decision and states have the authority to make a program more stringent. As the final Rule recognizes, there "is state discretion in the CO_2 allowance allocation methods included in the (mass-based trading) program. This includes the methods used to distribute CO_2 allowances and the parties to which allowances are distributed. For example, if a state chose, it could include CO_2 allowance allocation provisions that provide incentives for certain types of complementary activities, such as RE generation, that help achieve the overall CO_2 emission limit for affected EGUs established under the program." 80 FR 64892. The EPA-established goals set the stringency of the program, and while state decisions may strengthen the stringency of the program, that is up to the state's discretion and is allowed under section 116 of the CAA. Petitioner fails to provide information suggesting why the set-aside option to address leakage is of central relevance and what the EPA should have finalized otherwise. Given the states' discretion in allocating allowances and that set asides may actually help affected EGUs achieve their emission standards, the EPA's finalization of the set-aside option is reasonable and the EPA is denying the petition.

J. Miscellaneous Legal Issues

Petitioner UARG contends shifting generation from existing to new sources is the kind of shift the CAA envisions. This argument conveniently overlooks that the leakage requirement does not altogether foreclose shifting generation from existing to new sources, and overlooks that an unconstrained shift would undermine the legality of the mass-based goals as previously described. The EPA does not disagree that the CAA does not bar shifting generation from existing to new sources, but neither does the leakage requirement. As previously described, new

sources may generate under a rate-based or mass-based program, but the incentives may differ and the leakage requirement ensures that the mass-based program is equivalent with the performance rates and therefore is a compliance alternative that legally meets the requirements of section 111(d).

K. Conclusion

Finally, while Petitioners make the conclusory statement that the leakage requirement is of central relevance because it affects one of the main compliance pathways of the CPP, the Petitioners do not attempt to explain or provide support for how the EPA otherwise could have addressed the leakage concern and ensure that the equivalence of the mass-based goal with the performance rate is not undermined so that it no longer meets the requirements of section 111(d). Regardless, the EPA's finalization of the leakage requirement is reasonable. Numerous stakeholder and commenters, including states and industry, voiced support at the proposal stage and in comments for a mass-based alternative to the performance rates. Accordingly, the EPA finalized mass-based goals and authorized states to implement mass-based plans. However, any alternative to the performance rates must be equivalent to the performance rates in reflecting the degree of emission limitation achievable by the BSER in order for such alternative to meet the requirements of section 111(d). Therefore, the EPA reasonably established the mass-based goals as equivalent to the performance rates, and took steps to ensure this equivalence and thus legal validity was not undermined by finalizing the requirement for states adopting a mass-based trading program to address leakage. For these reasons, including those described throughout this section, the EPA is denying these petition requests regarding the leakage requirement.

XIX. Baseline (use of 2012 and non-state-specific data)

A. Introduction

Several petitioners for reconsideration raise objections related to the use of the 2012 data year as the baseline year in the CPP. The agency is denying all petitions related to this issue. First, the CPP proposal used a 2012 baseline year, and therefore, these petitioners had the opportunity, and in fact did, comment on the use of 2012 as a baseline year. No Petitioner presents any new objection to the use of 2012 now, nor are the issues they raise of central relevance to the baseline determination. In addition, the EPA is denying several unit-specific petitions for reconsideration that request variances or adjustments to the baseline data based on unit-specific circumstances.

In the final Rule, the EPA used 2012 as a single historical year baseline for purposes of calculating the BSER level of emission reductions applying the three building blocks. 80 FR 64814-64815. The EPA had proposed the use of 2012 as the baseline year. 79 FR 34895-34896. However, in response to comments, the EPA made several adjustments in its final baseline methodology from the proposal. In response to comments from several states with significant hydropower resources that 2012 was a highly anomalous year for hydropower due to large snowmelt, EPA made an adjustment to baseline data for states with a significant percentage of hydropower. *See* 80 FR 64815. In addition, the EPA allowed for adjustments based on extended unit-level outages, *Id.*, and the EPA adjusted the 2012 generation data for all existing fossil units (steam and NGCC) coming online during, or after, 2012 upward to a more representative annual operating level for that type of unit reflecting its incremental impact on generation and emissions. Importantly, the EPA did not make a corresponding reduction in other generation downward, due to uncertainty about where that generation would have been displaced. Given that, where demand is steady, an increase in generation at one unit can be paired with a decrease

at another, the EPA recognized that its approach was "conservative,' i.e., that it likely overestimates generation and emissions from the fleet of affected units in 2012. *Id.*

B. Petitions against use of 2012 as the Baseline Year

First, several Petitioners object to the use of 2012 as a single baseline year either for purposes of establishing the subcategorized uniform emission performance rates or for deriving the state rate- and mass-based goals from the performance rates. The Southern Company objects to the use of 2012 data to derive state goals on the basis that there is variation from year to year in any given state or company's energy mix. Southern Co. 25.[201] Similarly, the State of Kansas objects based on the fact that in any given year there can be operational variances due to weather or maintenance, fluctuating fuel prices, and availability of units for dispatch. Kansas 6. Kansas requests that the EPA use a three-year averaging methodology to "smooth out the various anomalies," which would be more appropriate for setting state CO_2 emission goals and more consistent with how the EPA has "developed and implemented other existing programs using multiple years" citing the Acid Rain Program, Clean Air Interstate Rule (CAIR), and Cross State Air Pollution Rule (CSAPR). *Id.* at 6-7.

AEP argues that 23 state agencies filed "extensive comments" opposed to the use of 2012 as a baseline, and these commenters and AEP had recommended using multiple years to establish the baseline, while 6 other states recommended a year other than 2012. AEP 5. AEP also points out that in the proposed CPP mass-based federal plan, the EPA had proposed using a multiple-year data period for the purpose of informing unit-level allowance allocations, and that it is "difficult to reconcile this more flexible approach" with the use of the 2012 single-year baseline in the CPP. *Id.*at 5-6 (citing 80 FR 65016).

Prairie State similarly objects (although the State of Illinois does not) to the use of 2012 as a single year, arguing that total emissions were particularly low in Illinois in 2012 due to increased generation from natural gas. Prairie State Petition at 12. "This could have been easily normalized by using a three-year average …." *Id.* Prairie State says the EPA could have made an adjustment similar to the adjustment the EPA made for high-hydro states, and, similar to AEP, points to the use of a three-year data period in the proposed federal plan for purposes of determining unit-level allowance allocations. *Id.* at 12-13.

First, as Petitioners acknowledge, the EPA proposed the use of 2012 as a single-year baseline, and there was an opportunity to comment on this, and in fact many commenters, including Petitioners, did comment on this issue. Several commenters specifically asked the agency for a multi-year averaging approach to the baseline, or the use of an earlier year as the baseline. *See generally* CPP RTC 4.9. Other commenters supported the use of a single-year baseline, and specifically the use of 2012. *See id.* at 460-465.[202] Thus, these objections are not based on new information or on information that was impracticable to bring before the agency during the comment period. In the final Rule, the EPA considered these comments and explained why it was not taking a multi-year approach to the baseline. These Petitions fail to bring any new information to light that would call that judgment in doubt.

[201] Southern Company separately objects to the use of 2012 for purposes of EPA's mandatory formula for conversion of the emission performance rates into state goals. This topic is addressed separately elsewhere.

[202] We note that, given the Supreme Court's stay of the CPP, as well as industry's trends away from coal-fired generation and towards cleaner generation that have accelerated since the record for the CPP closed, the use of any baseline earlier than 2012, or which portrays the affected EGUs as having higher emissions than in 2012, would be increasingly unrepresentative. Power Sector Trends Appendix. If anything, were the EPA to revisit the baseline at this point in time, it would be more appropriate to update the baseline to a later year to reflect more recent data.

In the final CPP, the agency identified seven key reasons why we disagreed with the objections these Petitioners raise and why we continued to believe that the use of the 2012 single-year baseline was the most appropriate approach to take. First, of the historical data available, 2012 was the most recent complete year and best reflects the power fleet. Second, a three-year baseline would not have addressed the most relevant substantive concerns raised by commenters, i.e., the hydropower deviation observed in the Northwest and significant unit-level outages—which the EPA addressed by more targeted baseline adjustments. Third, a multiple-year average is less representative of actual operations and would entail complexity in selecting how to average yearly fleet data while accounting for fleet changes occurring during those years (in other words, the EPA would have to make a number of additional assumptions). Fourth, due to the region-based approach to the BSER, variations in unit-level data do not significantly impact the calculation of emission performance rates (with the rare exception that the EPA separately accounted for). Fifth, in response to requests to use an earlier baseline year, the EPA found that the use of an earlier baseline would simply reflect a higher-emitting fleet, which undermines the EPA's objective of using a baseline that informs the BSER and the level of emissions reductions of which the power fleet is capable (further, the manner in which building blocks are calculated means the change in stringency would only be nominal rather than real, since emission reduction potential would be higher if starting with an earlier year). Sixth, the use of multiple-year periods for CSAPR and CAIR allowance allocations (similar to the proposed mass-based federal plan allocation approach[203]) was for a different purpose, where unit-level variation is actually more relevant. And in fact, in those rules as in the CPP, allowance allocation determinations were independent of and subsequent to the determination of emission reduction requirements. Seventh, year-to-year variation in fuel prices (such as natural gas prices) is irrelevant to EPA's purposes, because the objective in selecting a baseline is to identify potential reductions from the fleet when the BSER technologies are applied (e.g., the potential for shifting to natural gas does not change regardless of the year used for baseline NGCC generation). 80 FR 64814-64815.

Thus, the EPA already considered the objections raised by these Petitioners and rejected them. Petitioners had the opportunity to comment, they did, and the EPA was not persuaded. The agency is still not persuaded, and therefore these Petitions are also denied because they lack central relevance to the Rule.

C. Petitions for Adjustments to baseline based on Unit-level Circumstances

In the final Rule, the EPA, in response to comments, allowed for an adjustment to be made to the 2012 baseline for significant unit level outages. In general, the EPA stated that it did not believe that unit-level variations in operation would influence the subcategory-specific performance rates reflecting the BSER, because as some units ramp down, other units ramp up and total fossil generation changes little due to these fossil-for-fossil substitutions. 80 FR 64814-64815. Recognizing that there nonetheless could be outages causing a severe change in a state's baseline, the EPA developed a test to determine whether a unit outage was significant enough to warrant an adjustment in a state's baseline, and if so, made an adjustment to reflect a normalized year. *See* CO_2 Emission Performance Rate and Goal Computation Technical Support

[203] The CPP mass-based federal plan is merely proposed and the allocation approach is not finalized. Thus, objections to the CPP based on this proposal are premature. Nonetheless, the agency views Petitioners' citation to the proposed federal plan as merely an extension of the same point regarding the CAIR and CSAPR allocation formulas, and thus, the agency's rationale in response is the same as in the final CPP with respect to CAIR and CSAPR.

Document for CPP Final Rule, Appendix 7, at 28-29. The EPA looked at whether a unit had a decrease in output relative to both 2010 and 2014 of 75 percent or more (signifying an outage), and whether the unit in 2010 and 2014 represented more than 10 percent of the state's total "heat input" (i.e., all fossil generation). The EPA found one unit, Sherburne County Unit 3 in Minnesota, that met this test. *Id.*

Several petitioners allege that they own, operate or are aware of units whose operations in 2012 were such that they too should have obtained an adjustment in their state's baseline. Each of these situations will be addressed in turn. While the EPA has reviewed the unit-specific circumstances giving rise to these objections, the agency as a threshold matter finds that the objections share the same fundamental error. They each confuse the goal of unit-level representativeness with the EPA's goal of state and regional baseline representativeness. Although the EPA has reviewed publicly available information about these units, the EPA does not necessarily agree or disagree with claims about the future operation of any particular unit. Even assuming the claims were true, the decision to not make a unit-level adjustment for any of the circumstances identified by Petitioners is grounded in the fundamental objective of obtaining the most representative collective baseline for all units in a state or region.

Choosing only to make upward adjustments in certain cases, which is what these Petitioners seek, with no corresponding downward adjustments in other cases, can only distort rather than improve the accuracy of a representative baseline. An analogy can be drawn to a series of 100 coin flips repeated in two different years. In each year, the 100 flips resulted in 50 heads and 50 tails. However, in the first year all even numbered flips (i.e, 2,4,6, etc.) were heads, and all odd numbered flips were tails. This pattern reversed itself in year two. Thus, in both years the collective split was 50/50. That collective split in the coin toss (rather than the result of each flip) corresponds to the state and regional generation data for 2012. This is what is useful in establishing a reasonable baseline for the entire fleet. It would be patently unreasonable to change all of the even flips in year 1 from heads to tails on the basis that this most accurately represents the year 2 outcome. While that may be true for those even-numbered flips, it would greatly distort the collective estimate for year 2 by suggesting that 100 percent tails is the likely outcome. Similarly, making only upward-directional adjustments to 2012 fossil data would grossly distort the collective baseline for future years.[204]

Nevertheless, we will address each specific Petitioner in turn.

1. Intermountain Power Project Unit 1 Outage

Petitioner Intermountain Power Agency (IPA) asserts that the EPA should have adjusted Utah's baseline to account for a 2012 outage at the Intermountain Power Project, Unit 1. IPA Petition at 1-14. However, IPA's outage failed to meet the first criterion, as it resulted in only a 35 percent reduction as compared to a 2014 benchmark year and a 48 percent reduction as compared to a 2010 benchmark year. *See* Unit Outage Criteria Sheet, Rows 1924-25, EPA-HQ-OAR-2013-0602-36848.

Intermountain Power Project (IPP) Unit 1 Outage Data

	2010	2012	2014	**2012 Deviation**

[204] In any case, the industry's trends away from coal-fired generation and towards cleaner generation have accelerated since the record for the CPP closed. As a result of these trends, the CPP is projected to have a modest impact on the generation mix, one that is less than EPA projected at the time of the final Rule. *See* Power Sector Trends Appendix. Whatever adverse impact EPA's methodology may have had has lessened to that degree.

IPP Unit 1 mmBTU	68,219,876	35,616,596	54,561,748	**48%** drop from 2010; **35%** drop from 2014
Utah mmBTU	378,840,145	351,348,183	389,528,749	
IPP Unit 1 % of state total	**18%**	10%	**14%**[205]	

Source: EPA, Unit Outage Criteria Sheet, EPA-HQ-OAR-2013-0602-36848.

Petitioner IPA challenges the reasonableness of EPA's adjustment criteria for unit outages, or the factual basis for EPA's determination that the criteria were not met, because, it asserts, this outage "did have a 'significant impact' on Utah's goal" and was "significant by any reasonable metric." IPA 4. IPA asserts that failure to account for the outage leads to a significantly more stringent state goal for Utah since the 2012 baseline is unrepresentative. *Id.*

First, this is not new information for the agency, and IPA submitted the information about this outage in their comments on the proposed CPP. IPA Comments at 5 (EPA-HQ-OAR-2013-0602-24053). IPA is incorrect to assert that it is the outage criteria that EPA established that forms the "information [that] arose after the period for public comment on the CPP" had closed, under CAA section 307(d)(7)(B). Rather, the relevant information is the information IPA presented in their comment and other information about fleet operating characteristics in 2012, including the outage at this particular unit. The EPA was aware of this information in developing the final Rule. The EPA designed the outage criteria in full knowledge of this, and other unit-level outages other commenters told the agency about. The EPA was simply not persuaded, and remains unpersuaded, that this outage rose to a level that warrants an adjustment to the state's baseline. Again, the EPA's method in establishing the BSER subcategory rates and state goals required deriving a representative regional and state baseline. As noted in section VI of the final Rule preamble, unit-level variation is generally not relevant as a decrease from one unit means an increase from another unit in the same demand region.

Second, while IPA asserts that this matter is of central relevance, and that any methodology that fails to account for this outage must be arbitrary and capricious, the EPA is convinced that its approach is both reasonable and appropriate. As IPA's Petition acknowledges, the EPA explained the rationale for establishing a stringent standard for unit-level adjustments. *See* 80 FR 64815. EPA elaborated in the TSD, "As regional load levels did not change subject to [a particular] unit outage, the decrease at a particular unit is generally offset by the increase in generation from other fossil unit(s) in the same state or region. Therefore, the EPA views the regional and state-level aggregate generation totals as robust against unit-level outages." Goal Computation TSD, at 28. The EPA's concern in providing for adjustments was to capture truly extraordinary circumstances, such as the Sherburne unit outage in Minnesota. *See Id.* 28-29. In general, the EPA reasonably anticipates that reductions in operation at one unit in 2012 were made up for by increases in the operation of other fossil units in the state or region. Petitioner has not supplied any information indicating that EPA's basic premise in this regard was wrong or inaccurate in the case of the IPA Unit 1 outage.

In this regard, EPA notes that the increase in the mass budget provided to the states,

[205] Petitioner IPA states that the IPP *power plant* provides one-third of the state's generation. But only Unit 1 is at issue. IPP Unit 2 did not have an outage in 2012. The correct percentage of state totals are thus 18% and 14%, as shown in the table.

including Utah, to account for total RE build-out potential under building block 3 and to accommodate future increases in demand under a mass-based approach, *is* relevant, contrary to Petitioner's assertion. *See* IPA A-1 n.3 (asserting that the increase in budget to allow "affected EGUs to expand output" "does not affect this analysis"); *see also* 80 FR 64822 (discussing the building block 3 increase to mass budgets). IPA acknowledges in the appendix to their Petition that the State of Utah received an increase of 2,594,019 tons to its mass budget at this step in the EPA's methodology. While IPA claims this is irrelevant to its objection, in fact, based on the circumstances of this particular unit, that increase in the state's budget mitigates any possibility of negative impact with respect to IPP's outage. As IPA acknowledges, IPP primarily serves out-of-state customers in California. As such, when Unit 1 went down in 2012, IPA claims that the generation was made up for out of state, not in Utah. In addition, publicly available information about IPP indicates that it is already in the process of repowering to natural gas, and will undergo this process beginning in a few years, to be converted out of coal use by 2025.[206]

Thus, it would not be reasonable to conclude that the state and regional baseline for 2012 was unrepresentative of normalized operations for Utah for purposes of establishing a baseline, given that IPA is already under commitments to significantly reduce its emissions through repowering well before the 2030 compliance year (which is the year on which Petitioner focused their complaint of insufficient allowances). Further, Utah's budget was adjusted upward by approximately 2.5 million tons in 2030 to account for demand growth, but given IPP's repowering, that demand growth surely will not come through increased combustion of coal at IPP Unit 1. Thus, neither IPA nor the state are unduly impacted by the fact that IPP Unit 1 did not meet the EPA's outage criteria. Given these factors, there is no basis for concluding that EPA's outage criteria approach as applied here will result in Utah or IPP facing a significantly more stringent Rule than the EPA intended by application of the BSER. Petitioner IPA's objections are not of central relevance.

2. Elm Road Generating Station

The Wisconsin Public Service Commission and Wisconsin Department of Natural Resources (hereinafter "Wisconsin") request an adjustment to the 2012 baseline for the state on the basis that operations at the Elm Road Generating Station in 2012 were not reflective of its generation going forward. Wisconsin Petition, Attachment at 7. Wisconsin states that 2010 was the first year both units at Elm Road were in operation and thus is not representative for comparison purposes with 2012. In 2012, Unit 1 was operating at reduced capacity due to mechanical issues. In addition, by 2014, according to Wisconsin, the plant as a whole accounted for 15 percent of all fossil generation in Wisconsin. *Id.* According to Wisconsin, under normal conditions going forward, the units will be operating at much higher capacities than they were in 2010 or 2012, and therefore Wisconsin believes the plant as a whole met, or should have met, the EPA's outage adjustment test, and the state should have received an adjustment in its state goals. *Id.*

First, it is indisputable that neither unit at Elm Road met the criteria that the EPA established for a significant unit outage. Unit 2's operation in 2012 was not less than 25 percent

[206] *See* http://www.ladwpnews.com/go/doc/1475/1727379/LA DWP-Takes-Historic-Action-Toward-Clean-Energy-Future-for-Los-Angeles (last visited Jan. 10, 2017); http://articles.latimes.com/2013/apr/23/local/la-me-ln-council-coal-energy-20130423 (last visited Jan. 10, 2017).[207] Wisconsin Utilities separately petition for reconsideration of the state's mass goal on the basis that the EPA's methodology for converting the emission performance rates to mass-based state goals was not noticed and should have accounted for the Kewaunee retirement. This and other petitions related to the rate-to-mass conversion methodology are addressed elsewhere.

of its operation in either 2010 or 2014. Unit 1's operation in 2012 was at 32 percent of its 2010 level. *See* Heat Input Data Sheet, Rows 4243-4248, EPA-HQ-OAR-2013-0602-36848. Further, in neither 2010 or 2014 did either unit on its own constitute greater than 10 percent of the state's total heat input. *Compare Id. and* State Totals Data Sheet, Row 51, EPA-HQ-OAR-2013-0602-36848. As Petitioner acknowledges, the EPA's outage test is based on individual *units*' share of the state total, not the plant as a whole.

If Petitioner is challenging the reasonableness of the EPA's criteria themselves, it has failed to provide information warranting that conclusion. As the EPA explained, "As regional load levels did not change subject to [a particular] unit outage, the decrease at a particular unit is generally offset by the increase in generation from other fossil unit(s) in the same state or region. Therefore, the EPA views the regional and state-level aggregate generation totals as robust against unit-level outages." Goal Computation TSD, at 28. The EPA's concern in providing for adjustments was to capture truly extraordinary circumstances, such as the Sherburne unit outage in Minnesota. *See Id.* 28-29. In general, the EPA reasonably anticipates that reductions in operation at one unit in 2012 were made up for by increases in the operation of other fossil units in the state or region. Petitioner has not supplied any information indicating that the EPA's basic premise in this regard was wrong or inaccurate in the case of Wisconsin. Nor does the EPA's review of the record as a whole suggest that without an adjustment the Rule would be substantially more stringent or difficult for Wisconsin sources to comply with in any case, since other changes to the power fleet in the region continue to contribute to the achievability of the CPP goals. *See* CPP RTC 4.5, at 25 (noting capacity changes in the Wisconsin region contributing to the overall achievability of the Rule).

3. 2013 Retirement of the Kewaunee Nuclear Plant

The Wisconsin Public Service Commission and Wisconsin Department of Natural Resources (collectively, "Wisconsin"), and a group of utilities that operate in Wisconsin (collectively, "Wisconsin Utilities"), petition the EPA to reconsider the State of Wisconsin's mass-based goal in light of the 2013 retirement of the Kewaunee nuclear facility. Wisconsin 8; Wisconsin Utilities Petition at 4-7.[207]

First, the treatment of post-2012 changes in the power fleet was an issue that was noticed and discussed in the proposed CPP. The EPA requested comment on use of a projected-baseline, which is, in effect, what Petitioners here are requesting. *See* 79 FR 34895-34896; *see also supra* discussion. The EPA received comment specifically identifying the Kewaunee plant retirement in 2013 and requesting the agency make an adjustment to account for it. *See* CPP RTC 4.5, at 25-26.

In the final Rule, the EPA determined that the use of the historical-year approach to the baseline was the most appropriate, while making several adjustments for anomalous circumstances occurring in that year (e.g., the hydropower adjustment and the significant unit-outage adjustment). *See* 80 FR 64813-64815. The EPA uniformly rejected adjustments based on unit retirements *after* the baseline year. *See* 80 FR 64813 n.741. "Even where fleet turnover is certain," like in Wisconsin's case, "the *impact* of that retirement is not." Goal Computation TSD 7. Attempting to determine whether, in an interconnected system, generation was replaced by

[207] Wisconsin Utilities separately petition for reconsideration of the state's mass goal on the basis that the EPA's methodology for converting the emission performance rates to mass-based state goals was not noticed and should have accounted for the Kewaunee retirement. This and other petitions related to the rate-to-mass conversion methodology are addressed elsewhere.

non-emitting or fossil-fuel-fired sources, by in- or out-of-state generation, or not replaced at all, would "begin to shift the baseline from a historical-data informed baseline to a projection-informed baseline."[208] Goal Computation TSD 7. The EPA reasonably declined to engage in such speculation, whether for nuclear retirements or coal retirements. In any event, given the extensive flexibility in the Rule, Wisconsin's state-specific goals are reasonable and achievable.

Further, the EPA specifically considered and declined to make an adjustment for the Kewaunee retirement. The EPA stated in response to comments:

> The EPA understands the unique circumstances of the Kewaunee Nuclear Plant closure. It has not made an adjustment to the baseline or the final Wisconsin state goal. EPA has consistently used a 10% threshold when considering similar adjustments for unit outage or hydro concerns. While it recognizes the immediate impact on fossil generation in 2013, the first year of compliance in the final CPP had been moved to 2022 – which provides more time for changes in the states power supply. Moreover, the EPA notes that there are significant capacity additions in the same region that are accounted for elsewhere in the baseline that [sic] could conceivably be providing replacement generation for scheduled closures such as this one. For more information about how the final goals were calculated please see the CO_2 Emission Performance Rate and Goal Computation TSD for CPP Final Rule supporting the final CPP.

CPP RTC 4.5, at 25.

It is clear from this record that the information regarding the Kewaunee retirement was brought to the agency's attention during the comment period, that the agency did in fact consider that information, and in the final Rule declined to make an adjustment based on it. Thus, this is not information that arose after the period for public comment or which would have been impracticable to bring to the agency's attention. Nonetheless, the Wisconsin Utilities assert that the objection in their Petition is related not to the bare fact of Kewaunee's retirement but rather to an allegedly disparate treatment between "nuclear intensive states" and "hydropower intensive" states for purposes of the 2012 baseline. Wisc. Util. 6 n.15. According to these Petitioners, they should have had an opportunity to comment on this disparate treatment.

First, the agency is not required to provide an opportunity for additional comment on every change made between a proposed and final Rule. A number of issues were brought to the agency's attention during the comment period related to the 2012 baseline year, including this one by Kewaunee. The EPA responded to those comments by applying universal criteria, which resulted in some cases with adjustments to the baseline year but not in others. In general, the EPA set very high standards for making adjustments in order to isolate extraordinary instances in which an adjustment was appropriate to strengthen baseline representativeness.

More importantly, the objection Petitioners raise of disparate treatment with the hydropower-intensive states is based on a false premise and is not of central relevance. This is not a circumstance of disparate treatment of like parties. Petitioners allege that the EPA should have adjusted Wisconsin's 2012 baseline to reflect the 2013 retirement of the Kewaunee nuclear

[208] This speculative exercise is demonstrated by Wisconsin's own comment on the CPP proposal, which offered four distinct proposals for the assumed mix of replacement generation. Wisconsin Department of Natural Resources Comment 49-52, EPA-HQ-OAR-2013-0602-23541.

plant, just as it made an adjustment for certain states that have high amounts of hydroelectrical power, and for which 2012 was an anomalous year. In fact, the EPA consistently and reasonably excluded adjustments for *all* retirements occurring after the 2012 baseline year—including both zero-emitting nuclear plants, like Kewaunee, and high-emitting facilities like coal-fired plants. as the EPA explained, it chose 2012 because it "was the most recent data year for which complete data were available when the EPA undertook analysis for the [Proposal] and it reflected *actual performance* at the state level." 80 FR 64814 (emphasis added). While the EPA did make particular adjustments to reflect unique circumstances *in that baseline year*, as it did for Minnesota and the hydropower-intensive states, the EPA concluded that the historical, "objective" nature of the baseline year, *Id.*, would be undermined by additional adjustments based on uncertain projections of grid response to fleet turnover. Goal Computation TSD 7.

Furthermore, Petitioners' comparison to the hydropower adjustment based on anomalously high snowpack in 2012—setting aside the fact that the Kewaunee retirement is an occurrence *after* the baseline year[209]—is not compelling on its own terms. Petitioners arrive at this argument by taking all of Wisconsin's nuclear fleet and dividing it into the state's total generation to conclude that it equals more than 10 percent of the state's generation portfolio, just as the hydroelectric share of total generation had to be greater than 10 percent as part of the EPA's criteria for hydro adjustments in a state. But the comparison Petitioners would have the agency make is not, in fact, an apples-to-apples comparison. The Petitioners' analysis incorrectly uses *all* nuclear generation in the state of Wisconsin to arrive at its 10 percent figure, whereas the EPA's criteria test pertained to the generation *subject to the anomaly*. In other words, the appropriate comparison to hydro generation in the Northwest would be the Kewaunee plant alone, since not all nuclear power in Wisconsin retired in 2013. By adding in other nuclear generation, the Petitioners claim that together total nuclear generation in Wisconsin meets the 10 percent criteria threshold for adjustment consideration. However, as the EPA pointed out in the RTC, Kewaunee – being the generation under consideration – was responsible for less than 10 percent of the state's total generation.

Furthermore, comparing a single nuclear facility retirement after 2012, which is an intentional choice that reflects decision making and deliberation by a number of market and regulatory actors, to the issue of fleet-wide hydropower fluctuation, which is due to uncontrollable weather patterns, is specious. The basic difference between a post-2012 nuclear retirement and an adjustment in the baseline for hydro is that the fluctuations in hydro power are driven by forces that are beyond the control of the sector. These fluctuations "fundamentally change the generating potential of the state's power fleet in hydro-intensive states." 80 FR 64815. By contrast, the EPA explained it "does not believe that unit-level variations in operation influence the subcategory-specific performance rates reflecting BSER. … Unit level variation does not inherently entail region-wide variation." 80 FR 64815. While Wisconsin claims that the methodology for the hydropower adjustment could be carried over to itself as a

[209] The agency recognizes that its response to comment on this issue drew a comparison to the 10 percent threshold for considering "similar adjustments for unit outage or hydro concerns." CPP RTC 4.5, at 25. Petitioners highlight this as evidence that the EPA is engaged in disparate treatment of similarly situated parties. For the reasons given above, this is incorrect, even accepting the complaint on its own terms. However, to be clear, the more fundamental reason the EPA declined to make an adjustment is the fact that it did not make changes to the baseline for *any* retirements after the 2012 baseline year. 80 FR 64813 n.741. The reference to the adjustment criteria in the RTC was simply to make the point that, even if the EPA were willing to adjust the baseline for future retirements, the Kewaunee retirement would not have met that criteria because it did not represent more than 10 percent of statewide generation.

"nuclear intensive state," Wisconsin fails to adduce evidence that the Kewaunee facility retirement was indicative of operating characteristics at other nuclear facilities in the state. Indeed, there is no reason to assume that it would be. As the EPA noted in the RTC, "[T]here are significant capacity additions in the same region that are accounted for elsewhere in the baseline tha[t] could conceivably be providing replacement generation for scheduled closures such as this one." CPP RTC 4.5, at 25. Thus, the distinction the EPA drew with hydropower-intensive states is more than reasonable.

In any event, given the manner in which the EPA established the emission performance rates and equivalent goals, as well as the extensive flexibility in the Rule, Wisconsin's state-specific goals are clearly reasonable and achievable. In this regard, the EPA notes that it provided an increase in the mass budget for states, including Wisconsin, to account for potential future increases in demand from fossil-fuel fired power plants. See 80 FR 64822. The EPA did not make any assumptions about where that demand growth might come from, and indeed, it could be from the need to replace power from a retired nuclear unit. Thus, the EPA's adjustment to the mass budgets already addresses the Petitioners' concerns. In addition, the EPA's modeling for the CPP included the retirement of Kewaunee in the base case (i.e., without the CPP), and in the policy case (i.e., with the CPP), and in both cases found that Wisconsin and its sources remain in a position to meet the requirements of the CPP cost-effectively and with an adequate capacity reserve margin to maintain electric reliability.[210]

Ultimately, in setting the emission performance rates and equivalent state goals, the agency has made a technical judgment about the degree of emission reduction that is possible from a historic baseline. The units in Wisconsin were treated just like every other source in the country in this respect. Neither Wisconsin nor the Wisconsin Utilities can point to information that the Kewaunee retirement makes the Rule unachievable or unacceptably costly for the state to implement. To the contrary, as the EPA explained in RTC 4.5, 25-26, the record on the whole before the agency demonstrated that the Rule remains achievable for the sources in Wisconsin even after the Kewaunee retirement.

XX. Under Construction Steam Units in 2012

Petitioner Prairie State Generating Company objects to EPA's treatment of steam units that were under construction in 2012, for which the EPA adjusted the baseline in the final Rule by applying a 60 percent capacity factor for all such units. *See* Prairie State 4-5. In addition to raising substantive complaints, Prairie State claims there was a lack of notice for the 60 percent capacity factor that the EPA assigned to under construction steam units. *Id.*

In the CPP proposal, the EPA used 2012 as the historical baseline, but recognizing that some NGCC units that would likely be subject to the Rule had not yet come online in 2012, the EPA made an adjustment to the baseline by assigning a 55 percent capacity factor to such units, and adding that generation, and associated emissions, into the 2012 baseline. 79 FR 34896. In response to this approach, the EPA received comments, including from Prairie State, pointing out that there are also coal-steam units that were partially online in 2012 but had not yet commenced full operations, and thus the 2012 un-adjusted data was not representative for those units. CPP RTC 4.9, at 435-436. Prairie State specifically highlighted its own unit, which is the subject of this Petition, and asked that the EPA apply a 90 percent capacity factor to that unit, which, they claimed, would be an appropriate assumption for a new, highly efficient plant.

[210] Petitions asserting that the Kewaunee retirement undermines grid-reliability in Wisconsin are addressed in section XVIII.

In response to these comments, the EPA made a further adjustment in the baseline in the final Rule. For under-construction steam units in 2012, the EPA applied a 60 percent capacity factor and added the associated generation and emissions into the state and regional baseline. 80 FR 64817. The EPA explained that this was consistent with the proposal methodology and that it would reflect the *incremental* effect of new units on 2012 baseline, because the figure "recognizes that some of these units may indeed operate at a higher utilization level, but also recognizes that some of that generation may have a replacement effect instead of an incremental one. *Id*. 64817 n. 748. Elsewhere in the preamble to the final Rule, the EPA elaborated on why this approach was necessary to reflect incremental generation only as the EPA made "no corresponding deduction to represent this likely decreased utilization [from existing units displaced by the under construction units] because it was impossible to project the state location of such units with certainty and the assumed utilization level was meant to reflect the incremental impact on the baseline." 80 FR 64815. "As a result, this data adjustment *increases* the total generation and emissions for units reporting in the 2012 baseline beyond the 2012 reported levels." *Id*. (emphasis added). In other words, the only way that using the value requested by petitioners would be reasonable would be if the EPA also made an offsetting deduction from other existing units to account for the new generation this unit is replacing. This type of exercise crosses over into a *projected baseline*, which the EPA took comment on and rejected due to the greater uncertainty inherent in projected unit-level generating characteristics compared to historical data. 80 FR 64814-64815.

Based on this record, it is clear that the EPA provided information in the CPP proposal that was adequate to put Prairie State and others on notice of its approach to under-construction units in 2012; that Prairie State and others could, and did, comment on this approach, by urging the EPA to make a larger adjustment to the 2012 data to reflect all under construction units (including for coal-steam that started in 2010); that the EPA accepted those comments and made a further adjustment to the baseline that had the effect of benefiting Prairie State and similarly situated units; and finally, that the EPA already considered and rejected the request Prairie State is renewing here, of making a more dramatic adjustment to the baseline based on unit-specific anticipated operational levels. The EPA rejected such an approach because it would require additional speculative assumptions about how new generation displaced old generation. Under this record, Prairie State has no argument that this issue or objection involves new information or information that was impracticable to bring before the agency during the comment period. Prairie State *did* raise the issue, the EPA considered it, and made an adjustment that benefited Prairie State, just not to the degree Prairie State sought.

Nonetheless, Prairie State repeats the request it made in its comments, advancing several arguments. The EPA must deny these objections because they are not of central relevance to the outcome of the Rule. First, Prairie State objects to the EPA's reliance on one year of data and only 40 recently commenced-operation coal-fired EGUs. Prairie State 4-5. They argue that new super-critical pulverized coal units, like Prairie State's units, have a 90% capacity factor, and that figure should have been used for such newer units. *Id*. at 5. They further argue that the assumption that increased generation at one unit is to some extent paired with reduced utilization at other units is not necessarily valid at smaller geographic scales. *Id*.at 5-6. They argue that the approach of using a 60 percent capacity factor is unfair and penalizes new, highly efficient units whose owners plan to operate them at higher levels of utilization. *Id*. at 6. They argue that an incorrect capacity factor for these units skews state goals by making the calculation of state goals off of what they claim to be an unrepresentative baseline (i.e., a

baseline that under-reflects the amount of utilization of the under-construction units). *Id.* at 7. Finally, they argue that the approach cannot be remedied in state plan design because, at least in a mass-based program, Petitioner (mistakenly) believes that either a state or federal plan must be assumed to take the exact same approach to allowance allocations as the EPA did in setting the baseline in the CPP. *Id.* 8-9.

Each of these objections lack merit, and do not warrant reconsideration. First, as the EPA explained in the final preamble, the EPA's values are reflective of the historical data for like units and are for the purpose of constructing a representative baseline at the state and regional level. The EPA's assumptions regarding under-construction units are meant to reasonably reflect incremental generation at the state level for the entire fleet, that is, for both the currently operating and the under-construction units. This is a different exercise than simply measuring generation at a single plant, because some generation replaces older generation and therefore the net change to state level generation may be zero or close to zero. Some commenters on the CPP proposal, for instance, encouraged the EPA to apply a much lower capacity assumption, e.g., around 15 percent, for under-construction units on the basis that they mostly have a replacement reflect. CPP RTC 4.4.3, at 333-334. Petitioners are conflating unit-level assumptions performance with state-level performance. The EPA was interested, and relied on, state level generation. Therefore, the EPA was interested in a reasonable expression of the collective impact of under construction units. Thus, this is different than the prevention of significant deterioration (PSD) permitting context, which Prairie State suggests the EPA should follow, because here, the exercise is not for the purpose of precise unit-specific accuracy but simply constructing a reasonable baseline for the state-wide and region-wide fleet as a whole. The Petitioner's assertion that all under construction generation should be treated as incremental in effect asks the agency to assume an unrealistic world where units never retire or decrease generation, even as new units come online and total demand remains relatively stable. This would be arbitrary and capricious. From a substantive view point the EPA's approach is both reasonable and conservative.

Further, the EPA explicitly acknowledged in the RTC how some under-construction units would naturally exceed a 60% capacity factor, but that was not inconsistent with our assumption, as our assumption is reflective of the *incremental* state-level impact, and not a unit-level projection. *See* RTC 4.4.3, at 333-334. This approach is consistent with our handling of under-construction natural gas units in the baseline year. In those cases, the Cane Run plant in Kentucky, and the H.F. Lee Plant in North Carolina are prime examples that affirm EPA's concept of replacement.[211] In both cases, the generation from the under-construction plants accommodated a ramp-down in generation from existing units at the plant.[212] This demonstrates that not all of the under-construction generations was incremental, and in fact, as the EPA stated in the RTC, the EPA's assumption of a 60 percent incremental effect was not only reasonable but actually "conservative." *Id.* This can be further validated by applying the assumptions Prairie State would have the agency make (i.e., assuming a 90 percent utilization for all under-

[211] *See* U.S. Energy Information Agency (EIA), state level data (2010, 2011, 2012), made available with the October 2014 NODA, available at https://www.epa.gov/cleanpowerplan/clean-power-plan-proposed-rule-technical-documents#NODA. The agency also received comment highlighting the Cane Run replacement. CPP RTC 4.4.3, at 334.

[212] https://lge-ku.com/our-company/community/neighbor-neighbor/cane-run-generating-station (last visited Jan. 11, 2017); http://www.powermag.com/duke-continues-switch-from-coal-with-three-new-gas-plants/ (last visited Jan. 11, 2017).

construction units, without making a downward adjustment in the generation of on-line units), and comparing the total resulting generation against actual 2012 baseline data. This information can be calculated with data from Appendix 1 and Appendix 2 to the Goal Computation TSD, EPA-HQ-OAR-2013-0602-36849.[213] The result is an unreasonably high level of baseline generation and emissions from existing units relative to what was observed in that same year and is not representative of actual or anticipated operations of the fleet as a whole.

Thus, while the Petition seems to imply that all new generation should be treated as incremental generation, both comments and other historical evidence in the record of unit retirements and replacements demonstrate this is not the case. Accepting the Petitioner's request would ignore the observed reality of fleet turnover and retiring units, implying that all under-construction generation is incremental when this is demonstrably false. Prairie State would have been at least consistent had it requested the EPA to move from a historical-data approach to the baseline to a projected approach, in which assumptions are made about the fleet as it would operate in the future. Under this approach, the agency could have made assumptions that pair forward-looking increases in generation at some units with forward-looking decreases in generation at other units. The EPA took comment on that, did not find support for it, and reasonably rejected it in favor of the greater certainty of actual fleet operation provided by using a single historical data year. *See* 80 FR 64813 n.741; Goal Computation TSD, at 7. In any case, this is not what Prairie State is requesting.

Finally, Prairie State is categorically incorrect to assert that the EPA's methodology has any relevance to or effect on fair treatment of newer, more efficient plants. The baseline-setting exercise informs the regionalized approach to setting the BSER and state goals, which is an analytic exercise that the EPA is confident is robust against unit-level variation, 80 FR 64823. It does not directly relate to unit-level obligations. The EPA's assumptions for under-construction units do not have an effect on the treatment of individual units in the context of setting emission standards, or the methodology for allowance allocations, under a state plan. It certainly does not penalize newer units that already have improved emissions performance compared to older units—as Petitioner asserts is the case for their power plant. Prairie State's specific concern regarding unit-level allocations is similarly misplaced, since states would have wide discretion in how to allocate allowances, and are by no means constrained to follow a historical-data approach, much less the EPA's approach to the baseline for an entirely different analytic exercise. Further, the proposed federal plan approach is merely a proposed approach (and, belying Petitioner's concerns, in fact takes a different approach to the use of the historical data than the baseline methodology, *see* 80 FR 65016-65017). In any case, the proposed federal plan approach reflects an entirely separate rationale and purpose (that is, the allocation of allowances in a mass-based trading program), and the EPA (or a state) would be capable of adjusting it further to suit a wide variety of policy objectives. 80 FR 65015-65016. Thus, Prairie State's concerns over hypothetical approaches to allowance allocations in a mass-based plan are, fundamentally, premature and unrelated to the baseline methodology. For these reasons, the EPA concludes that this petition for reconsideration fails to demonstrate that reconsideration is warranted or appropriate under Section 307(d)(7)(B).

[213] The same observation can be made by reviewing the 2010, 2011, and 2012 data that are available in the docket, https://www.epa.gov/cleanpowerplan/clean-power-plan-proposed-rule-technical-documents#NODA, and which demonstrate that increases in generation from newer units generally replace generation from older units, rather than have an incremental effect on total generation.

XXI. Subpart RR requirements for enhanced oil recovery (EOR) applications

Petitioners Denbury Onshore, LLC ("Denbury"), Southern Company, UARG, Texas, and Alabama DEM petition for reconsideration of section 60.5860(f)(2), which states that if an affected EGU captures CO_2 to meet the applicable emission limit and transfers the captured CO_2 off-site, the captured CO_2 must be transferred to a facility reporting under 40 CFR Part 98, subpart RR. Subpart RR provides a framework to report to the EPA amounts of CO_2 staying underground using a mass balance approach, and requires that the owner or operator of the CO_2 injection well develop and implement an EPA-approved monitoring and verification plan to assure that any potential leakage of CO_2 can be identified as a means of assuring secure storage of the CO_2. *See generally* 80 FR 64586 (Oct. 23, 2015). The Petitioners (and Petitioner Denbury in particular) maintain that there was no opportunity to comment on this provision, and that comments would have shown that the subpart RR requirements are fundamentally incompatible with enhanced oil recovery (EOR), so that the EPA would have reached a different outcome had there been an opportunity for comment.

The EPA is denying these requests. There was adequate notice that the EPA might adopt this provision (indeed, as shown below, the EPA received comments both pro and con to this effect). Moreover, the objection is not of central relevance because it is substantively mistaken. The subpart RR requirements are not fundamentally incompatible with EOR operations.

First, the Petitioners had sufficient opportunity to raise their objections during the public comment period. At proposal, the EPA indicated that although carbon capture and storage (CCS) was not a component of the BSER for existing EGUs, it nonetheless would be available to states and sources as a compliance option. In addition, the EPA directed commenters to the discussion of the issue in the Carbon Pollution Standards parallel rulemaking. 79 FR 34876. Further, as part of the proposed standard of performance for new sources, the EPA proposed that any affected source sending captured CO_2 off-site must transfer that CO_2 to a facility reporting and monitoring pursuant the subpart RR requirements. 79 FR 1483.

The EPA received substantial comment on these proposals, in the context of both the CPP and the Carbon Pollution Standards. Some of the commenters to the CPP proposal raised issues now being presented in the reconsideration petitions, asserting that the subpart RR monitoring and reporting requirements are likely to discourage use of captured CO_2 for EOR both because the requirements are intended for disposal wells and so could alter the status of recovery wells, and because of the expense of the monitoring and reporting requirements. Other commenters, however, viewed the subpart RR monitoring/reporting/verification requirements as providing needed assurance the injected CO_2 will remain safely stored underground. *See* RTC Chapter 3 ("Greenhouse Gas Mitigation Measures") at pp. 197-198 and 235.

The EPA received even more comment on the issue in the parallel Carbon Pollution Standards rulemaking. Commenters again maintained that the subpart RR requirements apply to Class VI wells under the Underground Injection Control rules, and therefore that they should not apply to EOR operations, where CO_2 is used as an agent for oil recovery and any long-term storage is incidental to that activity. Commenters also addressed issues of expense, pipeline commingling, and whether reporting under subpart RR changes the regulatory status of a Class II (EOR) well. Other commenters agreed with the proposal that the subpart RR monitoring and reporting framework was a needed element of successful long-term storage of injected CO_2, whether for EOR or for geologic sequestration in other types of formations. *See* Carbon Pollution Standards RTC Chapter 6 Comments and Responses 6.3-195 through 6.2-210.

In view of the robust comment on the issue, it is apparent that the Petitioners were

afforded ample notice and therefore that it was not impracticable for them to raise their objections during the rulemaking. Indeed, petitioners UARG and Southern Company were among those raising comments on this issue. In addition, the EPA views the Carbon Pollution Standards rulemaking as providing notice that the agency might adopt the same requirements for existing sources which capture CO_2 and transfer that captured CO_2 to an off-site facility. *See Portland Cement Ass'n v. EPA*, 665 F. 3d 177, 192 (D.C. Cir. 2011) (notice of a provision in existing source proposal can effectively provide notice of the same issue in the parallel new source performance standard rulemaking).

In any case, we do not regard the Petitioners' objections as of central relevance to the outcome of the rulemaking since we believe these objections to be misplaced. Although Petitioners raise a series of individual objections (which we address below), the fundamental claim is that the subpart RR monitoring and reporting regime is premised on permanent disposal of CO_2, that EOR does not involve permanent disposal of CO_2, and therefore that reporting and monitoring under subpart RR is legally incompatible with EOR operations such that an EOR operation cannot conduct its operations if it is subject to those requirements. We disagree. Most fundamentally, reporting and monitoring under subpart RR does not cause EOR operations to become a waste management activity. *See* 80 FR 64591 n. 490 and 79 FR 355 (Jan. 3, 2014) (anthropogenic CO_2 used in Class II wells would not be a waste). The EPA has reiterated this principle numerous times. *See, e.g.*, Carbon Pollution Standards RTC Response 6.3-143 ("[i]njection of anthropogenic CO_2 into Class II wells does not force transition of these wells to Class VI wells – not during the well[s'] active operation and not when EOR operations cease"). Subpart RR monitoring and reporting is consistent with EOR, and, as stated above does not alter or otherwise undermine its legal status. The requirements are flexible and allow monitoring to be custom-tailored to accommodate a facility's site-specific circumstances. The EPA also carefully considered the costs of monitoring and reporting under subpart RR and determined that they could be readily absorbed without impairing profitability. 80 FR 64590-91 ("these subpart RR costs are approximately three to four percent of estimated revenues for an average EOR field, indicating that the costs can readily be absorbed"). As confirmation, since the rulemaking, the EPA has approved the subpart RR monitoring, reporting and verification (MRV) plan submitted by Occidental Petroleum for an EOR project in Texas.[214] The EPA believes it is a fair inference that Occidental would not have submitted its plan had it believed that complying with subpart RR was fundamentally incompatible with its EOR operations; nor would the EPA have approved a plan incompatible with EOR operations.[215]

We now turn to Petitioners' specific objections.

Petitioner Denbury states that the authorized purpose of injecting CO_2 in an EOR operation is recovery of oil, and that mineral and gas leases do not authorize waste storage operations. In the Petitioner's view, complying with the subpart RR MRV provisions will subject the EOR operator to claims of unauthorized waste storage operations. In a related point, the same Petitioner states that the mineral leases do not convey some freestanding right to CO_2 storage space, and that the subpart RR MRV plan is inconsistent because it contemplates

[214] *See* Letter from United States Environmental Protection Agency to Occidental Petroleum regarding Monitoring, Reporting and Verification (MRV) Plan for Denver Unit dated December 22, 2015, available at https://www.epa.gov/sites/production/files/2015-12/documents/denver_unit_final_decision.pdf.

[215] The National Coal Council discussion draft paper to the Department of Energy likewise stated that the Occidental Petroleum MRV plan is an indication that subpart RR may be consistent with oil and gas law. See National Coal Council, "CO_2 Building Blocks – Assessing CO_2 Utilization Options" (August 2016), available at http://www.nationalcoalcouncil.org/studies/2016/NCC-CO2-Building-Block-FINAL-Report.pdf.

permanent storage of CO_2 ("the source category to which Subpart RR applies includes … situations where CO_2 is injected to enhance the recovery of oil or gas where 'the owner or operator injects the CO_2 stream for long-term containment'" (citing to 40 CFR 98.448(c)(1)).

This assertion is fundamentally misplaced for the reasons given above. The EPA agrees entirely that storage of CO_2 in EOR operations is incidental to the purpose of injecting CO_2 (just like permanent land-based disposition will occur for any product, like a pesticide or herbicide, whose intended use is on the land – that does not turn a pesticide into a waste). As the EPA has said repeatedly, and just reiterated above, preparing the subpart RR MRV plan does not alter that fundamental fact. Moreover, Denbury has stated that their leases allow for CO_2 to be incidentally sequestered as part of the EOR process (a necessity, since such incidental sequestration necessarily occurs). Some CO_2 will remain in the formation when EOR operations cease (just as some pesticide remains on a field after a crop is harvested). Subpart RR reporting and monitoring does not change the legal status of that incidentally sequestered remainder, or change the legal status of the EOR well. See citations above. All that subpart RR does is to provide an accounting framework to calculate (on a mass-balance basis) the amount of CO_2 that is incidentally sequestered.

Petitioner Denbury argues that subpart RR subjects EOR operators to uncertainty regarding MRV plans due to Part 78 administrative appeals. Again, this claim is misplaced. Subpart RR MRV Plan final decisions may be appealed to the EPA's Environmental Appeals Board by an interested person per the requirements under 40 CFR Part 78. However, without the administrative appeals process, the reporters' and interested person's only option becomes litigation, which the EPA believes would be more disruptive and costly, and delay implementation of MRV plans further.

Petitioner Denbury also maintains that "the rules create different 'colors' or 'flavors' of CO_2 depending on the regulatory status of the entity supplying the CO_2 to the market." (Pet. p. 2 and 5.) This objection is again misplaced (and obscure to boot). Once captured, CO_2 of course is a fungible molecule, indistinguishable from any other CO_2. The EPA has specifically stated that subpart RR (and indeed, subpart UU) facilities can receive CO_2 from the same pipeline. There is no restriction on commingling CO_2 in a pipeline from different sources. Carbon Pollution Standards RTC Response 6.3-71 (CO_2 pipeline specifications apply regardless, and identically, without regard to the source of the CO_2; "there is thus no *a priori* restriction on commingling CO_2 from different sources"). We agree that "incidental storage" of injected CO_2 "is a natural and inevitable result of the tertiary recovery operation". Again. subpart RR reporting does not change this analysis or result, and in fact there is nothing that subpart RR does to alter status that subpart UU does not. The "legal ability to leave the CO_2 in the formation" is not altered by subpart RR reporting. That legal ability remains unaffected by the CPP.

The Petitioners believe this issue is of particular concern with respect to the Kemper facility, an existing source retrofit involving gasification with CCS. The facility has entered into a contract with petitioner Denbury to provide captured CO_2 for EOR. All of the points made above also apply specifically with respect to Kemper. We reiterate that should CO_2 be injected into Class II wells for the purpose of enhanced oil recovery, such an injection process would not be a waste management activity under the federal waste management regulations. As the EPA has observed, "[u]se of anthropogenic CO_2 for EOR is a long-standing practice that has flourished in all of the years that the EPA's 40 CFR Parts 260-265 regulations (which define 'solid waste' for purposes of those regulations) have been in place, without any entity suggesting (much less determining) that the activity involves waste disposal or other type of

waste management." 80 FR 64591 n. 490. The EPA has also made clear that "reporting under Subpart UU or Subpart RR of captured CO_2 from Kemper, either solely or in combination with CO_2 from other natural and/or anthropogenic sources does not cause the CO_2 to be a 'waste' under the federal waste management implementing regulations, nor would the use of captured CO_2 from Kemper affect the classification of CO_2 from other sources with which it comes into contact during the EOR process."[216] Quite simply, the final standards do not alter the status of an Underground Injection Control Class II well receiving anthropogenic CO_2.

Because Petitioners could have raised their objections during the rulemaking, and because these objections are not central relevance to the outcome of the rule, the EPA is denying these petitions in their entirety.

XXII. Endangered Species Act and Consultation with Fish and Wildlife

Petitioner State of Wyoming ("Wyoming") maintains that the EPA declined to engage in consultation both informally and formally under the Endangered Species Act (ESA), 16 U.S.C. § 153 1-1544, before issuing the final Rule in violation of Section 7 of the ESA. According to Wyoming: The EPA determined that the CPP would have "no effect" on threatened or endangered species (80 FR 64662 and 64925-64927; Oct. 23, 2015); the EPA came to this conclusion even though the agency designed the final rule with the express purpose of forcing utilities to drastically increase their wind and solar energy generation; the EPA has acknowledged that wind and solar energy projects can have a significant impact on threatened and endangered species (80 FR 64926); the EPA' s refusal to engage in the minimal effort involved with informal consultation shows a disregard for threatened and endangered species that is inconsistent with the ESA' s cautionary approach. Tenn. Valley Auth. v. Hill, 437 U.S. 153, 194 (1978); and the EPA's refusal to even consider engaging in an incremental consultation process was arbitrary and capricious.

Wyoming does not explain why it was impracticable to raise its objection during the rulemaking, and in fact, there was no reason the State could not have done so. The EPA discussed in the preamble to the proposed Rule that it had carefully considered whether the proposal (if finalized) could have any impact on listed endangered or threatened species or designated critical habitat. The EPA has also considered the effects of this proposed rule and has reviewed applicable ESA regulations, case law, and guidance to determine what, if any, impact there may be to listed endangered or threatened species or designated critical habitat. 79 FR 34933-934. Numerous commenters in fact addressed issues related to the ESA, including the very issue relating to sage grouse habitat raised in the reconsideration petition. See Response to Comment Document Section 8.3. The Petitioner has consequently failed to satisfy the procedural requisites for granting reconsideration, and the EPA is accordingly denying the petition.

Wyoming has also failed to raise any substantive basis for the EPA to reconsider its analysis of ESA requirements in connection with the final Rule. The State's petition focuses on potential increased reliance on renewable sources of energy – and in particular, on potential increased development of wind and solar power – and the alleged effects that such development may have on federally-listed threatened or endangered species. In the preamble to the final Rule, the EPA carefully considered ESA requirements and determined that the Rule would have

[216] Letter from Environmental Protection Agency Acting Assistant Administrator Janet McCabe to Mr. Anthony Wilson, President and Chief Executive Officer, Mississippi Power Company, dated April 25, 2016 (available in the docket for this proceeding).

no effect (direct or indirect) on listed species, and that consultation with the Services was therefore not required. As part of that analysis, the EPA considered the precise issue raised by Petitioner. As the EPA explained, the effects of any potential future changes in the energy sector are not caused by the final rule or sufficiently certain to occur so as to require ESA consultation. 80 FR 64926-27. The precise steps included in any future implementation plan are not determined and cannot be ordered by the final rule, and there continues to be no reasonable certainty regarding which measures may be adopted or where such measures may take effect. *Id.* Instead, these planning measures will flow from later in time decisions generally made by entities other than the EPA – usually states – in their own planning processes, which themselves may provide wide degrees of implementation flexibility. *Id.* Section 7(a)(2) of the ESA was not intended to preclude federal actions based on such potential future speculative effects. *Id.*

Wyoming's petition does not alter the EPA's analysis as described in the final Rule. The State, in part, suggests that the EPA should seek the Services' agreement with the EPA's "may affect" determination. Wyoming at 13. However, the EPA has made no such determination. Instead, as described above and in the final Rule, the EPA determined that the rule will have no effect on listed species for ESA purposes. Under the Services' regulations, such determinations are to be made by the federal action agency, in this case the EPA. *See* 51 FR 19926, 19949 (June 3, 1986). Wyoming's citation to case law addressing oil and gas leasing is also unpersuasive. Wyoming at 15-16. The federal leases at issue in that case involved specified oil and gas development activities in defined lease areas containing substantial listed species habitat for which extensive data and behavioral information was available. Such activity is dissimilar to the implementing activities that may follow the EPA's final Rule, none of which are determined or required by the rule in any particular area, instead remaining subject to future planning decisions by states and other entities which at this point remain highly uncertain. The EPA also disagrees with Wyoming's contention that the agency should have considered engaging in incremental step consultation under section 402.14(k) of the ESA implementing regulations. Wyoming at 16. Such incremental consultation may be appropriate in certain cases where an agency takes an action that may affect listed species in multiple discrete steps. The final Rule, however, is not a multi-step action. Instead, it represents the culmination of the EPA's action to set emission reduction goals that are implemented by wholly separate planning actions generally undertaken by entities other than the EPA and subject to the decision making and wide flexibilities available to such entities. Further, as described above, the final Rule has no effect on listed species for ESA purposes, thus making any consultation – incremental or otherwise – unnecessary under section 7(a)(2) of the ESA. Finally, to the extent Wyoming remains concerned with sage grouse habitat (Petition at 2), the EPA notes that the sage grouse is not listed as threatened or endangered under the ESA and thus cannot provide a premise for any required ESA consultation.

XXIII. Order of building blocks

Several Petitioners (Southern Company, Texas, UARG, and Wyoming, Ameren at 16, Wisconsin at 3) requested that the EPA reconsider the order in which the greenhouse gas mitigation building blocks are applied to the baseline data to arrive at the uniform subcategory rates and subsequent states goals in the final Rule. The petitioners assert that there was an effective re-ordering in the application of the building blocks that altered the quantification of the best system of emission reductions in the final Rule that lacked notice and comment. The EPA is denying all petition requests related to this subject because the EPA provided adequate notice and Petitioners' objection is not of central relevance. Petitioners' objection reflects a

misunderstanding of the proposed rule and incorrectly ignores a robust record, including stakeholder feedback and comment, on the final Rule approach. Finally, incorporating the petitioners' suggested change to the final Rule building block ordering would lead to subcategory rates and state goals that do not reflect the full expression of the building blocks that the EPA identified. Instead it would incorporate a building block two level lower than the 75 percent utilization level identified as part of the best system of emission reductions. This would create an inconsistency between the best system of emission reductions qualified in the final Rule and that which was quantified in the final Rule. In effect, it is petitioning for a change to the building block levels themselves under the disguise of a computational adjustment.

To begin with, the underpinning assumption of this petition – that building blocks were effectively reordered – reflects a misunderstanding of the proposed Rule. The Petitioners' assertion of a building block *re*ordering in the final Rule requires that there was an effective and meaningful ordering of the building blocks at proposal. This was not the case. The proposed calculations capturing the building block assumptions could have been applied in any order at proposal (e.g., 1 =>2=>3, 3=>2=>1, 1=>3=>2) and resulted in the exact same state goal. In other words, there was no effective ordering of the building blocks. There was a nominal ordering in which the equation that was described in the narrative to walk commenters through the process, but any order captured there simply reflects the need to describe components one at a time and has no bearing on the final value. This is known as the commutative property. For example, in the simple equation A + B = C, A is expressed first but doing so has no impact on the final value C. Reordering to B + A would still equal the same value C. The mathematical expression of the building blocks at proposal reflects full implementation of the proposed building blocks, just as the final Rule reflects full implementation of the final building blocks. Because there was no effective and meaningful ordering at proposal, the Petitioners claim that there was a meaningful reordering in the final Rule is incorrect.

The Petitioners incorrectly arrive at this assertion of a meaningful building block reordering in the final Rule by confusing the robustly noticed changes in building block three with building block order. At proposal, state goals and corresponding emission reductions were derived by assuming building block three RE potential was simply added to historical fossil generation levels instead of replacing it on a 1:1 basis (79 FR 34896). Also at proposal, building block two incremental generation was assumed to replace historical fossil generation levels on a 1:1 basis. The EPA took comment on the proposed formula and noted it was providing a live spreadsheet of the state goal calculations so stakeholders could themselves test any recommended changes. The EPA received significant comment that building block three incremental generation should be assumed to replace historical fossil generation in a manner similar to the way building block two incremental generation was assumed to replace historical generation.

In October of 2014, the EPA issued a Notice of Data Availability to further highlight that some commenters had noted that building block three assumptions regarding replacement of 2012 fossil generation levels should be consistent with building block two levels. The EPA discussed this potential modification further and solicited additional comment (79 FR 64548). Subsequent comments further supported this building block change, and noted that in order to maintain the full expression of the building blocks in the final rule subsequent to this building block change, that the EPA would have to apply building block three first in order to not compromise building block two. In other words, because building block three would now be assumed to replace historical fossil generation in the final Rule, the order of operations in which

the building blocks were applied would become relevant in the final rule to correctly express the BSER. Specifically, the commenter noted that –

> if EPA adopts a formula in which renewables … displace NGCC and coal-fired generation on a pro rata basis, it must also ensure that it corrects the potential emission reductions from building block two. When renewables…displace NGCC generation, this will lower the capacity factor of NGCC plants and create additional potential reductions from building block two. These additional reductions can be achieved … by displacing fossil generation from blocks 3 and 4 *before* calculating block 2 … The formula adjustment will ensure that the CPP fully reflects the potential for emission reductions achievable under the best system of emission reductions.[217]

The commenter correctly noted, that if the EPA did not implement building block three first in the final Rule, than the BSER formula would reflect building block two utilization levels that were less than the building block two potential identified, and thus incorrect.

In the final Rule, the EPA incorporated commenters' suggestion to treat building block three generation consistent with building block two generation and described extensively why order of operations was now relevant under this revised building block assumption. 80 FR 64818. The EPA highlighted both the record and the rationale for this application by stating "commenters had noted under this approach, building block 3 should be applied first, or the EPA would understate the potential of building bock 2 by subtracting out some NGCC generation after the 75 percent utilization full BB2 value had been applied. The EPA agrees and calculates the building block three impacts first in developing the emission performance rates." 80 FR 64817. The EPA also highlighted, contrary to Petitioners claims that the final Rule does not require mitigation efforts by NGCC, that it was very deliberate to ensure that the RE responsibility of NGCC existing sources was not simply transferred to fossil steam, but rather preserved in the NGCC subcategory rate. This is evidenced by the final NGCC subcategory rate reflecting the BSER (i.e., 771 lbs/MWh) being more stringent than the baseline rates that were approximately 900 lbs/MWh or greater.

Petitioners go on to claim that this final Rule building block ordering results in more stringent subcategory rates and state goals because it exaggerates building block three reductions. While the EPA agrees that it results in more stringent subcategory rates and states goals relative to the ordering suggested by Petitioners, it disagrees with the assertion that it exaggerates building block three reductions. The level of building block three incremental generation (and corresponding fossil ramp down) in the final Rule computation is equal to the building block three level identified. The difference between the final Rule stringency and that which would result from the alternative building block ordering suggested by the Petitioners is due to the fact that the former fully implements building block two. Under the Petitioners' approach, the building block two application would be less than the building block two potential identified under the BSER, and therefore subcategory rates and state goals would be less stringent.

In summary, the Petitioners were incorrect in their underlying assumption of an effective ordering at proposal. The EPA's application of the building block order in the final Rule preserves consistency with the proposed Rule by ensuring that the final Rule fully reflects the

[217] Response to Comment Document. Section 4.4.4.

finalized building blocks just as the proposed rule fully reflected the proposed building blocks. In contrast, incorporating the Petitioners' suggestion would break the consistency between proposal and final as it would result in a proposed Rule that fully expressed building block two and final Rule that only partially expressed it.

The subcategory rate computation, and the sequence in which the steps or building blocks are applied, is not a mitigation technology and therefore not related to reduction levels. The state goal computation is merely a quantification of the best system of emission reductions and its related building blocks. Depending on how those building blocks are defined, the order of operations may be relevant (e.g., final Rule) or may not be relevant (e.g., proposal) to fully reflect the best system of emission reductions. Both the proposal and final Rule fully reflected the defined building blocks. Because of changes to building block three, the order of operations was not relevant at proposal, but was relevant in the final Rule. This is illustrated below:

Why building block order of operations was not relevant to proposed building blocks
At proposal, building block 3 was simply added to the state goal denominator and did not replace any coal or gas generation. Therefore, the order of operations did not impact the state goal.

Example (Proposal)

State A has:

1) **A baseline of 10 MWh of coal (emitting at 2000 lb/MWh), 10 MWh of NGCC at 1000 lb/MWh)**
2) **Under building 2, state's NGCC gen could go to 12 MWh to reach 75% (replacing coal).**
3) **Under building block 3, it could add 2 MWh of RE (not replacing any historical generation)**

Notice, the order is irrelevant under both ordering scenarios as each results in a final goal of 1,272 lb/MWh.

Baseline – $\frac{(10\ MWh_{coal} \times 2000\ lb/MWh) + (10\ MWh_{gas} \times 1000\ lbs/MWh)}{(10\ MWh_{coal} + 10\ MWh_{gas})} = 1500\ lbs/MWh$

BB2 first

Step 1-

BB2 first - $\frac{(8\ MWh_{coal} \times 2000\ lb/MWh) + (12\ MWh_{gas} \times 1000\ lbs/MWh)}{(8\ MWh_{coal} + 12\ MWh_{gas})} = 1400\ lbs/MWh$

Step 2 –

BB3 second– $\frac{(8\ MWh_{coal} \times 2000\ lb/MWh) + (12\ MWh_{gas} \times 1000\ lbs/MWh)}{(8\ MWh_{coal} + 12\ MWh_{gas} + 2\ MWh_{renewable})} = 1{,}272\ lbs/MWh$

BB3 First

Step 1-

BB3 first - $\frac{(10\ MWh_{coal} \times 2000\ lb/MWh) + (10\ MWh_{gas} \times 1000\ lbs/MWh)}{(10\ MWh_{coal} + 10\ MWh_{gas} + 2\ MWh_{renewable})} = 1{,}363\ lbs/MWh$

Step 2 –

BB2 second- – $\frac{(8\ MWh_{coal} \times 2000\ lb/MWh) + (12\ MWh_{gas} \times 1000\ lbs/MWh)}{(8\ MWh_{coal} + 12\ MWh_{gas}\ 2\ MWh_{renewable})} = 1{,}272\ lbs/MWh$

At final, BB3 was not simply added to the denominator as done at proposal, but replaced baseline coal and gas generation on a 1:1 basis. This change meant order of operations was relevant in order to continue recognize full BB2 potential in the final BSER expression.

Example (Final)

State A has:

1) **A baseline of 10 MWh of coal (emitting at 2000 lb/MWh), 10 MWh of NGCC at 1000 lb/MWh)**
2) **Under building 2 its gas could go to 12 MWh at 75% (replacing coal).**
3) **Under building block 3, it could add 2 MWh of RE (replacing coal and gas generation)**

Notice, the order is relevant as each ordering scenario results in a different amount of NGCC generation. When BB2 is applied first, the final value (1,250 lbs/MWh) does not reflect NGCC generation at its full BB2 potential of 75% (12 MWh).

Baseline – $\frac{(10\ MWh_{coal} \times (2000\ lb/MWh) + (10\ MWh_{gas} \times 1000\ lbs/MWh))}{(10\ MWh_{coal} + 10\ MWh_{gas})}$ = 1500 lbs/MWh

BB2 first

Step 1-

BB2 first - $\frac{(8\ MWh_{coal} \times 2000\ lb/MWh) + (12\ MWh_{gas} \times 1000\ lbs/MWh)}{(8\ MWh_{coal} + 12\ MWh_{gas})}$ = 1400 lbs/MWh

Step 2 –

BB3 second– $\frac{(7\ MWh_{coal} \times 2000\ lb/MWh) + (11\ MWh_{gas} \times 1000\ lbs/MWh)}{(7\ MWh_{coal} + 11\ MWh_{gas} + 2\ MWh_{renewable})}$ = 1,250 lbs/MWh

Note- NGCC not at its full BB2 level if we use this order

BB3 First

Step 1-

BB3 first - $\frac{(9\ MWh_{coal} \times 2000\ lb/MWh) + (9\ MWh_{gas} \times 1000\ lbs/MWh)}{(9\ MWh_{coal} + 9\ MWh_{gas} + 2\ MWh_{renewable})}$ = 1,363 lbs/MWh

Step 2 –

BB2 second – $\frac{(6\ MWh_{coal} \times 2000\ lb/MWh) + (12\ MWh_{gas} \times 1000\ lbs/MWh)}{(6\ MWh_{coal} + 12\ MWh_{gas}\ 2\ MWh_{renewable})}$ = 1,200 lbs/MWh

XXIV. Rate-to-mass Conversion of State Goals

A. Summary of Petitions

The EPA received several petitions for reconsideration objecting to the adjustment in the final Rule to the proposal's approach to calculating mass-based goals on the basis of the rate-based goals (which may generally be referred to as the rate-to-mass conversion methodology). The EPA is denying these petitions as Petitioners had adequate notice of the final rate-to-mass conversion methodology, and their objections are not of central relevance.

In the CPP proposal, the EPA proposed to allow each state flexibility with regard to the form of the state goal. A state could adopt the rate-based form of the goal established by the EPA, or an equivalent mass-based form of the goal. 79 FR 34837. This reflected pre-proposal

stakeholder input encouraging the EPA to allow states to choose either a mass- or rate-based approach, which also included suggestions for how the EPA could ensure equivalency in performance between rate and mass-based plans. *Id.* 34847-34848. While the EPA indicated that states may be able to make the conversion of a rate goal into a mass goal, the agency also stated, "The EPA is also proposing that in their plans, … *states may not adjust the stringency of the goals set by the EPA*." *Id.* at 34851 (emphasis added); *see also Id.* 34891 (a state plan must "achieve[] the state goal").

The EPA proposed that, while it would provide the state rate goals in the emission guidelines, states would need to provide the EPA with the equivalent mass-based goal in their state plans, based on the application of the state-goal rate to a projection of electricity generation and emissions. 79 FR 34897, 34922; Projecting EGU CO_2 Emission Performance in State Plans Technical Support Document (TSD) (June 2014), at 3. In proposing this approach, the EPA explained that it was seeking a balance between flexibility for states and ensuring that the emission performance required by the Clean Air Act under section 111(d) would be achieved, so that state plans have "technical integrity." 79 FR 34922. Thus, under the Proposal, each state plan was required to include a projection of CO_2 emission performance from affected EGUs during the multi-year plan period. *Id.* Because emissions performance depended on the credibility of such projections, "the use of appropriate methods, tools and assumptions is critical." *Id.* The proposed regulatory provision on the procedure for converting rate- to mass-based goals required the states to provide significant supporting information, including "a description of the analytic process, tools, methods, and assumptions used to convert from the rate-based goal …." *Id.* at 34953. The EPA requested comment on "whether, to assist states that seek to translate the rate-based goal into a mass-based goal, the EPA should provide a presumptive translation of rate-based goals to mass-based goals for all states, for those who request it, and/or for multi-state regions." 79 FR 34912. The EPA also suggested it could provide additional guidance to assist states. *Id.*

In the "Projecting EGU CO_2 Emission Performance in State Plans" TSD (hereinafter "Performance Projection TSD"), which accompanied the CPP Proposal, the EPA discussed various types of models and analytical tools that could be used to project generation and emissions for purposes of deriving a mass-based goal. Performance Projection TSD, at 6-12. Next, the EPA explained a process by which mass goals could be calculated. Under the approach the EPA presented in this TSD, the process would require the construction of three scenarios: a reference case scenario, a mass-based CO_2 emission goal policy scenario, and a state plan policy scenario. *Id.* at 15-16. If the projected emissions under the state plan policy scenario were less than the mass-based goal policy scenario, then a state plan could be approved as meeting the stringency required by the CPP on a mass basis. However, as the EPA recognized, the construction of both the reference case and the state plan policy scenarios would involve fairly complicated analysis of the effects of existing policies and trends, overlain with the impacts of the policies, measures, and other programs a state might include in its state plan. Thus, the remainder of the document contained an extended technical discussion of the issues, factors, available tools, and data that a state would need to analyze and consider in order to construct these two scenarios. *Id.* 17-42. Finally, the EPA discussed several process-related considerations that arise due to the critical importance of sound projections to the emissions integrity of the program, particularly in the case of mass-based goals. The EPA discussed the possibility of issuing guidance that could include default or recommended assumptions or tools and provide assistance with regionalized scenarios, *Id.* 43-44. Finally, in a section titled "Party

that Translates the Rate-Based Goal to a Mass-Based Goal," the EPA reiterated the possibility, also stated in the Proposal preamble, that it could handle the rate-to-mass conversion analysis itself and provide presumptive mass-goals that states could adopt in order to have streamlined plan approval. *Id.* at 45. The EPA continued to recognize that states could present alternative mass-based goals based on different modeling assumptions, *so long as justified*, but the EPA would need to conduct more thorough review before approving the state's approach. *Id.* 45-46.

The EPA received feedback early in the comment period on the CPP Proposal requesting additional information on how the rate-based goals could potentially be translated to a mass-based equivalent metric. Many observed the complexity of the approach presented in the TSD, and some states specifically requested that the EPA calculate and provide presumptive mass-based equivalent metrics. Thus, the EPA published a notice of "additional information regarding the translation of emission rate-based CO_2 goals to mass-based equivalents" offering a new methodology on November 13, 2014, 79 FR 67406 and 67407 (reciting stakeholder engagement and requests for additional information). This was still during the period for public comments, which ended on December 1, 2014. The EPA provided an accompanying TSD that provided a specific example of how a final mass-based goal could be derived, either for existing sources only, or for existing plus new sources, through the application of the building blocks to historical generation in the 2012 baseline year. Translation of the Clean Power Plan Emission Rate-Based CO_2 Goals to Mass-Based Equivalents (Nov. 2014) (hereinafter "Rate-to-Mass TSD"). The EPA also provided an appendix listing final mass equivalent generation levels for all states based on the BSER as proposed, *Id.* Appendix, Table 1, and made available data files on the EPA's website to calculate interim goals (in the 2020-2029 period), among other data. *Id.* at 7. The EPA said that "the mass-based equivalent metrics presented in the TSD are not required mass-based emission limits that implementing authorities must meet; rather, they are illustrations of two potential options that implementing authorities may choose to adopt if they choose to use a mass-based form of the emission rate-based goals." 79 FR 67408.

The EPA received a range of comments on the CPP Proposal and the June 2014 and November 2014 TSDs. A dominant theme in these comments was the need for greater certainty and clarity on what would be an approvable mass-based goal, with many commenters finding the EPA's initial projection-based methodology too complex to be useful or provide certainty to states. *See, e.g.*, CPP RTC 4.6, at 39 ("[I]f EPA does not clearly outline a methodology for states to translate a rate-based goal to a mass-based goal, there will be litigation over the conversion on a state-by-state basis."); *Id.* ("[S]tates should not be left guessing as to what constitutes an acceptable rate to mass conversion only to find their assumptions later questioned during EPA review of a submitted State Plan."); *Id.* at 42 ("[A]ssuming that EPA would approve a conversion based on the illustrative calculations put forth in the TSD, it is unclear what happens if a state wants to develop a mass-based plan but does not want to do so based on the use of the approaches described in the Agency's November TSD, because they result in cap levels that are believed to be too stringent."); *Id.*

Another theme in these comments was that, if the states were able to calculate their own mass goals, they would likely attempt to develop translation methodologies that would be as beneficial as possible to their sources, which would potentially result in emission standards weaker than the stringency of the BSER, and therefore would not be equivalent to a rate-based implementation approach. CPP RTC 4.6, at 42-43 (summarizing various comments that states may not want to use the EPA's method "because they result in cap levels that are believed to be too stringent"). Commenters even put forward a legal argument that the EPA could not prevent states from weakening the stringency of the CPP through their mass-based translation. CPP

RTC 4.6, at 54 ("The commenters stated regarding EPA's authorities under Section 111(d), the methodologies proposed here can only serve as guidelines for States and cannot be binding on States."). Other commenters, aware of the possibility that states would weaken the Rule through their translation methodologies, urged the EPA to exercise oversight of the states in order to ensure "meaningful equivalency of stringency between rate-based and mass-based approaches," and requested that the EPA provide mass-translations by rule rather than guidance. *Id.* at 46-47.

Commenters also indicated how states could use assumptions in the translation methodology to weaken the mass goal compared to the rate. For instance, in the CPP proposal, the EPA had initially proposed in the BSER goal-setting methodology not to displace fossil-generation with the generation and savings that would result from building blocks 3 and 4. *See* Goal Computation Technical Support Document (June 2014), at 14-18. In a rate-based approach, this no-replacement-of-fossil assumption would still capture the emission reductions of these building blocks through the addition of clean generation to the denominator in the goal setting equation. But if this assumption was applied in calculating a mass-based goal derived from baseline fossil-unit output, the result would be that none of the reductions from building blocks three or four would be captured in the mass goal. Nonetheless, many commenters on the mass translation stated that it *should* be an acceptable methodology for calculating a mass-based goal to "simply multiply fossil generation by the final goal emission rate to establish emission gaps." CPP RTC 4.6, at 37-38; *Id.* at 43 (calling for use of business-as-usual assumptions in affected EGU output for purposes of mass calculation); *Id.* at 54 (denying that deployment of the BSER measures will reduce generation from affected fossil fuel-fired sources); *see also Id.* at 57, 58, 60, and 64 (objecting to incorporating the displacing effect of building blocks three and four).

Similarly, commenters asserted that the EPA should allow states to make their own assumptions about demand growth in translating a mass-based goal under the initially proposed approach—an option that could yield highly divergent results regarding future emissions depending on the assumptions one chooses to use. *See, e.g.*, CPP RTC 4.6, at 58-59, 79 ("EPA should defer to states' reasonable projections of future demand in calculating mass-based goals."). Other commenters warned that certain regularly used sources of data on demand growth may themselves be unreliable, asserting, for instance, that the EIA's National Energy Modeling System (NEMS) "for over a decade … significantly overestimated national electricity sales." *Id.* at 127.

Commenters also provided feedback on the November NODA and Rate-to-Mass TSD. Commenters objected to the methodology that would account for a displacing effect from building blocks three and four, asserting this was increasing the stringency of the mass-goal compared to the rate, and pointing out the inconsistency with the proposed goal setting approach in which building blocks three and four were not assumed to have displacing effect. *See, e.g.*, CPP RTC 4.6, at 58, 79-82. Finally, several commenters believed that the only way to ensure that stringency and equivalency could be maintained in a mass-based program would be for the EPA itself to set the mass budgets by rule. *See Id.* 82-84 ("The commenters stated using EPA-prescribed mass-based goals would ensure that a uniform approach is applied to each state; provide a more stable foundation for state compliance plans; and allow for a straightforward comparison between mass-based goals and rate-based goals. The commenters said this will enable each state to make a more informed decision as to which compliance option works best for them, provide better insight into EPA's assumptions for future generation and energy mix, and make the final Clean Power Plan more transparent and less burdensome to the states.").

In the final Rule, the EPA stated that it agreed with this last set of commenters, *Id.* at 82. In the final Rule, the EPA provided nationally uniform emission performance rates for the two subcategories (steam and combustion turbine).[218] Then, the EPA provided a state-specific rate-based goal and a state-specific mass-based goal, based on the application of those uniform emission performance rates to each state's unique generating fleet in the historical baseline year. 80 FR 64820. The EPA explained that it was "providing state mass-based goals in this final rule in place of having states determine the mass themselves. The mass-based goals are the result of a mathematical derivation that provides goals that are an equivalent expression of the BSER." *Id.* The EPA concluded, as it had stated at the proposal, "such a goal must be equivalent to the CO_2 emission performance rates, … as required by the statute and the final emission guidelines." *Id.* 64822.

To calculate the mass-based goal, in the final Rule, the EPA applied a methodology very similar to the approaches it provided for comment in the November 2014 NODA and Rate-to-Mass TSD, with two adjustments. Thus, the EPA first simply multiplied each state's rate-based goal by the total amount of output from the affected EGUs in the 2012 baseline year. 80 FR 64822. Second, the EPA made an adjustment in the mass goal to reflect the opportunity for increased utilization that affected EGUs would have under a rate-based program—thus responding to commenters' requests that in order to be equivalent with rate, the mass goal should accommodate future demand growth. In order to ensure equivalency with the rates was maintained, the EPA calculated the amount of this increase in the mass-goal from the remaining building block three deployment potential left over from the use of the least-stringent region in the building block methodology (i.e., the potential for deployment of RE in the Western and Texas interconnections above the amount of deployment possible in the Eastern interconnection). This amount was distributed in a pro-rated fashion to all states, rather than just those in the more stringent regions. *Id.* See also CO_2 Emission Performance Rate and Goal Computation Technical Support Document for CPP Final Rule (August 2015), at 20-25 (hereinafter "Goal Computation TSD"). While EPA provided this upward adjustment in the mass budget for the purpose of maintaining equivalence with a rate-based approach, this adjustment also has the effect of accommodating demand-growth that could be met by additional output from the affected EGUs.

B. Petitions and Response

Petitioners UARG, the Southern Company, a group of Wisconsin Utilities, Ameren, Basin Electric Power Cooperative, and the States of Kansas, North Dakota, and New Jersey petition the EPA to reconsider its final methodology for translating the state rate goals into mass-based goals.

First, Petitioners assert that there was a lack of notice that the final Rule would mandate a nationally uniform methodology for the translation to mass, when the CPP proposal and the November NODA allowed states to select their methodology. *See* UARG 9; Southern Co. 26; Ameren 16; Wisc. Utilities 2-4. In fact, EPA gave adequate notice in the proposal and the NODA that it was considering providing a presumptive mass budget using a single methodology for all states, and the decision to provide a mandatory methodology was a logical outgrowth of both the presumptive approach the EPA explicitly identified and the comments the EPA received. Indicating that it was unlikely that the EPA would simply allow states to use their own methodologies without oversight, in the Proposal, the EPA explicitly stated that the

[218] Discussion of the uniform subcategorized rates is provided elsewhere.

question of how to handle a mass-translation involved balancing the desire to give states flexibility while at the same time ensuring the integrity of the CPP. 79 FR 34922. In the accompanying documents, the EPA again raised the topic of whether it should set mass-budgets using a single methodology. Performance Projection TSD, at 45-46.

Responding to these concerns, some commenters requested that the EPA should adopt a uniform methodology and set the goals itself through rulemaking to give states certainty. *See* CPP RTC 4.6, at 82-84. Other commenters demonstrated they had adequate notice that the EPA was considering taking a uniform approach by specifically commenting that the EPA should allow states to set their own mass budgets. *See generally supra* and CPP RTC 4.6, at 42-64. Further, these comments actually reinforced the concern about integrity the EPA identified at proposal, by indicating that if states were allowed the discretion to handle the conversion themselves, they could take disparate approaches in methodology leading to inconsistent levels of stringency, and upset the "technical integrity" of the program. It was well-noticed in the proposal that this would be unacceptable, since the mass-based approach must be of the same stringency as the rate-based goals. *Compare* 79 FR 34851 (proposed rule) *and* 80 FR 64822 (final Rule). *See also* 40 CFR 60.22(b)(5) (emission standards are to be of "equivalent stringency" to the BSER).

Petitioners' allegations that there was no notice that the EPA might take a uniform approach to the translation ring hollow given that several actually commented on this issue. The Southern Company concedes in its Petition that it submitted comments specifically on this issue, *see* Southern 26 ("In its comments on the proposed Rule, Southern Company supported the authority of states to convert their rate-based goals to mass-based goals and provided the reasons why that authority rests more appropriately with the states than with EPA. Southern Company specifically argued against a uniform methodology for developing mass-based standards."). In its comments, UARG clearly understood that the EPA was considering whether and to what degree states should have latitude in setting a mass budget. *See* UARG Comments, at 139-140 ("EPA should recognize state discretion to adopt different approaches to goal conversion …."). Further, Ameren, at 16, concedes that commenters endorsed an approach similar to the final methodology (though Ameren is incorrect to suggest that the methodology the EPA finalized only appeared in the comments). The EPA provided an initial methodology in the Performance Projection TSD at the time of the June 2014 Proposal, and then, in response to early comment from stakeholders that this methodology was too complex, provided a more straightforward, mechanical methodology in the November NODA and TSD, while there was still two weeks left in the comment period. Commenters had the opportunity and in fact did comment on the NODA and the Rate-to-Mass TSD. *See, e.g.*, CPP RTC 4.6, at 58, 79-82.

Southern Company separately suggests the translation methodology lacks notice because it is based off of the national performance rates, which it claims were not given notice, and therefore, the rate-to-mass methodology was not given notice. Southern 25-26. For the reasons explained elsewhere, the uniform emission performance rates were adequately noticed and were a logical outgrowth of the CPP proposal. Thus, it cannot be the case that the state goals were not a logical outgrowth based solely on their derivation from the uniform performance rates. Further, it is the translation methodology itself that is relevant here, and that methodology closely follows the approach the EPA published for comment in the November 2014 TSD.

Petitioner UARG argues that specifically having the EPA set the goal rather than the states limits states' flexibility, and the role of the EPA specifically in this regard was not noticed. UARG 10. In fact, the decision in the final Rule for the EPA to set the mass-based goal

was a logical outgrowth of a number of statements, concepts, and requests for comment the EPA laid out in the proposal, the November NODA, and the Performance Projection and Rate-to-Mass TSDs. First, in the CPP Proposal, the EPA made clear that the translation to a mass-based goal could not be allowed to affect the stringency of the CPP as determined by the BSER. 79 FR 34851. The EPA also explained that it needed to balance flexibility for states with the need for technical integrity. 79 FR 34922. In the Performance Projection TSD, the EPA explicitly raised the possibility that the EPA, rather than the states, could provide the mass-based equivalents, under a section heading titled "Party that Translates the Rate-Based Goal to a Mass-Based Goal." Performance Projection TSD, Table of Contents, and at 45-46. The EPA explained the reasons why it might be appropriate for it to handle the translation, including providing certainty to states, consistency, fairness, integrity of the program, ensuring stringency and equivalency, and the EPA's capacity to handle a potentially complex technical exercise. *Id.* While the EPA in the November NODA continued to take the view that states could handle the translation themselves, the agency there provided a very specific methodology for how the translation could be done, and provided data and calculations *for every state*. Rate-to-Mass TSD, at 2. Providing further evidence that the EPA's determination to set the mass goals itself is a logical outgrowth of the proposal materials, commenters in fact commented on this precise issue. Many commenters urged the EPA to provide presumptive mass goals or otherwise provide states as much technical and legal certainty as possible regarding approvable mass goals. CPP RTC 4.6, at 39-42. Other commenters told the agency to allow states to have the flexibility to set their own goals. *See* CPP RTC 4.6, at 51, 54. Other commenters requested that the EPA set the goals itself, out of concern to ensure stringency and equivalence with the rates would be maintained. *Id.* at 82-84.

UARG next asserts in its Petition that the final methodology incorporates an increase in the budget based on total building block three potential, and this was not included in the proposed methodology; therefore, this change in the methodology lacks notice. UARG 9. However, the use of building block three to increase the budget is a logical outgrowth of the proposal because the proposal explicitly stated the mass goal must be equivalent to the rate goal, and the proposed methodologies raised questions about how to handle the effect of increased renewable generation in this regard. Assuming, as the EPA did at proposal, that new renewable generation would not have a displacing effect on affected EGUs' generation was observed by some commenters to be unrealistic and would weaken the stringency of the BSER. At the same time, failing to account for the potential for increased utilization of affected EGUs under a rate-based approach could lead to a mass budget that was *more* stringent than a rate-based approach. In the final Rule, the EPA determined that it was appropriate to demonstrate a displacing effect from building block three in the goal computations. At the same time, the EPA answered the requests from industry and state petitioners, by including an increase in the budgets based on building block three. This allows the mass limit for each state to be comparable to the uniform emission rate and accommodate increased utilization of affected EGUs. This change actually benefits the interests of UARG and its industry members. *See* CPP RTC 4.6, at 58-59, 79-80. It was specifically designed to accommodate increases in demand for power from affected EGUs.. Perhaps recognizing the beneficial effect of this aspect of the methodology, UARG's petition fails to raise any specific objection to the approach the EPA took.

Petitioners asserted there was inadequate time to comment on the November 13, 2014, NODA, because comments were due on December 1, 2014. They assert that the methodology was a "fundamental aspect" of the translation of emission rate-based goals to mass-based

equivalents, leaving "insufficient time to study, evaluate, and comment on the Proposed Rule." Kansas at 5; *see also* Wisconsin Utilities 4. Similarly, Ameren asserted that a two-week review period was wholly insufficient to review and comment on the proposed mass-based goals [and] translation." The EPA, according to them, should have re-proposed rather than putting out so much additional data late in the comment period. Ameren 20.

In fact, the NODA was signed on October 27, 2014 and posted on EPA's website and widely reported in the trade press – a month before the comments on it were due. Furthermore, he NODA and accompanying Rate-to-Mass TSD only raised a small number of issues on relatively discrete topics. Commenters had the opportunity and, in fact, did comment on the NODA and the Rate-to-Mass TSD. *See, e.g.*, CPP RTC 4.6, at 58, 79-82. Indeed, commenters clearly grasped that the EPA's new methodology was far simpler than the originally proposed approach, and would account for the displacing effect from building block three. *Id.* Commenters also alerted the agency that relying on the historical data from 2012, as it suggested doing in the Rate-to-Mass TSD, might fail to account for demand growth, *Id.* at 80. Ameren appears to concede that there was adequate notice in its Petition by stating that its comments correctly anticipated the changes in methodology the EPA would make in the final Rule, in light of the new information contained in the NODA. Ameren 19. (The EPA does not concede, however, that the adjustments in any way led to what Ameren calls "a fundamentally changed rule."). Commenters, thus, demonstrated that they were capable of reviewing the new information, understanding its potential implications, and commenting on those to the agency.

In addition to failing to establish a lack of notice on these issues or their ability to comment on them, the Petitioners have failed to present any specific objection to the translation methodology that is of central relevance. UARG argues that "EPA's decision to define acceptable mass-based emission limits for states interferes with the flexibility that section 111(d) requires and that EPA claims is a hallmark of the Rule, while EPA's choice of methodology to calculate these limits affects the ultimate stringency of the Rule." UARG 10. This statement actually demonstrates why Petitioners' objections are *not* of central relevance. UARG is effectively arguing that states should be able to handle the translation themselves *so that they can alter the stringency of the Rule*. But as the EPA made clear in both the proposal and the final Rule, a mass-based approach to implementation *must* be of equivalent stringency to the rate-based approach, and the translation methodology is *not* an opportunity to weaken the stringency of the CPP. UARG is claiming that states should be able to do the exact very serious problem that the EPA knew it must avoid, both at the proposal and the final stage. *See* 79 FR 34922 and 80 FR 64822. UARG's Petition, therefore, far from being of "central relevance," actually demonstrates that the agency was correct in making the decision not to allow states the ability to calculate their own mass-based goals.

Southern Company asserts the methodology is unreasonable because it fails to account for changes in electricity demand. This, according to the Petitioner, is unlike the method any individual state would be expected to use. Southern 25-26. As discussed above, however, with the inclusion of the increase in the budget to reflect the potential deployment of all building block three resources, the final mass budgets *do* provide for an increase in demand. Further, the EPA chose a methodology in the final Rule that was a "mathematical derivation" of the rates, relying on objective, verified, historical data. This approach, in the EPA's view, is the most appropriate in order to ensure consistency across all states in the translation methodology. While Southern may be correct that states wouldn't use the EPA's approach, and would attempt to use a wide variety of methodologies and assumptions of greater or lesser integrity in arriving

at their mass-based goals, *see, e.g.*, CPP RTC 4.6, at 37, 38, 42, 51, 54, 57, 58, 59, 60, 64, and 79-82, this is precisely the scenario the EPA determined to avoid by handling the calculation itself.

Ameren states that the mass goal the EPA set may actually be less stringent ("more liberal") than the rate-based approach—Ameren interprets this "perceived liberality" as an attempt by the EPA to encourage states to adopt mass-based approaches, which would be inappropriate in its view. Ameren 16. But Ameren also asserts that the proposed use of set-asides of allowances in the proposed federal plan actually make the mass-based approach more stringent than it appears. *Id.* First, the EPA calculated the mass goals for every state using the same methodology, as a "mathematical derivation" utilizing objective, historical data, and with the intent of providing an equivalent expression of the rate-based state goals on a mass-basis, while also accommodating the potential for increased utilization of affected EGUs. Whether a state perceives the mass or rate-based approach as more appropriate depends on a variety of circumstances and considerations that each state must consider for itself. Because the EPA set the mass-goals in a way that was equivalent to the rate-based approach and through a "mathematical derivation" rather than projections, the premise of this particular objection is incorrect and lacks central relevance. Further, there are no required set-asides of allowances in the CPP, and so Ameren's ancillary objection is also not of central relevance. (The federal plan is merely proposed, and in any case would only be promulgated if a state did not develop its own plan.) If Ameren is referring more generally to the CPP requirement to address "leakage" in a mass-based trading program (40 CFR 60.5790(b)(5)), which is a function of the need for equivalence between mass- and rate-based goals, this is addressed in section XVIII.

The Wisconsin Utilities claim that the proposal methodology, but not the final, would have allowed mass-goal adjustment for a post-2012 nuclear retirement. If Wisconsin had been allowed to perform its own translation, Petitioner claims, it could have taken account of the 2013 retirement of the Kewaunee nuclear plant. Wisconsin Utilities 2-4. While this may or may not have been possible under the originally proposed methodology in the Performance Projection TSD, the EPA also adequately noticed the updated methodology in the November 2014 NODA and Rate-to-Mass TSD that would not have taken account of a post-baseline nuclear retirement like Kewaunee. Petitioner even concedes that the approach in the Rate-to-Mass TSD is "like the method adopted in the final rule, [] based on 2012 EGU generation." Wisc. Util. 3. Further, commenters such as the State of Wisconsin in fact had the opportunity and *did* comment to the EPA on ways in which the EPA could adjust the state's mass-based goal to account for this post-2012 nuclear retirement. CPP RTC 4.5, at 25-26. The EPA reasonably rejected those suggestions.[219] In fact, the State of Wisconsin's own comments offer no less than four distinct proposals for the assumed mix of replacement generation. Wisconsin Comments Pt. 3, at 1-4 (EPA-HQ-OAR-2013-0602-23541). This both demonstrates the speculative nature of the projection-based approach to mass goal setting that the EPA rejected and highlights the significant risks to loss of technical integrity that could result from allowing each state to develop its own methodology for calculating mass-goals.

The Wisconsin Utilities claim that Wisconsin's mass goal would be 9.5% larger if the Kewaunee retirement had been taken into account. In fact, that number has no integrity because, if a projection approach to mass-budget setting had been used, the EPA would not have provided the building block three increase, as calculated in the State Goals Appendix. The

[219] Other objections raised by Wisconsin Utilities and the State of Wisconsin regarding the Kewaunee retirement are addressed in Sections XVIII and XXI.

building block three-based increase in the states' budgets is already designed in part to accommodate increased demand for fossil fuel-fired generation, and this includes increased demand that could result due to the retirement of a non-emitting generation unit like a nuclear plant. The additional megawatt-hours of building block three generation assumed for Wisconsin increase from 1,483,140 MWh in 2022 to 2,596,243 MWh in 2030 and each subsequent year, and this is factored into the state's budget. *See* Goal Computation TSD for Final Rule, Appendix 5 ("State Goals"), row 53, columns X – AF. Thus, Petitioners fail to provide credible information or data that the mass-budget, including the building block three increase, does not already address their concern.

Finally, two Petitioners assert that, in setting the mass-based goals, the final Rule only provides for the then-existing usage of the total capacity of regulated units that were operating in 2012. This, they claim, could forever limit the ability of those existing units to expand the usage of their capacity no matter how clean they are. Conversely and illogically, they claim, an identical new NGCC has no limit on its capacity or on the usage of that capacity. New Jersey 5; North Dakota 5. These Petitioners are incorrect for several reasons. First, the mass-based goals do include an accommodation for increased demand through the expansion of the budget to reflect equivalence with total building block three potential (see above). Second, the EPA did not project that all existing units would be unable to expand utilization. In fact, building block two is premised on affected NGCC units expanding utilization. Regarding affected *steam* units, the EPA also anticipates that certain units will increase utilization under the Rule. In summarizing its analysis of the potential for so-called "stranded assets," the EPA concluded, "in both 2025 and 2030, for each region, the amount of 2012 coal generation remaining … after the BSER calculation[] is *greater* than the amount of 2012 generation from coal-fired EGUs that are not fully depreciated in those years …." 80 FR 64872 (emphasis added). (This is because newer, more-efficient steam-coal facilities actually can be anticipated to increase generation under reasonable implementation scenarios.) Third, it is unclear how Petitioners can claim that existing units could not expand the usage of their capacity "no matter how clean they are," since, obviously, if an affected EGU has reduced its carbon emissions at the stack (e.g., through HRI, CCS, or fuel switching), then compliance will be easier. Assuming—to take Petitioners' statement at face value—that an affected EGU has *no* carbon dioxide emissions, it may generate all the power it can without any limitation under this Rule. Fourth, the comparison to new NGCC is inapt. First, if the comparison is with existing NGCC, then the Rule actually encourages greater utilization of existing NGCC. Second, the comparison between the standards for new sources under section 111(b) and the emission guidelines framework of this Rule is apples-to-oranges, for the reasons discussed in Section XXXVII.

XXV. Clean Energy Incentive Program

A. Introduction

The EPA is denying the petitions for reconsideration related to the Clean Energy Incentive Program (CEIP). The EPA received Petitions related to the CEIP from the following parties: American Electric Power (AEP); Ameren; Basin Electric Power Cooperative; Entergy; the State of Kansas; the State of Kentucky; Mississippi Department of Environmental Quality (DEQ); the National Association of Home Builders (NAHB); the State of New Jersey; the State of North Dakota; the Southern Company; the State of Texas; the Utility Air Regulatory Group (UARG); and the State of West Virginia.

The CEIP was established in the Emission Guidelines, as an optional incentive program

in which both the states, should they elect to participate, and the EPA play a role. The program operates by means of states allocating or issuing early action compliance instruments—called early action allowances or early action emission rate credits (ERCs)—which are then matched by the EPA with additional compliance instruments—called matching allowances or matching ERCs. States in turn provide these awarded matching compliance instruments to the providers of eligible CEIP RE and low-income community projects that received the early action allowances or early action ERCs from the state. The EPA established a matching pool of 300 million short tons to be distributed among states choosing to participate in the program. While states would be required to maintain the stringency of their state plan for early action allowances/ERCs, states are not required to make up the loss in stringency resulting from the EPA matching allowances/ERCs. In the final CPP, the EPA indicated its intent to reserve a portion of the matching pool for qualifying wind and solar projects that commence construction after the date of state plan submittal (or September 6, 2018 in the case of a federal plan), and to reserve the other portion of the matching pool to energy efficiency (EE) projects implemented in low-income communities that commence operation after the date of state plan submittal (or September 6, 2018 in the case of a federal plan). The electricity generation or savings that can be credited from CEIP-eligible projects must occur during the period from January 1, 2020 to December 31, 2021. *See* CPP final Rule, 80 FR 64829-64832, 64943; 40 CFR 60.5737.

The EPA acknowledged in the final Rule that there were a number of unresolved design and implementation details for the CEIP that it would address in a subsequent action. 80 FR 64670. In preparation for a series of stakeholder outreach calls, the EPA released the "Clean Energy Incentive Next Steps" paper on October 21, 2015.[220] In that document, the EPA identified the following issues as open for stakeholder feedback: criteria for eligible projects; definitions of "commence construction" and "commence operations"; definition of "low-income community"; the date from which a project may be deemed eligible to qualify for the CEIP; evaluation, measurement, and verification (EM&V) requirements for eligible projects; procedural mechanisms; the size of the RE and low-income EE reserves within the 300 million ton matching pool; timing of allocations; redistribution methods for unused matching allowances/ERCs; method of distribution of the 300 million matching pool among states; how to convert the 300 million short tons into an emissions-equivalent matching pool of ERCs based on megawatt hours (MWh). In addition, in the proposed federal plan and model trading rules for the CPP, the EPA requested comment on these topics, and also proposed provisions to implement the CEIP under the federal plan and model trading rules. *See* 80 FR 65025–65026 (Oct. 23, 2015). In June of 2016, the EPA released the CEIP Design Details notice of proposed rulemaking, which included among other things several proposals and requests for comment on adjustments to the CEIP as established in the CPP final rule, and re-proposed optional regulatory text for states to use in conjunction with the proposed model trading rules. CEIP Design Details Proposal, 81 FR 42940 (June 30, 2016). The public comment period on the CEIP Design Details proposal ended on November 1, 2016, and the EPA is now considering those comments.

None of the issues that are open or reopened through these later rulemakings are properly the subject of reconsideration petitions on the final CPP. As relevant here, several of the changes to the CEIP proposed in EPA's June 30, 2016 proposal, constitute limited grants of the petitions for reconsideration on these topics, to the extent they were reopened by that proposal or requests for comment in that proposal. Specifically, the proposed expansion of

[220] https://www.epa.gov/sites/production/files/2015-10/documents/ceip_next_steps_10_21_15.pdf

creditable RE technologies to include geothermal and hydropower and the request for comment on other technologies that fit the CEIP criteria constitutes a reopening and limited grant of reconsideration with respect to the issue of creditable technology within the RE reserve. *See* 81 FR 42964-42965. The proposed expansion of eligible technology in the low-income reserve to include solar technology within the low-income CEIP reserve, constitutes a limited grant of reconsideration with respect to creditable technology in the low-income reserve. 81 FR 42965-42966. In addition, the EPA proposed to change eligibility timing to a "commence commercial operations" standard (from "commence construction") for renewable energy technologies and commensurately to adjust to a January 1, 2020 eligibility start date. *See* 81 FR 42963. The EPA also proposed to retain only September 6, 2018 as the start-date for low-income EE project eligibility while removing the potentially earlier trigger of the date of state plan submittal. The EPA acknowledges that these modifications have effectively reopened several timing elements of the CEIP.[221]

In all other respects, the petitions for reconsideration with respect to the CEIP are denied. The EPA denies the Petitions to the extent they are based on an alleged complete lack of notice of the CEIP in either the CPP June 2014 proposal or the October 2014 NODA and request a complete re-proposal of the CEIP. The EPA denies the Petitions seeking a significant expansion of timing for project eligibility as well as an expansion of the window of time during which creditable generation or savings can occur. The EPA denies the Petitions to the extent they request the EPA to revise its criteria for determining which technologies should be eligible under the CEIP. The EPA denies the Petitions to the extent they seek an expansion of the 300 million short ton pool of matching allowances (or equivalent number of ERCs). The EPA denies the Petitions as related to several state-plan specific issues. Finally, the EPA denies the National Association of Home Builders (NAHB) Petition on issues related to the low-income EE reserve portion of the CEIP. The agency denies the Petitions with respect to a variety of other issues and concerns raised by the Petitioners.

The decision to deny the petitions to the extent they seek a significant expansion of early action eligibility and crediting than what was provided in the final Rule (or reopened by the CEIP proposal) is based on the fact that there was adequate notice of these topics in the CPP Proposal and NODA, and commenters, including Petitioners, had the opportunity to comment, and did comment, on these issues. In addition, since any broader expansion of early action crediting could not, in the Agency's view, be compatible with the rationale for the CEIP as a *limited* early crediting program, as explained in the CPP proposal, NODA, and final CPP preamble, these petitions are denied on the ground that their objections to such limitations are not of central relevance. Given the consideration given to early action crediting in the proposal, the NODA, public comments, and the final rule and supporting materials, further consideration by the agency will not lead to a change in the agency's position on these issues.

B. Specific Petition Denials

1. Requests for Complete Re-Proposal

Several petitioners asserted that the EPA provided no notice at all of the CEIP in the proposed Rule or NODA and that there was no opportunity to comment on an early action program. These Petitioners seek a complete re-proposal of the entire CEIP program. *See* Basin

[221] As discussed in further detail below, however, the EPA is denying the petitions for reconsideration related to CEIP timing issues to the extent the Petitioners request a significant expansion of the timing elements of CEIP project eligibility and creditable generation or savings.

Electric Power Cooperative 39; Entergy 4; Kentucky Pet. 5; Mississippi DEQ 3; NAHB 2; Southern Co. 39-40; West Virginia 2-3. The assertion of a complete lack of notice is factually incorrect. In the proposed Rule, the EPA explicitly discussed and requested comment on providing a program for crediting of early actions, i.e., programs or projects that result in creditable electricity generation or savings prior to the onset of the interim performance period. *See* 79 FR 34918-34919. As the agency noted at the time, the type of early action crediting on which it sought comment, and which eventually took the form of the CEIP in the final Rule, was distinct from the separate question of when crediting for existing projects and programs should occur under the base CPP program (i.e., what should be credited during the performance periods). *See Id.* at 34918. The second approach, the EPA explained - the one that took form as the CEIP in the final Rule – "would recognize emission reductions that existing state requirements, programs and measures achieved starting from a specified date *prior to the initial plan performance period…*" *Id.* at 34918-34919 (emphasis added). Thus, commenters were on notice that the EPA was considering allowing a certain amount of early reduction crediting – that is, crediting for qualifying projects and programs, such as RE and EE, that achieve reductions (i.e., generate or save electricity using zero- or low-emitting technologies) prior to the start of the CPP performance periods. The agency specifically discussed and requested comment on what the start date for project eligibility should be prior to 2020 (and suggested a range of options from 2005 – 2017), *id.* 34919. The agency also explained that an early crediting program could lead to the potential for higher emissions during the performance period, and thus there would be a need to offset those emissions by obtaining reductions through early action that would not have occurred without the 111(d) program, *Id.* The EPA asked for comment on the feasibility of states to be able to act in the time period before 2020 (the original start-date of the interim performance period, which was adjusted to 2022 in the final Rule). The EPA requested comment on whether any conditions should apply to pre-performance period emission reductions; and the EPA requested comment on whether early action crediting could be designed so as to be consistent with the forward-looking method of calculating the emission reductions achievable by the best system of emission reduction. *See Id.*

Next, in the Notice of Data Availability (NODA) issued by the agency on October 30, 2014, a month before the close of the comment period on the proposed Rule, the EPA again discussed the concept of an early action crediting program and requested comment on several more-specific details. *See* 79 FR 64545-64546. Specifically, the agency discussed: how early emission reductions could be recognized as a way to ease compliance with the 2020-2029 glide path; the concept of allowing states to choose early (i.e., pre-2020) implementation of state goals to get the same amount of overall reductions but to do so by making some emission reductions earlier; recognition that some emission reduction measures take longer than 2020 to implement, while others can be done more quickly; and the possibility for at least some states to take advantage of RE and EE projects already under development and scheduled to be implemented prior to 2020 or expediting projects. (Given their characteristics, the EPA identified RE and EE as the likely technology types to be incentivized through early-action crediting). The EPA explained that its objective was to ensure that emission reduction progress continues prior to 2020 and that the Rule would not inadvertently create disincentives for those pre-2020 actions. *Id.* at 64546.

Supporting the adequacy of notice regarding the creation of the CEIP as an early action program, many commenters on the Proposal and the NODA, including several of these Petitioners, submitted comments overwhelmingly supportive of the EPA creating a means of

crediting early actions to reduce emissions. *See* CPP Response to Comments (RTC) 6.1.2, at 69-97. The only commenters who objected to early action crediting were those who were concerned about environmental integrity, and who believed such a program would weaken the overall stringency of the program. *See, e.g.*, RTC 6.1.2, at 79 ("[A]llowing states to use pre-2020 emission reductions in the compliance period would conflict with the purpose of the rule, reducing the emissions intensity of electric power production, allowing states to trade early performance for later performance."). Most commenters, however, including several of these Petitioners, endorsed early action crediting for the purposes the EPA ultimately found persuasive in creating the CEIP in the final Rule. *See, e.g.*, National Association of Home Builders (NAHB) Comment at 19 ("EPA must ensure that in designing guidelines for states ... it does not create a disincentive for participation in demand side management programs, [or] undermine the effectiveness of existing programs...."); Southern Co. Comment at 197 ("EPA should provide states the flexibility to maximize credit for early actions."); Utility Air Regulatory Group Comments at 154-55 ("EPA should expand the scope of the existing programs provisions of its Proposed Guidelines to give the broadest favorable treatment possible to EE actions taken to reduce CO2 emissions regardless of whether those actions were taken prior to the proposal of the Proposed Guidelines.").

The contours of the CEIP as established in the final Rule track closely with the design parameters the EPA discussed and requested comment on in the Proposal and the NODA. Specifically, the CEIP as finalized in the CPP is designed to credit projects that can be implemented in a relatively short time frame – certain RE and EE projects were the obvious choices to incentivize for early action, as the EPA discussed in the NODA, since they can be implemented quickly. The final approach is consistent with its concern regarding emissions integrity in the proposal, 79 FR 34919, and its recognition in the NODA that RE and EE were very clean technologies that could be implemented quickly, 79 FR 64546. It also accommodated the new concern that delaying the first performance period to 2022 (from the originally proposed 2020 start date) could lead to an over-reliance on carbon-emitting natural gas plants to achieve emissions reductions in the early part of the program. Thus, the agency limited eligibility in the CEIP to those zero-emitting technologies that could be most quickly implemented, contribute the greatest to reducing emissions over the long term, and discourage over-reliance on strategies that lock-in carbon-emitting generation sources (e.g., natural gas plants) in the long term. *See* 80 FR 64831.

Other elements of the CEIP as established in the final CPP Rule, are, similarly, a direct outgrowth of the concepts and concerns the EPA identified in the proposal regarding maintaining the emissions integrity of the overall CPP program and thus the need for reasonable conditions on what could be credited. Thus, the CEIP sets a project eligibility start date that ensures that creditable projects are only those coming online after the promulgation of the final CPP, similar to the proposal's discussion of a start date in that same time period, see 79 FR 34919. This helps avoid the potential for crediting emission reductions that would have occurred anyway, even in the absence of the CPP. Second, the CEIP provides for limited crediting of generation and savings only in 2020 and 2021, again consistent with the proposal's recognition that conditions would likely be necessary to ensure program stringency and that consistency with the BSER is maintained. The EPA capped the total size of the CEIP program at 300 million short tons nationwide, in order to ensure the total impact of early crediting would be controlled to a reasonable degree, while at the same time providing sufficient crediting opportunity to meet relatively aggressive assumptions about deployment of eligible RE and

low-income EE. *See* 80 FR 64830. Similarly, the CEIP requires states to ensure stringency is maintained for their portion of the early action pool of credits or allowances, consistent with the proposal's discussion of the need to maintain stringency and the NODA's observation that this approach to early action crediting would "provide states the ability to achieve the same amount of overall emission reductions but do so by making some reductions earlier." 79 FR 64545-64546 (citing 79 FR 34919).

Thus, there is no question that the concepts for a program of early action crediting were well-noticed by the EPA in the Proposal and the NODA, and were commented upon, including by several of these Petitioners. Thus, the Petitions are denied to the extent they are premised on the notion of a complete lack of notice of the CEIP and request a complete re-proposal of the CEIP.

2. Requests to Expand the Time for Project Eligibility and Creditable Generation or Savings

In the final Rule, the EPA set the following rules on timing for project and emission reductions eligibility: first, eligible projects must have commenced construction (in the case of RE) or commenced operation (in the case of low-income EE) on or after the date of state plan submittal, or Sept. 6, 2018 for states that do not submit state plans. Second, only the electricity generation or savings from such projects occurring in 2020 or 2021 is eligible for crediting. *See* 80 FR 64829-64830. In the June 2016 CEIP Design Details proposal, the EPA proposed several changes to this regime, and has, thus, reopened the issue to that extent. First, the EPA is eliminating the state plan submission date as a triggering event for eligibility to remove a source of uncertainty identified by stakeholders and in light of the Supreme Court's stay of the CPP. *See* 81 FR 42964. Second, the EPA proposed to change the standard in 40 CFR 60.5737(a)(2) for eligible RE projects from "commence construction" to "commence commercial operation." *Id.* at 42963-42964. This change constitutes a limited reconsideration on the question of project timing eligibility in that it addresses concerns raised by some petitioners that the "commence construction" standard would be unduly restrictive as it may preclude projects from receiving credit under the CEIP simply because certain steps, such as entry into contracts, had occurred prior to the date a state submits its final plan. This change in wording is more aligned with the agency's intent as explained in the final Rule preamble and consistent with a similar provision in the Acid Rain Program, and further distinguishes this event from the manner in which commencement of construction is defined for regulated sources under CAA section 111. *Id.* Commensurately, the EPA proposed to change the start date for RE project eligibility to January 1, 2020. *Id.* The EPA proposed to retain September 6, 2018 as the start date for low-income EE projects. *Id.*

Petitioners here requested an earlier start date for project eligibility, and also requested an earlier start date than January 1, 2020 for when CEIP-creditable electricity generation or savings could occur. Numerous petitioners requested a significant expansion in project eligibility timing for CEIP crediting. For instance, Basin Electric Power Cooperative requested that the scope should be expanded to allow crediting for projects sometime before the date of state plan submittal, possibly in 2016, with generation and savings creditable from the date of state plan submission, Basin Electric Power Cooperative Pet. 39-40, and requested that the 300 million pool should be proportionately expanded. *Id.* Several states requested a significantly earlier start date to CEIP crediting. *See* North Dakota Pet. 5; New Jersey Pet. 4, 8; Kansas Pet. 5, 7; Texas Pet. 5.

The Petitions requesting that the EPA move the start date for project eligibility for all CEIP projects to a much earlier date, such as 2012, 2005, or earlier are denied, as are the

Petitions requesting a broader period of crediting than 2020-2021. First, there was adequate notice of the project eligibility and crediting timing and the EPA already received extensive comment on these topics. Second, in light of the purpose of the CEIP and the need to preserve the emissions integrity of the CPP, requests for a dramatically enlarged window for CEIP project eligibility and crediting are unreasonable and inconsistent with the larger CPP framework. The arguments presented by Petitioners fail to provide a compelling justification for such a change in light of the record and the agency's reasoning in the final Rule. Thus, these requests are not of central relevance.

First, petitioners are incorrect to assert a lack of notice that early action crediting would be limited to projects beginning on or after a certain date, or to generation and savings from those projects occurring during a certain time period. The agency noticed the topic of when eligibility should begin, identified several dates, ranging from 2005 to the beginning of 2017, when project eligibility might begin, and requested comment. 79 FR 34919. The EPA also gave notice that the date might be toward the later end of that time range, because the agency noted the importance of obtaining emission reductions that might not otherwise have occurred in the absence of the CPP, in order to offset the potential for increases in emissions later, while balancing this objective with the need to not disincentive investments before 2020. *Id.* Meeting this concern would necessarily require, at a minimum, that crediting could only begin sometime *after* the CPP was finalized.

Numerous commenters responded to this topic. Some commenters urged the agency not to allow any crediting prior to 2020 (i.e., the start of the interim performance period), as this would "reduce the overall CO_2 emissions reductions achieved by the Clean Power Plan." RTC 6.1.2, at 80. Others recommended that "results achieved since the publication of the [proposed] rule in June 2014 should be counted toward compliance" and "banking of energy efficiency credits is essential to maintain the momentum of existing programs." *Id.* One commenter specifically suggested "states should be allowed to bank MWh generated *from the date their SIP is submitted*, and that those credits be eligible for compliance purposes for 36 months from the date of the start of the compliance period." *Id.* at 93 (emphasis added). "Limited banking after SIP approval ensures that only measures included in approved SIPs are used for compliance and incentivizes states to submit SIPs for approval in a timely manner." *Id.* Some commenters, including these Petitioners, responded to the EPA's request for comment by insisting that there should be no timing limits on eligibility for early action crediting. *See, e.g.*, UARG Comments at 154-155.

These and other comments on the Proposal and NODA found in RTC 6.1.2 demonstrate that the question of when project eligibility and crediting should begin was clearly noticed. Petitioners are in effect repeating the same comments made to the EPA on the Proposal and the NODA. Thus, the grounds for Petitioners' objections did not arise after the period for public comment, and Petitioners had the opportunity to, and in fact did, comment on the issue of project eligibility timing under the CEIP.

Further, a significant expansion in the timing either of project eligibility or the two-year period (2020-2021) for when creditable generation or savings can occur would be inconsistent with the EPA's intention that the CEIP be limited in size so as not to unduly impact the overall stringency of the CPP program, and thus, these Petitions are not of central relevance. In the final Rule, the degree of emission limitation achievable by application of the BSER was determined by looking at what would be *incrementally* achievable from the 2012 baseline year by the start of the interim performance periods beginning in 2022 and through to the final performance

periods beginning in 2030. *See* 80 FR 64737; *id.* at 64814-64815. Under this construct, any crediting of emissions reduction that occurs prior to the performance periods (i.e., prior to 2022) is inherently a reduction in the level of stringency of the CPP from what the EPA determined through the BSER analysis to be achievable. This is because crediting emission-reducing activities occurring earlier than the performance periods is in effect providing credit for activities that already could have been anticipated to occur as affected EGUs prepare for the onset of emission standards in 2022. (For this reason, from the standpoint of achievability, contrary to Petitioners' views, the CEIP is not a necessary component of the CPP.[222])

This does not mean that the CEIP is irreconcilable with the CPP base program. As the agency explained in the final Rule preamble, the CEIP *does* achieve purposes that are complimentary to the CPP in that it has the potential to drive additional emission reductions earlier while at the same time reducing the overall compliance costs on affected EGUs by increasing the supply of compliance instruments. 80 FR 64831. But these objectives must be balanced with one another: too broad of an eligibility window for the CEIP could certainly make compliance with the CPP easier, but would only do so through an unacceptable weakening of the CPP program as a whole, through over-crediting of emission reductions that have occurred or will occur already, thus placing onto the market an over-abundance of compliance instruments that reduce the incentive for affected EGUs to take further steps to reduce their emissions during the performance periods. With these purposes in tension, the agency selected the only reasonable course available to it, consistent with providing any early action crediting at all, that is, placing limits on timing eligibility to ensure that the projects and generation or savings that could be credited were limited, to the extent possible, to those that would not have occurred in the absence of the CEIP. Petitioners' requests to greatly expand the timing eligibility of the CEIP ignore this need for balance and, thus, are not of central relevance.

Several petitioners raised specific concerns regarding eligibility timing, which will be addressed in turn.

Ameren, Pet. at 19, asserted that eligibility timing is so limited that few projects may be eligible and there would be a race to build in 2019 that could impact the power sector or related market segments. However, the record before the agency indicates that a wide variety of market dynamics drive choices for when to build or implement RE or EE. There is no indication that the benefits of crediting from the CEIP would be of such magnitude that project developers would not proceed with otherwise economical projects simply on the speculative possibility of obtaining additional benefits through the CEIP. Indeed, as the EPA discussed in the CEIP Design Details proposal, since the CPP was finalized, Congress has extended the production and investment tax credits for wind and solar energy. These are likely to drive significant growth in RE capacity – as much as 100 GW by the end of 2021 according to the Department of Energy's National Renewable Energy Laboratory. 81 FR 42952, Power Sector Trends Appendix (observing that industry's trends away from coal-fired generation and towards cleaner generation have accelerated since the record for the CPP closed). Thus, there is no reason to suspect that the CEIP's eligibility timing will force a wait-to-build dynamic in 2019.

Several state petitioners assert that the CEIP will cause older RE to decline in favor of new RE produced in 2018 and beyond and that it is unfair to treat early RE differently than RE coming online during the CEIP eligibility period. *See* North Dakota 5; New Jersey 4, 8; Kansas 5, 7; Texas 5. First, it is important to note that even if a project is not eligible for the CEIP, it may still be considered an "eligible resource" under the CPP and may receive crediting in a

[222] The agency views the CEIP as severable from the CPP, *see* 81 FR 42944 n.11.

rate-based program under the CPP if it came on line or increased capacity after December 31, 2012. 40 CFR 60.5800(a). More importantly, Petitioners provide no support for their assertion that non-CEIP eligible RE projects will cease operating if they cannot get CEIP credits. They fail to address the fact that utilities have an incentive to keep such projects in operation, whether credited or not, because they produce salable power and contribute to affected EGUs' ability to meet their emission standards. Petitioners provide no evidence that the value of CEIP credits would be large enough to justify the capital cost of replacing existing projects that are currently operating and economically viable. To the contrary, the EPA found on the record in the CPP that RE generation, once installed, remains competitive, 80 FR 64805; that programs that incentivize existing RE generation will likely continue to be robust, *Id.* at 64803; and that all low and zero-emitting generation contributes toward meeting the CPP's emission performance levels, and thus has an incentive to remain in operation under the CPP, *Id.* at 64897. In essence, these Petitioners are simply renewing their request for much broader early action crediting, which they first stated in their comments on the proposed rule. The EPA has already considered these concerns and rejected them. The request to expand eligibility in a way that could substantially weaken the overall stringency of the CPP, in order to address an unsubstantiated concern about diminished competitiveness of already-operating RE projects, is not of central relevance.

3. Issues Related to Scope of Technology Eligibility

In the final CPP, the EPA limited eligibility under the CEIP to wind and solar projects and energy efficiency projects in low-income communities. 80 FR 64830. The EPA also explained the criteria it used to select these technology types, namely, that they are zero-emitting and essential to longer term climate strategies, and require lead times of relatively shorter duration given the time-limited nature of the CEIP, and to counteract the potential shift in investment from RE to natural gas in the lead up to the start of the interim performance period. *See Id.* 64831. The EPA retained these criteria in the CEIP Design Details proposal, *see* 80 FR 42965. However, in response to stakeholder feedback after the final CPP was issued, the EPA proposed to expand eligible technologies under the CEIP to include under the RE reserve two other zero-emitting technologies, geothermal and hydropower, *see Id.* The EPA also solicited comment on whether there are any additional technologies that meet the criteria for CEIP eligibility and thus should be included under the CEIP. *Id.* In addition, the EPA proposed to expand the low-income reserve to include solar projects implemented to serve low-income communities that provide direct electricity bill benefits to low-income ratepayers. *Id.*

Petitioners for reconsideration on the CEIP as finalized in the CPP, requested that the EPA expand the scope of technology eligibility under the CEIP. *E.g.*, Texas 5. Several petitioners asserted that the EPA lacks the legal authority to create technology preferences or "subsidies" under the CEIP, and the agency must allow for comment on its legal authority. *See* AEP 8-9, Ameren 16; UARG at 15. Other commenters asserted that the EPA should allow states the flexibility to determine which technologies should be eligible. *E.g.*, Southern Co. 40.

The agency has reopened the scope of eligible technologies under the CEIP in the CEIP Design Details proposal and has requested comment on that topic, and these petitions may be considered granted to that extent. The agency, however, is not revisiting the criteria it established in the final CPP for selecting which technologies should be eligible for the CEIP. The Petitions are denied to the extent they request the EPA to abandon the criteria by which

CEIP eligible technology types were identified in the final CPP.[223]

First, Petitioners had the opportunity to comment on criteria for technology eligibility. In the NODA, the EPA specifically identified the criterion that early action projects should be those that can be implemented relatively quickly. *See* 79 FR 64546 ("The EPA recognizes that some measures may take longer than 2020 to implement, while others can be, and are being, implemented more quickly."). The EPA specifically identified RE and EE as types of technologies that could be implemented relatively quickly. *Id.* The EPA specifically requested comment on how to ensure that the CPP did not cause a loss of momentum in existing emission reduction programs prior to the start of the performance periods. *See Id.* ("The EPA is interested in … ways to ensure that states continue the progress they are making to reduce CO2 from the power sector prior to 2020 and that this rule does not create disincentives for those pre-2020 actions.").

Commenters, including these Petitioners, commented on this issue. In general, commenters supporting early action crediting emphasized the need to continue incentives for RE and EE deployment. *See* RTC 6.1.2, at 76-80. Some commenters asked the EPA to provide the broadest possible flexibility to states in early action crediting, *e.g.*, Southern Comments at 197; UARG Comments at 154-155. Commenters pointed to the need to continue to incentivize industry-leading emission reduction projects, emphasizing zero-emitting RE and EE projects and programs, rather than other types of technologies. *See, e.g.*, Entergy Comments at 22; NAHB Comments at 11, 19. At the same time, commenters raised concerns with respect to the feasibility of significantly expanding NGCC generation prior to 2020, which supported the need for crediting of other types of emission reducing activities that could be done on an earlier timeframe. *See, e.g.*, Ameren Comments on NODA, at 2; UARG at 259-160. These comments reflect an awareness that the EPA was contemplating an approach to early action crediting that would be limited to specific objectives – in fact, these are the same objectives that underlie the criteria in the final Rule.

Thus, the final Rule's criteria for CEIP technology eligibility based on both timing (projects should be able to be implemented quickly), and climate benefits (projects should be zero-emitting in order to obtain emission reductions above what would have been required by the CPP and contribute to longer-term climate strategies), is a reasonable outgrowth of the concepts for early action crediting the EPA raised in the Proposal and NODA and the comments the EPA received responding to those comments. In any case, Petitioners have not drawn the EPA's attention to any compelling new information that would indicate the EPA's criteria are unreasonable. Rather they have repeated comments the EPA already received and considered before promulgating the final Rule.

Further, Petitioners' request to allow early action crediting for all types of generation is not of central relevance. The EPA believes it is both within its authority to establish limiting criteria on which technologies can be credited and that the criteria it established are reasonable. First, the CEIP works by operation of a matching pool of federal allowances or ERCs, which the EPA makes available to states to award to projects that have earned an early action allowance or early action ERC under the state program. As the EPA has made clear, the CEIP is not necessary to the achievability of the CPP. It is an optional program, intended to stimulate investment in zero-emitting technologies as a bridge to the compliance periods beginning in 2022. Because it is voluntary, and because it works by operation of the award of matching

[223] The specific issue of limiting EE eligibility to projects and programs in low-income areas is addressed below in section 5, responding to the NAHB's Petition for Reconsideration.

credits or allowances (which have the potential to undermine the stringency of the CPP), the EPA finds it both reasonable and within the scope of its authority to establish limits on the scope of the program through the use of these criteria. Without some set of principles to govern which technologies should be eligible for matching allowances/ERCs, the agency would have no way of ensuring that those additional allowances/ERCs would only come onto the market (and thus reduce the stringency of the CPP to some degree) in exchange for the kinds of actions that ensure a significant environmental benefit in return – namely, earlier adoption of zero-emission sources that will over time replace the generation of higher emitting sources, and contribute to the long-term solution of the climate change problem. While the EPA has reopened the issue of which technologies should also be included in the CEIP based on these criteria, the Petitioners have presented no information as to why the criteria themselves are unreasonable or inappropriate in light of the record, and therefore the Petitions do not raise an objection of central relevance on this topic.

Some Petitioners asserted that there is no analysis to show the necessity or adequacy of subsidies to support specific technologies or to support trading market liquidity, and stated that the EPA had not established its legal authority for such a program. AEP 8-9; Ameren 18; UARG 15. First, the EPA does not interpret these Petitions to be a request that the EPA withdraw the CEIP in its entirety, since Petitioners elsewhere appear to express support for the concept of early action crediting as a means to reduce compliance costs of the CPP. *See* AEP 9; UARG 15. Second, if these Petitioners believed there was no authority for the EPA to establish a voluntary program for early action crediting, they had the opportunity to comment on this because the EPA in the CPP Proposal introduced the concept of crediting for reductions occurring prior to the beginning of the performance periods. *See* 79 FR 34919. Third, the EPA never took a position that the CEIP was "needed" to support market liquidity; the agency views the additional early-year liquidity as one of several potential benefits, *see* 80 FR 64832, but considers the CEIP as a whole to be severable from the CPP and not necessary for the achievability of the CPP emission performance rates (or equivalent state goals). While Petitioners raise vague concerns about market liquidity or the rationale for technology preferences, they present no information or affirmative case to the agency that the approach the EPA took was incorrect or unreasonable.

Petitioners raise a more specific objection against the eligibility of entities other than affected EGUs to participate in the CEIP, and the potential impact this could have on the liquidity of the compliance instrument markets. AEP 9; Ameren 18; UARG 15. But the EPA never proposed or indicated it was considering such a restriction on participation. Further, these concerns are not of central relevance. The CEIP works by provision of a matching pool of ERCs or allowances, which will have the effect, all else equal, of *improving* market liquidity in the program, by putting up to 300 million additional allowances (or equivalent number of ERCs) onto the market. The ability of entities other than affected EGUs to participate in the program is consistent with the rest of the CPP (as well as prior trading programs like CSAPR), in which the EPA has not placed restrictions on who may participate in the base trading program, *see, e.g.*, 40 CFR 60.5800. Such restrictions would limit CEIP participation, and all else equal, would reduce the number of early action and matching instruments that would be available. To the extent Petitioners may be concerned about the potential for CEIP participants to horde or sequester their awards rather than market them to affected EGUs, these concerns are not supported by any evidence, and are contradicted by the EPA's experience with prior trading programs, in which the agency has generally not imposed limits on market participation. The

CEIP awards only have value to the extent they are marketable to affected EGUs for compliance. Further, the EPA found that the owners or operators of affected EGUs are already heavily invested in RE and EE projects of the type that would be CEIP-eligible. *See* 80 FR 64678. Thus the CEIP cannot be said to direct compliance instruments away from affected EGUs, so much as to incentivize an increase in the activities that the owners or operators of the affected EGUs can do, and already are doing, to reduce their emissions. Finally, the CEIP is optional; states do not have to participate, and Petitioners remain free to urge their state(s) not to adopt the CEIP if they believe it is not advantageous to them or other affected EGUs. The EPA denies this objection as not of central relevance.

4. The 300 Million Ton Matching Pool

In the final Rule, the EPA capped the size of the CEIP program at 300 million short tons of matching allowances (or an equivalent number of ERCs, in the case of rate-based plans[224]). 80 FR 64830. The agency acknowledges that it did not specifically propose a "matching" approach to early action crediting in the CPP Proposal or NODA, or that such matching awards could be available without states having to make up for the loss in stringency of their programs such award could create. However, Petitioners do not object to the matching award approach itself; they apparently simply want no limit on matching awards at all. This objection is not of central relevance. Once the EPA decided to take a matching approach to early action crediting, it became necessary to have some limit to the size of that match, because, as the EPA explicitly discussed in the Proposal, unbounded early action crediting poses a problem for CPP stringency.[225]

Several Petitioners nonetheless request that the EPA either eliminate the cap on the size of the matching pool, or significantly expand it, or they imply such a request by arguing that the EPA has failed to justify the cap. *See* AEP 9 ("EPA has established the size of the federal complement for the CEIP … [T]he size of the CEIP directly impacts the stringency [of the CPP]…."); Southern Co. 40 ("EPA also provided limited justification for the finalized cap on matching federal credits."); UARG 15 ("The final Rule sets an arbitrary limit on ERCs or allowances available under the CEIP without providing an opportunity to comment on its adequacy and purposes."). No Petitioner, however, specifically requested that the EPA remove

[224] In the CEIP Design Details proposal, EPA proposed that the equivalent number of ERCs would be 375 million ERCs. *See* 81 FR 42950.

[225] EPA provided in the final Rule that states would *not* be required to make up emissions stringency for the 300 million tons of matching allowances or equivalent number of ERCs the EPA made available to support early action in the CEIP as established by the final rule. Unsurprisingly, none of the Petitioners object to the federal matching pool. Rather, echoing their comments on the proposed Rule, they seek unbounded crediting for emissions reductions occurring at any time. As explained above, such an approach is simply irreconcilable with the logic and rationale of the final Rule, in which the emission limitation the EPA finalized is premised on the achievability of *incremental* reductions in emissions from affected EGUs beyond a historical baseline. *See* 80 FR 64899 ("Some commenters specifically agreed with the EPA's determination that only new and incremental RE (including hydropower) should be used to adjust CO_2 emission rates. Those commenters objected to counting existing RE that are *already embedded in the baseline* emissions and generation mix.") (emphasis added); *id.* at 64737 ("[W]e agree with comments that quantification of RE generation on an incremental basis is both more consistent with the treatment of other building blocks and more consistent with the general principle that the BSER should comprise incremental measures that will reduce emissions below existing levels, *not measures that are already in place*....") (emphasis added).

the cap or increase the size of the pool by a specific amount.[226]

Petitioners fail to provide information that would support why there should be no cap on the program at all. Such an approach would be irreconcilable with the fact that the CEIP must be limited in scope to prevent an unbounded reduction in stringency of the CPP. As the EPA observed in the original CPP proposal, an early action crediting program should be appropriately conditioned to ensure to the extent possible that any higher emissions that would be allowed to occur in the performance period are offset by pre-performance period reductions not required by the section 111(d) program. In addition, we identified that such a program should be as consistent as possible with the forward-looking nature of the BSER. 79 FR 34919. A limitation on the size of the matching pool of early action allowances or ERCs—for which states do not need to make up performance stringency—necessarily follows from those concerns. 300 million tons represents approximately 2% of total interim period emissions under the sum of all states' mass budgets. That amount is not a dramatic change in the program's stringency overall and is acceptable to the agency in light of the benefits that the agency and many commenters on the CPP saw in having an early action program.

Further, assuming the EPA divides the matching pool into two equally sized reserves,[227] Petitioners would not have a centrally-relevant objection to the size of either of those reserves. First, Petitioners cannot seriously contest that 50% of the 300 million ton matching pool is insufficient for the low-income EE and solar reserve. As the agency explained in the CEIP Design Details Proposal, and the supporting TSD "Renewable Energy and Low Income Energy Efficiency Potential," 50% of the matching pool leaves a more-than-adequate margin to accommodate the low-income EE and solar reserve, given the EPA estimates that total eligible generation and savings in 2020-2021 to be less than 50 MWh. *See* 81 FR 42951-42952. Any complaint about the size of the low-income reserve not being large enough would be unfounded and unsupported by the information before the agency.

On the other hand, the RE reserve, at 150 million short tons, is at a size that there is a potential for *over-subscription* under high-growth scenarios for wind and solar. Indeed, the industry's trends away from coal-fired generation and towards cleaner generation have accelerated since the record for the CPP closed. *See* Power Sector Trends Appendix. Given this, the agency is already concerned that the CEIP could result in crediting so-called "anyway" reductions – emissions reductions that would have happened in the absence of the CPP, and for which crediting would result in an over-abundance of compliance instruments without any corresponding environmental benefit. *See* 81 FR 42952. The agency is concerned about this possibility and is requesting comment in the CEIP Design Details Proposal on whether, particularly in light of the tax credit extensions, there should be included in the CEIP a mechanism that would limit the number of early action and matching allowances or ERCs that may be available to wind and solar projects that may not require additional incentives for deployment. *Id*. In short, Petitioners' requests to expand the cap – if it is for the purpose of expanding the RE reserve -must fail the central relevance test as well, but for a different reason than the low-income reserve: here, the EPA is already concerned that the CEIP is at risk of

[226] One Petitioner argues that the 300 million ton matching pool should be expanded commensurately with an expansion in timing eligibility to allow earlier crediting, Basin Electric Power Cooperative at 40. Because the EPA is separately denying the request to expand timing eligibility, *see supra*, this specific request, which is contingent on that earlier request, is denied as well.

[227] In the final CPP, the EPA suggested an even split between the two reserves, but did not definitively establish that division. 80 FR 64830. In the CEIP Design Details proposal, the EPA has proposed to split the reserves evenly but has not taken final action on that proposal. 81 FR 42951-42952.

providing CEIP awards to RE projects that do not need them in order to be incentivized. Expanding the pool of matching allowances or ERCs at this point would only exacerbate this problem. Given this information, and the lack of any information to the contrary from the Petitioners, arguments against the existence of a cap on the CEIP are not of central relevance.

Likewise, Petitioners have also failed to provide information suggesting that a specific size other than 300 million tons should be used. As explained above, the size of the matching pool reflects a reasonable line-drawing exercise to accommodate significant additional RE and low-income EE growth in the CEIP period, while preventing the potential for early action crediting to unduly reduce the stringency of the CPP. *See* 80 FR 64830, 64832. Petitioners have not presented any information justifying some different figure (e.g., 310 million instead of 300), and such evidence would not be of central relevance to the agency in any case. The size limit simply arises from the need for the agency to engage in a reasonable line-drawing exercise. Thus, the EPA looked to wind and solar - the two RE technologies anticipated to have the most growth by far in the relevant time period - in arriving at a cap on the CEIP in the final Rule. Those technologies can reasonably be anticipated to account for the bulk of growth in renewable energy in the relevant time period, and a relatively equal split between wind and solar on the one hand, and low-income EE on the other, would leave an abundant pool of credits to support low-income EE. Further, the EPA concluded that the maximum impact the CEIP could have on CPP stringency was acceptable. That set of estimations was sufficient for the EPA's purposes. Any argument that could be made for a more precise matching pool size misunderstands the nature of the analytic exercise.

5. Issues Related to Development of State Plans

Petitioners raise a number of specific concerns or objections with how the CEIP could affect state plan development. These will be addressed in turn.

Petitioner West Virginia asserts that the CEIP is critical to choosing between different plan types, which need to be submitted by September 2016. W. Va. Pet. 2-3. This is incorrect. The CEIP is designed to be capable of implementation under either a rate-based or mass-based approach to state plan design. Further, the CEIP is neutral as between rate- and mass-based approaches to implementation.[228] States did not need to definitively choose which plan type they would use in the 2016 initial plan submittal, and in any case, the initial plan submittal deadline is no longer in effect due to the Supreme Court's stay of the CPP.

One Petitioner requested that the EPA should implement the CEIP until state plans are approved. Basin Electric Power Cooperative 40. This is inconsistent with the cooperative-federalism structure of section 111(d), in which states are given the first opportunity to design and submit state plans for EPA approval, and the EPA's authority to implement a federal plan is triggered by the EPA's action disapproving a state plan or finding that a state has failed to submit a state plan by a deadline. *See* CAA section 111(d)(2) (cross-referencing CAA section 110(c)). This request is therefore not of central relevance.

One Petitioner asserted that the EPA should not "predetermine for the states the percentage of early action credits or allowances available for renewables and demand-side energy efficiency." Southern Co. 40. Whether and how the EPA will divide the two matching pool reserves is an issue that is open and under consideration in the CEIP Design Details

[228] In order to effectuate the CEIP for both rate- and mass-based approaches, the EPA has proposed the use of factors to translate MWh of creditable generation or savings into short-ton allowances, and to translate the 300 million short ton matching pool into an equivalent number of ERCs. 81 FR 42950-42951. The EPA has not taken final action on this proposal.

proposal, and not properly before the agency on reconsideration of the CPP. *See* 81 FR 42951-42952.

Petitioners asserted that "states should not be required to utilize credits or allowances from its [sic] emissions budget in order to participate in the CEIP. This prerequisite increases the stringency of the EPA's BSER determination." Southern Co. 40. *See also* AEP 9. This objection is based on an incorrect premise and therefore not of central relevance. While it is true that the early action allowances/ERCs must be provided by the state in such a way that the stringency of their base CPP program is maintained, those compliance instruments do not leave the market. Rather, they remain on the market, in the hands of the entities that have undertaken the CEIP-eligible projects, along with the federal matching allowances/ERCs. With respect to the latter, states do *not* need to ensure the stringency of their state plan has been maintained. The agency recognizes that the overall effect of the CEIP is, all else equal, to reduce the stringency of the CPP. Further, the program is optional, and states may opt out of it if they do not wish for any of their compliance instruments to be awarded to eligible projects under the CEIP. By doing so, they simply forgo the opportunity of obtaining the matching allowances/ERCs.

6. Issues Raised by the National Association of Home Builders

The National Association of Home Builders (NAHB) raises a number of issues primarily related to the low-income energy efficiency reserve established in the CEIP in the final CPP.

First, NAHB asserts that the EPA failed to provide adequate notice of the CEIP and that "nothing in the Proposal presaged the development of the CEIP." NAHB Pet. 1, 2. As discussed above, the NAHB and other Petitioners are incorrect on this point, since the EPA provided notice in both the CPP Proposal and the NODA of the concepts and concerns around early action crediting that ultimately resulted in the CEIP. Further, NAHB's own comments on the CPP indicate an awareness of the potential for early action crediting and support for it. In its comments on the CPP Proposal, NAHB said, "NAHB also urges EPA to address the disincentive the proposal creates [i.e., without some form of early action crediting] for stakeholders to postpone action to establish new or extend existing programs prior to the start of the compliance periods." NAHB Comments at 11.

The NAHB does not apparently oppose the CEIP program as a whole, since its Petition states, "The program eases the stringent compliance burdens imposed by the [Clean Power] Plan by providing states with early access to and increased allocations of allowances and/or emission reduction credits." NAHB 2. NAHB apparently raises the more specific objection that the limited scope of CEIP crediting to EE projects implemented in or benefiting low-income communities was not included in the proposal, and raises a generalized concern that it "lacks the information necessary to ensure that the CEIP will not undermine" its members' existing programs and the provision of affordable housing generally. NAHB 1. NAHB requests a re-proposal of the entire CEIP. *Id.*

The agency recognizes that it did not specifically propose limiting early-action crediting for EE to low-income communities in the sections of the CPP proposal and NODA discussing early action crediting. But a review of the larger CPP proposal and the record related to building block four, demand-side energy efficiency as a compliance option under the CPP, and the potential impacts of the CPP on consumer electricity costs reveals that the EPA's decision to focus CEIP crediting of EE on low-income communities is more than "presaged" by the proposal and NODA, and in fact is a direct and logical outgrowth of the proposal, as well as concerns expressed by NAHB itself, as well as other Petitioners here, and other commenters on the CPP.

Contrary to NAHB's assertion that the EPA only discussed low-income issues in "pro forma" sections of the proposal and final rule preambles, NAHB 2, the issues associated with potentially disproportionate cost impacts of the CPP to low-income ratepayers as well as the need to significantly scale up the availability of EE programs in low-income communities was discussed in both the proposal and the final Rule, and supporting materials, as well as in public comments the agency received. Second, NAHB's apparent (but implicit) criticism that early-action EE incentives should not be targeted toward low-income consumers stands in contrast to the vast bulk of the evidence before the agency.

In the Proposal, the EPA noted that in pre-proposal outreach, consumer groups "representing advocates for low income electricity customers discussed the need for affordable electricity." 79 FR 34847. These stakeholders sought approaches to emission reduction that would also reduce electricity prices for consumers through energy efficiency programs and low-cost carbon reductions. *Id.* In discussing the rationale for building block four (EE, which the EPA did not finalize), the EPA noted that "energy efficiency also commonly reduces the bills of electricity customers. … energy efficiency policies are designed to … address[] market barriers and market failures that limit their adoption." *Id.* at 34872. In Chapter 5.1 of the Greenhouse Gas Abatement Technical Support Document (TSD) that accompanied the proposed rule, the agency provided an extensive discussion on the barriers to wider EE investment. The EPA particularly emphasized the issues associated with reaching low-income households and communities. These groups, the agency found, typically lack access to credit, and have informational, financial and other access barriers, in addition to other causes of market failure preventing energy efficiency programming from penetrating into low-income areas. *See especially* GHG Abatement TSD 5-4 – 5-7. The EPA cited literature demonstrating that EE could account for more than 60 percent of the mid-range potential for GHG reductions in the U.S. power sector and that such reductions would be available at positive net value if "persistent barriers to market efficiency" could be addressed. *Id.* at 5-26. At the same time, in the Regulatory Impact Analysis (RIA) for the proposed rule, we noted the potential for a slight increase in utility bills of 2-3% in the early years of the program (even while anticipating reductions in ratepayers' bills by 2030). Proposal RIA at 3-43. And in discussing the potential design of an early action program, we noted the importance of obtaining reductions that would not otherwise have been achieved, *see* 79 FR 34919. Our discussion in the TSD indicated that this would certainly be the case for emission reductions through low-income EE programming.

In response to the proposed Rule, including these discussions, we received extensive feedback in public comments. On the one hand, many raised a concern about disproportionate impacts of the Rule on the utility bills of low-income ratepayers (albeit, the degree of impact suggested by these commenters is much greater than the EPA believes to be likely). *See* RTC Ch. 8A, at 214 ("The commenters stated that higher energy prices disproportionately harm low-income and middle-income families."); *id.* at 203 (commenters stated the costs of the rule "would impact all Texans but is particularly harmful for those with marginal income, such as elderly customers on fixed incomes or low-income customers."); *id.* at 312 ("Commenters stated that vulnerable low-income citizens will bear the brunt of increased electricity costs. The commenters stated that expenditures are required to benefit from energy efficiency."); *id.* at 313 (commenters stated "the impacts on low-income groups, the elderly, African Americans, and Hispanics would be especially severe. … because rural electric cooperatives are heavily coal-dependent, the Proposed Rule will have an especially severe impact on rural poverty."); *id.* at 314 (commenters stated "sharply increasing electricity rates will severely threaten Missouri's

low- and fixed-income residents"); *id.* at 317 ("The commenters also stated that about 700,000 families in Texas live well below the federal poverty line, earning less than $10,000 per year, and are being squeezed hardest by energy cost increases."); *id.* at 372 ("The commenters also stated that the low-income families and individuals they serve are disproportionately likely to carry arrears on their utility bills and to face utility disconnection, and to avoid such a calamity, they typically sacrifice good nutrition and medical care to meet their rent and utility obligations.").

To be clear, the EPA does not agree that the Rule itself will have the dramatic impact portrayed by these commenters. The agency concluded in the final RIA for the Rule that the actual consumer price impacts are likely much less severe, with the Rule projected to result in average energy bill *decreases* of 3.8 percent in 2025 and 7 percent by 2030. Final RIA at 3-40. Nonetheless, similar to the proposal RIA, the EPA saw the potential for a slight increase in electricity bills in the short term of 2-3 percent, *see Id.*[229] Thus, the CEIP was designed to drive new investments in EE programming in low-income communities to reduce energy costs precisely during this near-term period of possible, modest price increases.

At the same time many industry and state commenters were warning of the impacts to low-income rate payers, we received extensive comments pointing out that existing EE programs had already harvested the "low hanging fruit," while harder-to-reach opportunities for EE implementation needed further incentives to overcome market barriers and to be financially worthwhile for project providers. *See* RTC 6A, at 82 (summarizing comments that "Building Block four [which the EPA did not finalize,] penalizes states that invested early in EE programs and [] EPA sets more stringent goals for early acting states, and requires these states to continue investing in EE programs *despite the higher costs and significant implementation barriers that these states face. Comments supported a crediting mechanism for states that have already made significant investments in energy efficiency.*") (emphasis added); *Id.* at 84 ("Commenters noted that higher-benefit, lower-cost programs are generally adopted first which leaves lower-benefit, higher-cost programs for utilities to implement."); *id.* (according to commenter, "much of the 'low-hanging fruit' [primarily high-efficiency lighting options] has already been captured"); *id.* at 85 ("Washington [State] faces significant challenges in expanding EE programs because the marginal cost for expanding EE in the state will be greater than historic program costs."); *id.* at 90 ("EPA should consider means of incentivizing a greater degree of early action to ramp up EE investments in advance of the 2020 compliance period.").

In the final Rule, the EPA heeded these commenters. The EPA did not finalize building block four, which would have included EE programming as a measure that would tighten the emissions limitation on affected EGUs. Instead, the EPA allowed EE to continue to be used for compliance crediting, as many commenters requested. Further, recognizing that the evidence in both the literature and comments before the agency strongly suggested that additional EE programming may be less likely to occur in many areas given that "low-hanging fruit" have already been captured, and recognizing the potential for at least some modest price impacts to ratepayers in the early years of the program, the EPA included low-income EE as a creditable

[229] These impacts may be even less significant than portrayed in the RIA. As of 2015, nationwide CO_2 emissions were essentially identical to the total level to which the states, taken together, would need to limit their emissions, in order to meet the level of emissions in 2022 (the first year of the CPP compliance period) contemplated under the CPP. Moreover, 2016 nationwide CO2 emissions are expected to be approximately 8% lower than 2015 emissions. Thus, current emissions, on a nationwide basis, are already at or below the levels contemplated by the CPP in its early years.

measure in the CEIP:

> The EPA believes it is appropriate to offer an additional incentive to remove current barriers to implementing demand-side EE programs in low-income communities. While the EPA acknowledges that a number of states have demand-side EE programs focused on these communities, the agency also recognizes that there have been historic economic, logistical, and information barriers to implementing programs in these communities. As a result, the costs of implementing demand-side EE programs in these communities are typically higher than in other communities and stand as barrier to harvesting potentially cost effective reductions and advancing these technologies. The EPA intends for the CEIP to help incentivize increased deployment of projects that will deliver demand-side EE benefits to these communities, which will in turn lower the costs of these approaches. These lower costs will help new technologies and delivery mechanisms penetrate in the future, thus improving the cost of implementation of the emission guidelines overall....

80 FR 64832. Thus, as with other aspects of the CEIP, the decision to limit EE early action credits to those projects carried out in low-income communities is not only reasonable, but firmly grounded in the record before the agency.

NAHB and other Petitioners apparently request that all EE should be eligible for crediting, not just low-income EE. This suggestion is not of central relevance because such an approach would render the effort to target low-income beneficiaries meaningless. As the record discussed above demonstrates, EE programs tend to direct resources to where efficiencies are easiest to obtain. Any program that does not create a space within which low-income EE can be credited without having to compete with non-income specific EE programming would almost certainly fail to deliver EE programming to low-income communities. At the same time, non-income targeted EE measures are anticipated to be implemented anyway in the short- and long-term by those who have the financial resources to investment in them, obviating the need for further incentives under the CEIP.

The concerns raised by NAHB are at best a generalized grievance that NAHB has failed to tie to any specific objection that is of central relevance to the Rule. If anything, the creation of the CEIP to promote low-income EE programing will provide incentives to NAHB members, which they can voluntarily choose to take advantage of, or not. This would be entirely consistent with NAHB's own comments on the Proposal, which requested that EE not be included in the building blocks (a request the EPA accommodated), but should be "treated as complementary to efforts to reduce GHG emissions" rather than a regulated activity. NAHB Comments at 5. This is what the agency has done in the CEIP. Neither NAHB or other Petitioners have presented any concrete information demonstrating that the ability of certain low-income EE programs to earn CEIP credits for savings in 2020 or 2021—which is in addition to the incentives these programs will have under other provisions of the Rule, *see* 40 CFR 60.5800(a)(4)(vi)—will somehow result in states or utilities choosing to curtail an otherwise successful program simply because CEIP credits are not available yet.[230] Indeed the

[230] The EPA did not adopt a definition of low-income community in the CPP. The agency proposed and requested comment on approaches states may take to the definition of low-income community in the CEIP Design Details

provision of the CEIP to continue momentum on existing emission reduction strategies and bridge the gap until the performance period begins in 2022 was intended to address these Petitioners' and others' concerns about forestalling progress. In any case, the CEIP is not mandatory. If such a program does not make sense for a particular state to adopt, then NAHB or its members should direct their efforts to the state and ask the state not to include the CEIP in its state plan.

Finally, NAHB asserts that the CEIP as established in the final Rule is an "empty shell" to be filled in later; thus it is piecemeal rulemaking that violates the procedural requirements of the Administrative Procedure Act and Clean Air Act. NAHB 3. First, the EPA disagrees with this characterization; the agency, as NAHB concedes, "initiated" the CEIP through a final action in the CPP, but was quite clear that certain design and implementation details would need to be resolved through a future action. 80 FR 64832. Based on the Proposal, the NODA, and public comments, the EPA reasonably concluded that an early action crediting program was appropriate to include in the final Emission Guidelines. It was entirely reasonable at that point to recognize that implementation details might best be reserved for public input through a future action, as is now occurring. *See Massachusetts v. EPA*, 549 U.S. 497, 524 (2007) ("Agencies, like legislatures, do not generally resolve massive problems in one fell regulatory swoop. … They instead whittle away at them over time, refining their preferred approach as circumstances change and as they develop a more nuanced understanding of how to proceed."). For these reasons, the EPA concludes that these petitions for reconsideration fail to demonstrate that reconsideration is warranted or appropriate under Section 307(d)(7)(B).

XXVI. Prohibition on Pre-2013 Crediting

Some Petitioners argued that the cut-off of Dec. 31, 2012 for ERC crediting was unfair or unreasonable, and that it will result in perverse incentives to retire existing renewables in favor of those that are eligible to receive credits. The final CPP established a rule for a rate-based approach to implementation that only those energy resources that came online or installed additional capacity after December 31, 2012, can be eligible to receive emission rate credits (ERCs) for use for compliance by affected EGUs. This rule is a necessary result of the manner in which the EPA calculated the emission performance rates and equivalent state goals. EPA calculated the uniform rates by applying the Best System of Emission Reduction (BSER) to the amount of fossil-fuel-fired generation in the baseline year, 2012.[231] To provide flexibility, the EPA calculated rate- and mass-based goals for each state by applying those rates to the amount of each state's steam and gas generation in 2012. 80 FR 64821. State plans may allow sources to comply with a rate-based standard by holding credits that reflect generation from certain low- or zero-emitting sources, such as renewable or nuclear generation. 40 C.F.R. §§ 60.5790; 60.5800.[232] Because only facilities that commence operation or increase generation capacity after December 31, 2012 can be assumed to reduce fossil-fuel-fired emissions from the baseline level, only such facilities are eligible to generate credits for rate-based compliance. *Id.*

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proposal. 81 FR 42960-42962. Thus, how the EPA and states approach the definition of low-income community is not properly before the agency in this reconsideration proceeding.

[231] As discussed above, the EPA chose 2012 because it was a representative year for the power sector and had the best data for baseline emissions (with certain adjustments). *See* 80 FR 64814-15.

[232] The limitations on which sources can generate credits are necessary only for a rate-based plan. In a mass-based plan, crediting of low- or zero-emitting generation is unnecessary; sources simply must hold allowances equal to their total emissions during a compliance period. 40 C.F.R. §§ 60.5790(b); 60.5825(a).

§ 60.5800(a)(1); 80 FR 64737; 64814; 64896-97. Thus, the rule against pre-2013 crediting is an absolutely essential component for maintaining the stringency of the CPP. We will address the Petitioners' objections in turn.

First, several Petitioners assert that there was a complete lack of notice for the rule against pre-2013 crediting. The State of New Jersey asserts that disallowing credit for "a significant portion of New Jersey's existing renewable energy" is not a logical outgrowth of the proposed Rule and could not have been anticipated. New Jersey Pet. 8. Further, the EPA did not identify in the proposed Rule that RE facilities constructed before 2013 would not receive compliance credits during compliance years. *Id.* Additionally, the State of Nebraska argued that building block three does not allow it to benefit from prior clean energy investments, stating that "as the State noted in its Comment Letter, Nebraska is essentially being penalized for being proactive through its early adoption of renewable energy." Neb. Pet. 10. Ameren asserts that the rule against pre-2013 crediting affects the stringency of the Rule for Illinois and Missouri and therefore there should have been an additional round of comment on this issue. Ameren Pet. 14. The Southern Company claims that the proposed rule did not "contain any such deadline and allowed all renewable energy capacity constructed prior to 2012 to count towards compliance." Southern Co. Pet. 37.

In fact, the issue of when crediting should begin under a rate-based compliance approach was an issue that was well-noticed in the CPP proposal, and the intimate relationship between the cut-off and how the goals were calculated was also clearly noticed. Therefore, the rule is a logical outgrowth from the proposed approach, and commenters, including these Petitioners, commented on the issue (as Nebraska explicitly concedes in its Petition). In the proposal, the building block three goal setting methodology used a "best practices" approach that incorporated existing renewable energy measures and policies that states had already undertaken, looking specifically at state RPS programs. The EPA then estimated the amount of RE generation that states could achieve, based in part on an assessment of these state policies. *See* 79 FR 34867. The EPA recognized, "This approach … does not require discriminating between RE capacity that was installed before or after any given date." 79 FR 34869.

However, at the same time, the EPA explained an alternative approach to quantifying building block three reductions that, rather than relying on state RPS policies (and therefore, what states had already achieved in the baseline), was based strictly on the technical and market potential for incremental deployment of renewable resources beyond the 2012 baseline. *See* 79 FR 34869-43870. The EPA provided the "Alternative RE Approach Technical Support Document" to provide a detailed explanation of how this alternative approach could work, including how to calculate an incremental level of achievable reductions from 2012.

The EPA received numerous comments dealing extensively with the EPA's proposed eligibility of renewable resources for crediting, as summarized and discussed in RTC Chapter 3. For instance, one Petitioner here, the State of New Jersey, supported the use of the "alternative approach" recognizing that by focusing only on incremental technical and economic potential, the state would not be held to an unrealistic amount of additional RE growth based on its already aggressive RPS program. *See* CPP RTC 3.5.4, at 79. Numerous other commenters, including Kansas and North Dakota, recognized that the alternative approach the EPA was suggesting involved setting targets based on what was possible to achieve from the 2012 baseline. *See Id.* at 71-81. While these commenters took issue with other aspects of the EPA's technical analysis (which EPA addresses elsewhere), there can be no doubt that these commenters were on notice that the alternative approach would entail setting CPP requirements

based on incremental actions beyond the 2012 baseline.

In the final Rule, the EPA adopted an incremental calculation approach for all of the building blocks. As the EPA observed in the final Rule preamble, many commenters supported the alternative approach for building block three as more consistent with the incremental approach to goal calculation used for the other building blocks and more consistent with the general premise that the BSER should be based on what reductions can be accomplished beyond a baseline, rather than allowing credit for measures that have already occurred and are already accounted for in the calculation methodology. 80 FR 64737. In addition, the EPA explained that the changes from proposal, especially with respect to the change to the building block three approach, result in "requirements that are more uniform across states than the proposed state goals (consistent with the direction of certain alternatives on which we sought comment in the proposal), *with the final requirements generally becoming more stringent (compared to the proposal) in states with the highest 2012 CO_2 emission rates and less stringent in states with lower 2012 CO_2 emission rates*." 80 FR 64736 (emphasis added). In other words, by shifting away from an approach based on existing RPS policies, the final approach in the CPP is designed intentionally to avoid the "penalizing" effect on early actors observed in the originally proposed approach. Rather, the building block three level of reductions are strictly based on a regionalized assessment of what additional reductions are technically and economically achievable, rather than an assessment of how "willing" a state might be to do more based on its existing policies. Contrary to what Petitioners assert now, this actually reduces the need for reductions from the early actors compared to the proposed approach.

Because the December 31, 2012 cut-off for crediting is intrinsically related to the manner in which EPA calculated the degree of emission reduction, the substantive objections raised by Petitioners are also not of central relevance. These objections and the EPA's responses are addressed below.

First, several Petitioners argue that the 2012-cut off for RE compliance is unfair and arbitrary. The State of Kansas argues that 2012 was the biggest year in Kansas history for the installation of wind capacity and that none of that may receive credit under the CPP cut-off rule. Kansas Pet. 7. Similarly, the State of North Dakota argues that the cut-off is unfair to early adopters, as does the Southern Co. Pet. 37-38, and Basin Electric Power Cooperative, Pet. 43. *See also* Ameren Pet. 14; New Jersey Pet. 9. Westar argues that the proposal would have allowed it to receive credit for early investments in renewables but this is not allowed by the final Rule, making compliance more difficult. Westar Pet. 3.

Petitioners' objections to the December 31, 2012 cutoff for generating emission-rate credits on the ground that it is somehow arbitrary are meritless. As explained above, the rule is a necessary result of the manner in which the EPA calculated the emission performance rates and equivalent state goals. The EPA calculated the uniform rates by applying the BSER to the amount of fossil-fuel-fired generation and emissions in the baseline year, 2012.[233] Because only facilities that commence operation or increase generation capacity after December 31, 2012 can be assumed to reduce fossil-fuel-fired emissions from the baseline level, only such facilities are eligible to generate credits for rate-based compliance. *Id.* § 60.5800(a)(1); 80 FR 64737; 64814; 64896-97. Thus, the rule against pre-2013 crediting is an absolutely essential component for maintaining the stringency of the CPP.

[233] As discussed above, the EPA chose 2012 because it was a representative year for the power sector and had the best data for baseline emissions (with certain adjustments). *See* 80 FR 64814-15.

Petitioners such as Westar correctly observe a shift from the proposed approach, which could have allowed crediting for projects or resources that came on-line prior to 2012. However, they are wrong that this is of central relevance to the final Rule. The manner in which building block three was calculated at proposal included a greater recognition of earlier action by factoring this into the goal-setting methodology; under that construct, it may have been appropriate to allow some credit for actions taken prior to the baseline. That crediting regime could have been considered commensurate with that goal-setting methodology. However, the EPA received many comments urging the agency to take an incremental or forward-looking approach to building block three that is consistent with the other building blocks, and to give recognition for early action by factoring already-on-line generation into the baseline. *See, e.g.*, 80 FR 64736-37. The EPA reasonably determined to take that approach in the final Rule. Under that approach, crediting must only be allowed for actions that occur after the baseline.

Moreover, if pre-2013 measures reduced fossil-fuel emissions, such reductions have already been accounted for in the baseline, and cannot logically be credited as reductions from baseline emissions.[234] In fact, the pre-2013 emission reductions can be beneficial to utilities and the states because they may need to make fewer additional reductions to meet the emission performance rates or state goals. States and sources that made choices to replace their fossil-fueled-fired generation with cleaner generation before 2013 put themselves in a better position to comply with the Rule's requirements. 80 FR 64897. However, those pre-2013 reductions do not reduce emissions from the 2012 baseline, and there is no basis for granting them credits.

Petitioners ignore this fundamental logical flaw in their argument and none of Petitioners' arguments demonstrate that the EPA's determination was arbitrary or capricious. Petitioners argue that the EPA "ignored" or unfairly treated various existing sources of electric generation as compliance options. However, as explained above, it is clearly inappropriate to issue credits for generation already accounted for in the baseline. Nor is it relevant that the EPA accounted for fluctuations in hydropower generation due to changing weather by adjusting the baseline for states with high percentages of hydropower. 80 FR 64815; Computation TSD, Appendix 7. The EPA also discussed the role of generation by nuclear plants and waste-to-energy facilities. *Id.* at 64899-900; 64901-02. The adjustments made to the 2012 baseline related to discrete issues, and the decision not to include nuclear in building block three are distinct from, and unrelated to, the reasons why pre-2013 crediting cannot be authorized. Petitioners do not address these facts and do not specify in what way (other than allowing credits for pre-2013 generation) they believe EPA should have considered the existing facilities.

Petitioners raise a second set of objections. They claim that the rule in effect results in discriminatory treatment of two like categories of resources, the only difference being the date the resource was brought online. Thus, they argue that the 2012 cut-off creates a perverse incentive to shut down pre-2012 RE and build new RE because new RE generates ERCs. Basin Electric Power Cooperative Pet. 41-43. Kansas believes—though provides no evidence—that "the value of older renewable energy will decline" compared to creditable renewable energy, and this will somehow impact the viability of investments made in those earlier facilities. Kansas Pet. 7. New Jersey now argues (despite its support for the Alternative RE Approach in its comments on the CPP Proposal) that by disallowing reduction credits prior to 2013, the CPP

[234] Facilities that commenced operation during 2012 also reduce the baseline in accordance with the amount of fossil generation they replaced during 2012, and crediting is unwarranted. 80 FR 64815. Such facilities also contribute to reduced emissions going forward and have an incentive to remain online under the CPP.

may harm the New Jersey RE and nuclear industries, and could even somehow result in "stranded" RE assets due to the unavailability of ERCs. New Jersey Pet. at 9. New Jersey vaguely alleges that the EPA's decisions as to methods for measuring emissions are somehow unconventional and such an uncertain new method could have unintended consequences. *Id.*

Petitioners' second set of objections that the Rule "discriminates" against states or utilities that had high levels of non-fossil-fuel generation before 2013, and thus will create perverse incentives to retire or cease utilizing existing renewable resources, is meritless. The alleged impacts are wholly unsubstantiated. Petitioners provide no explanation of why units already in operation in 2012, and thus already reflected in the generation and emissions baseline, should be able to generate credits representing emission reductions from the 2012 level. Furthermore, the pre-2013 renewable and nuclear facilities cited by Petitioners were constructed either to meet increasing demand or to replace demand previously met by fossil-fuel-fired plants. In either case, if that demand had instead been met by continuing or increased fossil-fuel generation, those states would now have significantly higher baselines and their sources would now need to achieve correspondingly greater emission reductions. 80 FR 64737.

Thus, rather than being discriminated against or punished, states in which larger amounts of non-fossil generation were in place prior to 2013 have to make a smaller effort now to meet the Rule's requirements. Petitioners provide no record support, nor any other factual support, for their assertion that pre-2013 renewable sources will cease operating if they cannot generate emission credits. Nor do Petitioners address the fact that utilities have an incentive to keep such renewable generation in operation, whether credited or not, because it contributes to sources' ability to meet their emission standards. Petitioners provide no evidence that the value of credits would be large enough to justify the capital cost of replacing existing renewable generation that is currently operating and economically viable. Presumably this means that an otherwise profitable renewable energy resource simply decides to stop operating because it cannot get ERCs. Petitioners fail to provide the EPA with even the barest outlines of the economic conditions under which this highly unlikely scenario would occur. To the contrary, the EPA found that renewable generation, once installed, remains competitive, 80 FR 64805; that programs that incentivize existing renewable generation will likely continue to be robust, *id.* at 64803; and that all low-carbon generation contributes toward meeting the Rule's emission performance levels, and thus has an incentive to remain in operation under the Rule, *id.* at 64897.

Petitioner Basin Electric Power Cooperative raises several additional objections to the pre-2013 cut-off. First, Basin Electric Power Cooperative asserts that new RE actually has less environmental benefit than the existing RE resources, due to the requirement for "equivalent backing power," which would likely come from increased natural gas capacity or generation. Basin Electric Power Cooperative Pet. 41-43. First, the variable nature of renewable generation resources, as well as minimum capacity reserve margins, are already incorporated into the EPA's modeling, so any impact of the need for backing power for additional renewables is already captured and accounted for in the modeling. Second, the Petitioner is incorrect to assert that renewables that existed in 2012 and thus are already captured in the baseline have the same (much less *better*) environmental effects than renewables coming online after 2012. There is in fact a profound environmental difference. The existing renewables have already had a displacing effect on fossil generation and emissions that is captured in the 2012 baseline. Crediting those resources again with ERCs would simply be double counting, leading to "hot

air" in the ERC market and eroding the emission-reduction stringency of the CPP as a whole. By contrast, renewable resources that come online after 2012 have not been accounted for in the baseline and thus crediting their generation for its displacing effect on the baseline level of fossil generation and emissions is both logical and necessarily follows from the manner in which the EPA calculated the BSER.

Second, Basin Electric Power Cooperative argues that the EPA should not try to align compliance measures with the BSER because states and sources do not have to comply by doing the BSER – since they can do measures other than BSER, they should be able to get ERCs for pre-2012 RE even though that is not the BSER. Basin Electric Power Cooperative Pet. 43. This argument is based on a misunderstanding of the fact that the Rule flexibly allows other types of zero- and low-emitting energy resources to be used for compliance with CPP emission standards beyond those technologies included in the BSER. This flexibility, however, does not extend to the timing requirements for crediting, which apply to all types of "eligible resources." *See* 40 CFR 60.5800(a). That is, in all cases it is necessary that to be eligible to receive ERCs, resources must have come online or increased capacity in 2013 or later. The baseline for the CPP is comprised of the energy generation and carbon dioxide emissions of the fossil-fuel fired power fleet in 2012. Logically, any eligible resource that comes online after 2012 can have a displacing effect on that fossil-fired generation, whether the technology type was included in the BSER (such as solar or wind) or not (such as nuclear or demand-side EE). However, it would be illogical to extend crediting to resources that were already online in 2012. Those resources, whether in the BSER or not, would already have had their displacing effect on fossil generation captured in the baseline, and thus cannot be eligible for further crediting without unacceptably eroding the stringency of the CPP.

Third, Basin Electric Power Cooperative argues that precluding pre-2012 RE assets from generating ERCs is contrary to the section 111(d)(1) "remaining useful life" provision which shows congressional intent to safeguard existing assets. Basin Electric Power Cooperative Pet. 41. First, the remaining useful life provision of section 111(d) applies only to "sources," not non-emitters like renewable energy facilities. Second, there is simply no grounds to believe that existing renewable resources that are already online and operating will have shortened useful lives simply because they are ineligible to earn ERCs under a CPP implementation program, especially considering that even without explicit crediting, their displacing effect on fossil generation creates an inherent incentive to keep them online and operating.

Fourth, Basin Electric Power Cooperative argues that precluding existing RE from generating ERCs is an unconstitutional form of regulatory taking. Basin Electric Power Cooperative Pet. 44-45. The EPA disagrees that this rule is at all likely to constitute a taking within the meaning of the Fifth Amendment's Takings Clause.

As an initial (and dispositive) matter, this rule does not restrict Basin Electric Power Cooperative's property rights with respect to its "pre-2013 renewable energy resources." Electric Power Cooperative may continue to use those resources for all the same purposes that it did before the rule was promulgated. To be sure, the rule does not grant Basin Electric Power Cooperative *new* rights to use pre-2013 RE resources for rate-based crediting. But as described above, far from acting "arbitrarily," the EPA acted completely rationally in distinguishing between renewables installed after the rule's 2012 baseline year, and those installed earlier. The fact that renewables installed after the 2012 baseline can be used for compliance purposes does not mean that the owners of all other renewables have suffered an uncompensated regulatory taking.

In any event, if the Petitioner genuinely believes that it has a non-frivolous takings claim, this rule does not prohibit the Petitioner or any other similarly situated entities from bringing such claims. The Tucker Act provides the avenue for aggrieved parties to seek compensation under federal statues like the Clean Air Act. *See* 28 U.S.C. 1346(a)(2), 1295(a)(3) (providing for review in the U.S. Court of Claims and the Federal Circuit). Critically, however, even the pendency of takings claims in those courts would not justify invalidation or reconsideration of this rule, given that the "Fifth Amendment does not require that compensation precede the taking." *Ruckelshaus*, 467 U.S. at 1016; *see also Hodel v. Va. Surface Mining & Reclamation Association, Inc.*, 452 U.S. 264, 294-95 (1981) (recognizing it is "particularly important" not to reach constitutional takings claims "except in an actual factual setting that makes such a decision necessary"). Nor would a finding that a valid takings claim exists justify invalidation or reconsideration of the rule given that the remedy for an uncompensated taking is to provide the "just compensation" required under the Fifth Amendment. Thus, even assuming arguendo that private entities here can (1) identify a compensable property interest that could be subject to a taking, and (2) demonstrate that a regulatory taking has occurred, there would be no basis for claiming that this rule has violated the Fifth Amendment, nor would it be proper to reconsider it on that basis.

Beyond those threshold matters, it is worth pointing out that bringing a successful takings claim on the basis of the (vague) facts presented by Petitioner would be essentially unheard of. Petitioner has no property interest in having its pre-2013 renewables used for compliance purposes in a regulatory program that did not exist prior to the rule. The Petitioner has not identified any such interest under any existing case law, instead merely asserting that rule has "create[d] value in one resource at the expense of the other." A successful takings claim requires a valid property interest, and courts have held that "[w]here a citizen voluntarily enters into an area which from the start is subject to pervasive Government control, a property interest is likely lacking." *Hearts Bluff Game Ranch, Inc. v. United States*, 669 F.3d 1326, 1330 (Fed. Cir. 2012). This is particularly true in the utility power sector, "an industry that has long been the focus of great public concern and significant government regulation," *Ruckelshaus*, 467 U.S. at 1008–09.

Nor has the Petitioner presented any tangible evidence of the financial effect of the pre-2013 cut-off rule on its renewable energy resources that existed before 2013. To the contrary, the EPA found that renewable generation, once installed, remains competitive, 80 FR 64805; that programs that incentivize existing renewable generation will likely continue to be robust, *id.* 64803, and that all low-carbon generation contributes toward meeting the Rule's emission performance levels, and thus has an incentive to remain in operation under the Rule, *id.* 64897. Finally, these concerns can only arise if a state actually chooses to implement a rate-based emission standard plan under the CPP. States may also choose a mass-based approach or a state measures approach, in which case the issues around the pre-2013 crediting cut-off become irrelevant. It is not possible for the EPA to evaluate Basin Electric Power Cooperative's bald assertions that compliance will cost it "billions" of dollars, much less that the pre-2013 cut-off has any meaningful effect on those costs, whatever they may be. For that reason, reconsideration of the rule based on the Takings Clause is also, among other things, unripe.[235]

For these reasons, the EPA concludes that these petitions for reconsideration fail to demonstrate that reconsideration is warranted or appropriate under Section 307(d)(7)(B).

[235] *See* Legal Memorandum Accompanying Clean Power Plan for Certain Issues at 60–62 & nn. 131–138.

XXVII. State plan requirements

A. Corrective Measures

Petitioner AEP contends that the EPA must take notice of the requirement regarding corrective measures codified at 40 CFR 60.5740(a)(2)(ii). This provision requires that for state plans establishing emission standards on all affected EGUs that, assuming full compliance by all affected EGUs, do not mathematically assure achievement of the CO_2 emission performance rates or alternative state goals for each plan period, such plans must include corrective measures. Corrective measured must be implemented in the event that actual emissions or emission rate performance that is 10 percent or more than the specified level of emission performance in the state plan for the interim step 1 or step 2 performance periods. Such corrective measures are intended to assure that affected EGUs will achieve the required performance rates or alternative state goals in the event that the original state plan results in a shortfall by the affected EGUs in plan performance.

The EPA explicitly proposed and took notice on the concept of corrective measures, contrary to Petitioner's contention. The proposal included several different potential triggers for corrective measures, and stated, "the agency requests comment generally on the conditions that should trigger corrective measure requirements." 79 FR 34907. Therefore, the EPA clearly took comment on the concept of corrective measures, and Petitioner AEP had sufficient opportunity to raise its objections during the public comment period.

Furthermore, in addition to Petitioner's incorrect assertion that the EPA did not provide notice of the corrective measures requirement, the Petitioner provided no support for why the corrective measures requirement and associated ten percent trigger is of central relevance and should be revised. Regardless, the EPA's finalized corrective measures requirement is reasonable. As the EPA explained in the final Rule, "ten percent is a reasonable level to ensure that when deficiencies in state plan performance begin to emerge, corrective measures (or backstop requirements) will be implemented promptly to avoid emissions shortfalls (or minimize the extent of shortfalls) relative to the eight-year interim goal and the final goal, which reflect the BSER. The ten percent figure also provides latitude for a state's emission improvement trajectory during the interim period to deviate a bit from its planned path without triggering these requirements, as the state initiates or ramps up programs to meet the eight-year interim goal and final goal." For these reasons, the EPA is denying the petition regarding corrective measures.

B. 2017 Progress Report

Petitioner Southern Company contends that the 2017 progress report requirement was not a concept present at proposal. This requirement is codified at 40 CFR 60.5765(c), and requires states that receive a two-year extension for submitting a state plan to submit a progress report to the EPA by September 6, 2017 (i.e., one year into the two-year extension period) containing certain information about the state's progress towards developing a state plan. 80 FR 64859. This contention is incorrect as the EPA explicitly took comment on this concept at proposal. The EPA proposed a one-year extension for states that submit individual state plans and a two-year extension for states that submit multistate plans. The proposal described that if the EPA approves a two-year extension for a state developing a multi-state plan, the state would be required to provide one update, a year into the extension period, on its progress toward milestones and schedules in the initial plan for developing and submitting a complete plan. 79 FR 34915. The EPA went on to explicitly describe that it was requesting comment on this

approach and "the timing and frequency of updates that the state must provide." *Id.* In response to comments that states would need more time to develop and submit state plans, the EPA finalized that states are able to get a two-year extension regardless of whether they are submitting an individual or multi-state plan. Accordingly, because it was affording all states an opportunity for a two-year extension, the EPA believed it appropriate to ensure through the 2017 update that the state is making continuous progress on its initial submittal and that it is on track to meet the final plan submittal deadline of September 6, 2018. The EPA explained in the final rule that it would also be able to use the information provided through the 2017 update to further assist states in plan development. *Id.* Petitioner makes no attempt at explaining what it would have offered as comment to a proposed 2017 progress report requirement, and offers no explanation of why this requirement is of central relevance. Regardless, the EPA's finalization of this requirement is reasonable based on its finalization of a two-year extension for states regardless of what type of plan they intended to submit, as a progress report facilitates the state planning process and allows the EPA to assist states in said planning process. Furthermore, as is clear in the regulatory text regarding the 2017 progress report requirement, no disapproval or federal plan actions are associated with the progress report. Petitioner argues that the 2017 progress report cannot be binding. Because no disapproval or federal plan actions attach to this report, it is merely a planning tool that aids the state in development of a state plan. For these reasons, the EPA is denying the Petitioner's request.

C. Plan Projections

Petitioner AEP contends that for state plans where "emission standards imposed directly on fossil-fueled steam units or NGCCs deviate from the rates EPA has proposed […] detailed projections of generation, emissions, renewable energy generation, energy efficiency measures, and other qualifying activities must be developed and submitted as part of the state plan. 40 CFR § 60.5745(a)(5)(ii), (iv) and (v)." Petitioner AEP claims that the projection requirements in the cited provisions were not made available for public comment. As an initial matter, Petitioner mischaracterized the requirements at the cited provisions, which actually require projections accounting for factors such as generation, emissions, and eligible resources that can be used to adjust an emission rate, only for plans that either impose differential emission rates on affected EGUs or for plans that adopt the state measures approach. The proposal required *all* state plans to include projections regarding achievement of emission performance levels. 79 FR 34922. The proposal clearly described that measures relied upon for compliance(i.e., eligible resources), should be accounted for in a projection of emission performance. *Id.* Therefore, the EPA provided an opportunity to comment on the projections requirements and the Petitioner had sufficient opportunity to raise its objections during the public comment period.

Furthermore, the Petitioner has not explained why this issue is of central relevance nor provided any information that would show the EPA should have finalized a different requirement regarding projections. The EPA's requirements regarding projections are reasonable. The EPA requires projections for types of state plans that do not mathematically assure the performance rates or alternative state goals will be achieved. 80 FR 64845. Projections for these types of plans allow the EPA to evaluate the approvability of a plan on the basis of whether the plan is likely to result in affected EGUs meeting their obligations. Without such projections, the EPA would not have a credible technical basis to find a plan is satisfactory per the requirements of section 111(d)(2). The final rule explains that the documentation of a state's projection allows the EPA to determine the reasonableness of its projection and that the analytic parameters of the projection should reflect a logically consistent future outlook of the

electric system. The projection requirements, and associated considerations, are wholly reasonable in light of the states' obligation to submit a plan sufficient for achievement of the performance rates or alternative state goals by affected EGUs, and in light of the EPA's obligation to determine whether the plan meets the requirements of the final Rule and section 111(d). For these reasons, the EPA is denying the Petition regarding projections.

D. State Measures Approach and Backstop

Petitioners seek reconsideration of the state measures approach. Ameren 19-20; UARG 15-16. The state measures approach is a state plan option that provides flexibility for affected EGUs to meet the statewide mass-based goal by allowing a state to rely upon state-enforceable measures on entities other than affected EGUs (i.e. "state measures"), in conjunction with any federally enforceable emission standards the state chooses to impose on affected EGUs. With a state measures approach, the plan must also include a contingent backstop of federally enforceable emission standards for affected EGUs that fully meet the emission guidelines and that would be triggered if the plan failed to achieve the required emission reductions on schedule. The state measures plan option is intended to provide states with additional latitude in accommodating existing or planned programs that involve measures implemented by the state, or by entities other than affected EGUs, that result in avoided generation and CO_2 emission reductions at affected EGUs. This includes market-based emission budget trading programs that apply, in part, to affected EGUs, such as the programs implemented by California and the RGGI participating states in the Northeast and Mid-Atlantic, as well as RE and demand-side EE requirements and programs, such as renewable portfolio standards (RPS), EERS, and utility- and state-administered incentive programs for the deployment of RE and demand-side EE technologies and practices.

In addition to providing states and sources with additional flexibility, the state measures plan option is structured to accomplish this while also meeting the statutory requirements of CAA section 111(d). Section 111(d) unambiguously requires that state plans establish standards of performance for affected sources that reflect the degree of emission limitation achievable by the BSER. In the context of the Clean Power Plan, a state plan that did not include emission standards for affected EGUs sufficient to achieve either the performance rates or alternative equivalent rate-based or mass-based goals would not meet the requirements of section 111(d). Therefore, while the state measures option allows states and sources to deploy measures on other entities in order to effectuate affected EGUs meeting their performance rates or alternative state goals, emission standards that reflect application of the BSER must still be established in order for a state plan to meet the requirements of section 111(d). The state measures plan meets this legal requirement by including a backstop of emission standards on affected EGUs assured to achieve the performance rates or alternative state goals, and such backstop is triggered in the event that measures on affected EGUs or other entities are failing to achieve the required emissions reductions on schedule. This combination of state measures and a federally enforceable backstop of emission standards on affected EGUs therefore mean the state measures plan option meets the requirements of section 111(d) while affording states and sources latitude to deploy and rely upon non-source programs and entities in the first instance if they so choose.

The Petitioners had sufficient opportunity to raise their objections during the public comment period. As explained in the final Rule, the state measures approach is a hybrid of the proposed requirement of imposing the obligation to achieve the requisite emissions performance level solely on affected EGUs and the proposed portfolio approach. The portfolio approach proposed to allow state plans to impose measures on entities other than affected EGUs in order

to achieve the performance rates or alternative state goals. 79 FR 34838. The proposal explicitly proposed "to interpret the relevant provisions in CAA section 111 to authorize state plans that achieve emissions reductions from affected EGUs by means of the portfolio approach" and posited several legal interpretations of section 111(d). 79 FR 34902. The proposal concludes its discussion of various potential legal interpretations by requesting "comment on all of the interpretations discussed in this section generally, and on all legal issues under CAA section 111(d)(1) with respect to what measures can be included in a state plan and what entities must be legally responsible for meeting those measures." 79 FR 34903.

The proposal also recognized that, "emission limits that are enforceable against affected EGUs appropriately belong in state plans because they clearly are ''standards of performance'"'' and explicitly proposed that an "interpretation of CAA section 111(d)(1) would suggest that the responsibility to achieve the state's required emission performance level must be assigned solely to affected EGUs." 79 FR 34903. In response to these requests for comment, multiple commenters, including Petitioner UARG, took the position that section 111(d) legally required that the responsibility to achieve the performance rates or alternative state goals can be imposed solely as emission standards on the affected EGUs and could not be imposed on other entities. *See, e.g.*, UARG December 2014 Comments 44-50, EPA-HQ-OAR-2013-0602-22768. Clearly, the public, including Petitioners, were on notice that state plans might be required to establish emission standards on affected EGUs sufficient to achieve the required emissions reductions. They were also on notice that EPA was considering an option in which a state plan could utilize state measures and defer the imposition of federally-enforceable emission standards on affected EGUs. In direct response to comments on the legality of the proposed portfolio approach and after further consideration of the legal structure of section 111(d), including comments received by Petitioner UARG and others, the EPA finalized the state measures approach as an option and but required inclusion of a federally enforceable backstop of emission standards on affected EGUs consistent with the proposal's interpretation that emission standards sufficient to achieve the performance rates or alternative state goals must be imposed on affected EGUs.

Also in response to comments on the proposed portfolio approach, numerous commenters requested the flexibility the proposed portfolio approach provided in allowing states and sources to rely on other non-EGU entities to achieve the requisite performance rates or alternative state goals. The finalized state measures approach is responsive to these comments and stakeholder feedback received on the proposal. The EPA received substantial feedback that allowing reliance on entities other than affected EGUs to meet the requirements of the Clean Power Plan would align with existing state and utility planning processes in the electric power sector, and would maximize state discretion and flexibility in developing plans. 80 FR 64837.

Therefore, in view of the explicit solicitation of comment in the proposal and subsequent receipt of comment on the issue, including from at least one Petitioner, it is apparent that the Petitioners were afforded ample notice of the state measures approach and associated backstop requirement and thus it was not impracticable for them to raise their objections during the rulemaking.

Nevertheless, in addition to being afforded the opportunity to comment on the state measures approach and whether state plans must include emission standards on affected EGUs at the time of proposal, Petitioners make no attempt at explaining what alternatives they would have offered as comment to the proposal on the state measures approach and associated

backstop requirement, and make little to no attempt at explaining why these aspects of the final Rule are of central relevance in their petitions. Regardless, had Petitioners appropriately provided such explanation, the EPA's finalization of the state measures approach and associated backstop requirements were reasonable in light of the statutory provisions of section 111(d). As explained in the final Rule, EPA views section 111(d) to unambiguously require a state to submit a plan that establishes standards of performance for affected sources, but does not mandate when such standards of performance must be in effect or implemented in order to meet applicable compliance deadlines. Because the statute is silent in this respect, Congress has delegated to the EPA the determination of the appropriate effective date of standards of performance submitted under state plans to meet the requirements of section 111(d), and the EPA has authority to provide a reasonable interpretation. The state measures approach and associated backstop of emission standards on the affected EGUs reflects the EPA's reasonable interpretation that for states that submit state plans establishing standards of performance under section 111(d), the effective date of such standards of performance may be deferred for affected EGUs if they are projected to achieve, and do achieve, the requisite state goal. 80 FR 64841. The Petitioners do not argue that this interpretation is unreasonable and do not offer any alternative interpretation that the EPA should have adopted. Therefore, the EPA is denying these petitions.

Petitioner UARG, by way of a meager explanation as to why the backstop component of the state measures approach is problematic, suggests that a switch from a state measures approach to a federally enforceable backstop of emission standards applicable to individual affected EGUs could be highly disruptive to a state's energy industry. This is potential concern is something that the affected EGUs in a state should discuss with the state as the state designs its plan, not a reason to reconsider the rule. Petitioner AEP also contends that the EPA failed to provide notice on the associated triggers for the backstop requirement. AEP 6-7. The Petitioner provides no information as to why the finalized triggers for the backstop are unreasonable or suggests an alternative for whatthe EPA could have finalized instead. The backstop triggers that the EPA finalized are reasonable because, similarly to the rationale the EPA provided for the triggers associated with corrective measures, the backstop triggers ensure the necessary measures are implemented promptly to avoid emissions shortfalls (or minimize the extent of shortfalls) relative to the eight-year interim goal and the final goal, which reflect the BSER. *See* 80 FR 64868.

XXVIII. Waste to Energy Requirements

The EPA received petitions from the Energy Recovery Council (ERC) and Local Government Coalition for Renewable Energy (LGCRE) requesting reconsideration of the requirement in 40 C.F.R. § 60.5800(d)(2) that state plans that include waste-to-energy as a resource eligible to generate emission rate credits assess (1) the capacity to strengthen existing or implement new waste reduction, reuse, recycling, and compositing programs, and (2) measures to minimize any potential negative impacts of waste-to-energy operations on such programs. As explained in the "Biomass Restrictions" section of this document (below), the EPA is deferring action on these and other Petitioners' requests for reconsideration of other aspects of the treatment of waste-to-energy under the CPP. Therefore, for consistency, the EPA is also deferring action on the requests for reconsideration of the waste-to-energy requirement in 40 C.F.R. § 60.5800(d)(2).

XXIX. Biomass Restrictions

The EPA received petitions from the Biogenic CO_2 Coalition; Commonwealth of Kentucky; National Alliance of Forest Owners; Oglethorpe Corporation; and the Biomass Power Association, Energy Recovery Council, and Local Government Council for Renewable Energy (joint petition) that include requests for reconsideration of various aspects of the CPP's treatment of qualified biomass as a measure that can be used to achieve compliance. The EPA is currently engaged in an administrative process investigating scientific and technical issues relating to the appropriate regulatory treatment of biogenic CO_2 that is separate and independent from the CPP.[236] Administrative developments pursuant to this process may result in further clarification of the appropriate treatment of qualified biomass in state plans and thus have the potential to resolve the biomass-related issues raised in the petitions. The EPA is therefore deferring action on the above-listed Petitioners' biomass-related requests for reconsideration.[237]

XXX. Ex-parte Communications

Energy & Environment Legal Institute's (EELI) Petition is premised entirely on undocketed email communications between a single former EPA official—who was not even at EPA when the Clean Power Plan was proposed[238]—and various members of non-governmental organizations (NGOs). Several dozen emails are attached as exhibits to the petition in support. EELI claims that these emails show that the whole rulemaking process was tainted by "ex parte communications," that the agency decision maker was impermissibly biased, and that the contacts between the single EPA official and NGO personnel constituted an advisory committee established in contravention of the provisions of the Federal Advisory Committee Act (FACA). The petition asserts lack of opportunity to raise its objection during the rulemaking because some of the emails in question were not yet available. According to the petition, the objection raised is of central relevance to the Clean Power Plan because the rule's outcome was determined by non-agency personnel. EELI Petition p. 4 ("[t]his direction from private parties was not simply manifest in the final rule; it documents a predetermination of the material substance of the rule, controlled by non-agency personnel"). EELI's Petition is nearly identical to its petition for reconsideration of the EPA's Section 111(b) standards for new, modified, and reconstructed fossil fuel-fired power plants, which the EPA denied in April 2016. *See* Basis for Denial of Petitions to Reconsider the CAA Section 111(b) Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Fossil Fuel-Fired Electric Utility Generating Units, pp. 36-38 (April 2016).[239]

This Petition is significantly incorrect as a matter of both law and fact. First, the concept of ex parte communication does not apply to informal rulemakings,[240] either under the Administrative Procedure Act or under the procedural requirements of the Clean Air Act. *Sierra*

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[236] *See* EPA Resp. Mot. to Hold Cases in Abeyance at 4, Biogenic CO_2 Coal. v. EPA, No. 15-1479 (D.C. Cir. Jan. 19, 2016).

[237] Issues related specifically to waste-to-energy requirements raised in separate petitions from the Energy Recovery Council and Local Government Coalition for Renewable Energy are addressed separately in the section on Waste to Energy Requirements.

[238] E&E News, Greenwire, "Policy chief moves to DOE" (Oct. 29, 2013), http://www.eenews.net/stories/1059989604.

[239] https://www.epa.gov/sites/production/files/2016-04/documents/111b_recondocument_april2016.pdf.

[240] "Informal rulemakings" (as opposed to rulemakings required by statute to be made on the record after opportunity for an agency hearing) involve notice by the agency via the Federal Register, and opportunity for public comment to that notice. 5 U.S.C. § 553(b) and (c).

Club v. Costle, 657 F. 2d 298, 400-402 (D.C. Cir. 1981).[241] The reason is that, unlike adjudicative proceedings, informal rulemakings involve policymaking, quasi-legislative types of determinations benefitting enormously from "continuing contact with a regulated industry, other affected groups, and the public ...." *Id.* at 401. Informal rulemakings stand in contrast with adjudicative, trial-type proceedings where conflicting claims to a valuable privilege militate in favor of insulation of the decision maker. *Id.* at 400. EELI cites *Home Box Office v. FCC*, 567 F. 2d 9 (D.C. Cir. 1977) as its (sole) support. EELI 5. However, that case does not apply to informal rulemakings. *Sierra Club*, 657 F. 2d at 402 ("Later decisions of this court ... have declined to apply *Home Box Office* to informal rulemaking ... and there is no precedent for applying it to the procedures found in the Clean Air Act.").

The EPA was also not required to docket these pre-proposal communications. Section 307(d)(3) of the Clean Air Act indicates that "[a]ll data, information, and documents referred to in this paragraph on which the proposed rule relies shall be included in the docket on the date of publication of the proposed rule." However, when a proposed rule is not based on any information or data arising from a particular contact, the information is not required to be docketed. *See Sierra Club*, 657 F. 2d at 407. That is the case here.

All of the emails attached as exhibits to the Petition are from 2011 and relate to an entirely different and ultimately withdrawn rulemaking under Section 111(b). The emails discuss a potential performance standard for coal-burning boilers of 1,600-2,100 lb CO2/MWh based on burning natural gas along with coal. In 2012, the EPA proposed a new source performance standard under Section 111(b) for coal-burning boilers based on the performance of natural gas combined cycle technology. 77 FR 22392 (April 13, 2012). That proposal was withdrawn. 79 FR 1352 (January 8, 2014). It was replaced with a new proceeding to set separate standards for coal-burning boilers and stationary combustion turbines. 79 FR 1430 (January 8, 2014). The proposed standard for coal-burning boilers were based on partial implementation of carbon capture and storage; the proposed standard for stationary combustion turbines were based on modern, efficient natural gas combined cycle technology. *Id.* Final standards for coal-burning boilers and stationary combustion turbines were published on October 23, 2015. 80 FR 64510.

The standards established in the Clean Power Plan, however, were not proposed until June 2014 and outreach on the proposal did not begin until summer 2013. 79 FR 34830, 34835 (June 18, 2014). The proposed rule was based on the application of four building blocks: heat-rate improvements, generation shifting to natural gas, generation shifting to renewables, and demand-side energy efficiency. *Id.* The final Rule is based on the application of three building blocks: heat-rate improvements, generation shifting to natural gas, and generation shifting to renewables. 80 FR 64667. There is no requirement to docket information on regulatory alternatives that the agency never proposed, never solicited comment on, and never otherwise pursued.

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[241] *See also* Administrative Conference of the United States, "'Ex Parte' Communications in Informal Rulemaking" (June 10, 2014) (stating "Informal communications between agency personnel and individual members of the public have traditionally been an important and valuable aspect of informal rulemaking proceedings conducted under section 4 of the Administrative Procedure Act (APA), 5 U.S.C. § 553. Borrowing terminology from the judicial context, these communications are often referred to as "ex parte" contacts. Although the APA prohibits ex parte contacts in formal adjudications and formal rulemakings conducted under the trial-like procedures of 5 U.S.C. §§ 556 and 557 5 U.S.C. § 553 imposes no comparable restriction in the context of informal rulemaking.") (citations omitted), *available at* https://www.acus.gov/recommendation/ex-parte-communications-informal-rulemaking.

Moreover, the EPA did disclose all factual and methodological information underlying the proposal, indeed exhaustively so. *See, e.g.*, 79 FR 34852-34942 (legal rationale for proposal; rationale for proposed selection of building blocks as BSER; cost information); *see also* "Clean Power Plan Proposed Rule Technical Documents," https://www.epa.gov/cleanpowerplan/clean-power-plan-proposed-rule-technical-documents (providing links to docketed proposed rule technical support documents, including power sector modeling, goal computation, state plan considerations, GHG abatement measures, resource adequacy and reliability analysis, and a legal memorandum, etc.). Even were the suggestions of outside parties reflected in a proposal (which is not the case here), then what would matter would be the content of that proposal, and whether the data and methodology underlying the proposal are disclosed. This is the information that is critical to a proposed rule, *see* CAA section 307(d)(3)(A)-(C), not the identity of individuals making suggestions.[242]

The further suggestion that the EPA's decision is the product of impermissible bias is untenable. Petitioners need to make a "clear and convincing showing of an unalterably closed mind on a matter critical to disposition of the proceeding". *Lead Industries Ass'n v. EPA*, 647 F. 2d 1130, 1178 (D.C. Cir. 1980). At most, the Petition shows that one EPA official, who was not in the lead office developing the rulemaking nor even at the agency when the Clean Power Plan was proposed let alone finalized, sought out pre-proposal comment on regulatory alternatives that the agency never pursued.

Rhetorical flourishes notwithstanding, the Petitioner has failed to make any semblance of the requisite showing here. For all of these reasons, the EPA is denying EELI's Petition.

XXXI. Proposed Building Block 4

Petitioners Utility Air Regulatory Group (UARG), West Virginia, and Wyoming requested reconsideration on the basis that the EPA deleted building block 4 from the final Rule without notice. UARG 6, West Virginia 2, Wyoming 3. West Virginia further asserts that the EPA's exclusion of building block 4 effectively forced a more pronounced shift toward renewable energy resources. The EPA is denying these requests because the agency provided notice of its final formulation of the BSER that that does not include building block four and because Petitioners have failed to demonstrate that the issues raised in their reconsideration requests regarding building block four are of central relevance.

The EPA proposed that the BSER for existing fossil fuel-fired electric generating units (EGUs) is comprised of four components: (1) reducing the carbon intensity of generation

[242] As it happens, EPA staff sought out the views of numerous parties, including states, tribes, industry, industry groups, academia, as well as the environmental community. *See, e.g.*, Summary of EPA State Consultations dated December 11, 2013, EPA-HQ-OAR-2013-0602-0067, Meeting with Arizona Officials and Utilities, EPA-HQ-OAR-2013-0602-17839, Meeting with Northwest Public Power Association, EPA-HQ-OAR-2013-0602-17832, Meeting with Nevada Stakeholders, EPA-HQ-OAR-2013-0602-17837, Meeting with West Virginia Department of Environmental Protection and Division of Energy, EPA-HQ-OAR-2013-0602-18199, Discussion with Xcel Energy, EPA-HQ-OAR-2013-0602-22637, Discussion with Midwestern Power Sector Collaborative, EPA-HQ-OAR-2013-0602-22636, Discussion with Regional Greenhouse Gas Initiative, EPA-HQ-OAR-2013-0602-22634, Meeting with Environmental Defense Fund, EPA-HQ-OAR-2013-0602-22315, Meeting with Arizona Electric Power Cooperative, EPA-HQ-OAR-2013-0602-25088, Meeting with GE, EPA-HQ-OAR-2013-0602-25087, Meeting and Tribal Consultation with Fort Mojave Indian Tribe, EPA-HQ-OAR-2013-0602-26047, Meeting and Tribal Consultation with For McDowell Yavapai Nation, EPA-HQ-OAR-2013-0602-26048, Meeting and Tribal Consultation with Navajo Nation, EPA-HQ-OAR-2013-0602-26045, Meeting with South Carolina Electric Utilities, EPA-HQ-OAR-2013-0602-27101, Meeting with Georgetown Climate Center, EPA-HQ-OAR-2013-0602-36094, Meeting with National Coal Council, EPA-HQ-OAR-2013-0602-36250, among many others.

through heat rate improvements, (2) substituting generation from the most carbon-intensive affected EGUs with generation from less carbon-intensive affected EGUs, (3) substituting generation from affected EGUs with low- or zero-carbon generation, and (4) reducing the amount of generation required through demand-side energy efficiency. 79 FR 34830, 34858/3. The EPA explained that the proposed BSER was rooted in its interpretation that CAA section 111(a)(1) allows for the inclusion of both measures that can be undertaken at the affected units and measures taken beyond the affected units that reduce emissions at those units. *See, e.g.*, 79 FR 34885-86 (the BSER can include any method that reduces the affected sources' emissions); Legal Memorandum for Proposed Clean Power Plan at 50-65. The agency recognized, however, that some stakeholders did not agree with the EPA's interpretation that the BSER could include measures that are taken outside the affected units, including building block four, and thus explicitly invited comment on its interpretation. 79 FR 34888/3.

The EPA received extensive feedback on its interpretation of the BSER, including both comments supporting the inclusion of building block 4 and comments expressing legal concerns about its inclusion. 80 FR 64778–79; *see also* RTC Ch.1, §§ 1.6–1.10 at 152–57. Upon consideration of those comments, the EPA concluded that building block 4 is fundamentally different from building blocks 1, 2, and 3. Thus, the final CPP does not include building block 4 as a component of the BSER. *Id.* at 64778/3. As the EPA explained in the preamble to the final Rule, "our traditional interpretation and implementation of CAA section 111 has allowed regulated entities to produce as much of a particular good as they desire, provided that they do so through an appropriately clean (or low-emitting) process. While building blocks 1, 2, and 3 fall squarely within this paradigm, the proposed building block 4 does not. In view of this ... , the EPA has not included demand-side [energy efficiency] as part of the final BSER determination." *Id.* at 64673/3.

Petitioners UARG, West Virginia, and Wyoming assert that the EPA did not provide notice that it might finalize a formulation of the BSER that does not contain building block 4. This is clearly not the case; the EPA provided ample notice of and an opportunity to comment on its proposed interpretation and composition of the BSER. Furthermore, the EPA explicitly requested comment on its position that the BSER can contain measures other than those taken directly by the affected EGUs. 79 FR 34888/3, *see U.S. Telecom Ass'n v. FCC*, 825 F.3d 674, 700 (D.C. Cir. 2016). As explained above, numerous commenters used this opportunity to express their views on the inclusion of building block 4 in the BSER. Petitioners thus clearly had notice that EPA was considering an alternate interpretation of the BSER that did not include one or more of the proposed building blocks. *Long Island Care at Home, Ltd. v. Coke*, 551 U.S. 158, 175 (2007).

Petitioners' requests for reconsideration of this issue are further not of central relevance because they offer no arguments or information that would cause the EPA to come to a different conclusion with regard to its interpretation of the BSER. Indeed, Petitioners have offered no explanation or analysis at all. The EPA extensively explained and supported its revised interpretation that the BSER for existing fossil fuel-fired EGUs does not include demand-side energy efficiency because these measures target consumer behavior and aim to reduce demand for the good produced (electricity), which is outside the existing section 111 paradigm. *See, e.g.*, 80 FR 64673, 64776-80; Legal Memorandum for Final Clean Power Plan at 118–20. Because there is nothing in the petitions to cause us to change this interpretation, Petitioners' objections are not centrally relevant.

West Virginia's assertion that removing building block 4 from the BSER resulted in a

more pronounced shift toward renewable energy in its state goal, West Virginia 2, is simply incorrect. Taking the emission reductions available from demand-side energy efficiency measures out of the BSER did not have any effect on how EPA calculated the emission reductions available from substituting generation from low- and zero-emitting sources for generation from affected EGUs under building block 3. Any changes in the contribution of building block 3 to West Virginia's state goal between the proposed and final Rule are due to adjustments in the methodological approach to calculating building block 3 as discussed in the preamble to the final Rule, 80 FR 64737, 64806-09, and addressed in section VII of this document.

Petitioners had notice of and an opportunity to comment on the composition of the BSER generally and the inclusion of building block 4 in particular, and they have not demonstrated that their objections to the EPA's final Rule are of central relevance. The EPA is therefore denying UARG's, West Virginia's, and Wyoming's requests for reconsideration of this issue.

XXXII. Inter-relationship of Rules

A. Summary of Petitions

Petitioners object that simultaneously, the EPA finalized the section 111(d) rule, finalized the section 111(b) rule, and proposed the federal plan, model rules, and subpart B revisions. According to Petitioners, all these rules are interrelated, and commenters could not assess any one of them without, at the same time, assessing the others. Accordingly, Petitioners say, the EPA should have proposed all of the rules at the same time to allow commenters to review and comment on all of them, and the EPA should reconsider all of them to allow commenters a comment opportunity. Ameren 3-4, 10-11, Arkansas 5-6, New Jersey 8, Kansas 6.

B. Response

The EPA is denying these petitions to reconsider. The Petitioners had adequate notice of the section 111(b) rule for newly constructed sources because the EPA had already proposed that rule by the time the EPA proposed the section 111(d) rule. In addition, the EPA proposed the section 111(b) rule for modified and reconstructed sources at the same time that it proposed the section 111(d) rule. Thus, commenters for the 111(d) rule were able to consider the 111(b) rule in commenting on the 111(d) rule. In addition, the petitions are not of central relevance because they do not present new information – nor is the EPA aware of any – based on the 111(b) rule that would provide a basis for changing the 111(d) rule. The 111(b) rule and the 111(d) rule are distinct because the former concerns new, modified, and reconstructed sources, and the later concerns existing sources. As a result, they have little regulatory overlap. Commenters did submit comments comparing the relative stringency of those rule and the respective types of BSER, and the EPA responded to those comments.

With respect to the proposed federal plan and model rule, they generally provided more details about the applications of the requirements in the section 111(d) rule, primarily with respect to the trading programs. Awareness of those details, such as the mechanisms for recordation of allowances, were not necessary to comment on the CPP requirements. In other sections, the EPA has explained that the CPP proposal and subsequent publications during the comment period provided adequate opportunity to comment on the CPP requirements, including, for example, trading requirements. It is regular practice for the EPA to promulgate a rule that establishes emission reduction requirements and subsequently adopt implementing

rules and guidance that contain more detailed applications of the requirements. This process does not deprive commenters of the opportunity to comment on the requirements during the initial rulemaking. For example, the EPA promulgated the Clean Air Implementation Rule in 2005, and subsequently promulgated a FIP that established the trading program as the backstop in the event the states failed to submit SIPs. As other examples, the EPA routinely promulgates the implementation requirements for a revised NAAQS after the NAAQS revision (e.g., the EPA promulgated the PM2.5 NAAQS in 1997, and the main implementation rule in 2007 and the NSR implementation rule in 2008; the EPA promulgated the revised PM2.5 NAAQS in 2012 and the implementation rule in 2016; the EPA promulgated a revised ozone NAAQS in 2008 and proposed the implementation rule in 2013 and finalized it in 2015; the EPA promulgated a revised ozone NAAQS in 2015 and proposed the implementation rule in 2016). Petitioners' argument would preclude the EPA from proposing emission reduction requirements unless it simultaneously proposes the implementing rules and guidance, which in many instances would be unworkable. In any event, Petitioners do not explain what comments they would have made and why those comments could have resulted in differences in the final Rule.

With respect to the proposed subpart B rule, it is distinct from the section 111(d) rule because the former concerns procedural requirements applicable to all section 111(d) rules, not the specific requirements of the Clean Power Plan. Accordingly, awareness of the proposed procedural requirements was not necessary for commenters on the section 111(d) to be able to comment on the section 111(d) rule. In any event, Petitioners do not explain what comments they would have made and how those comments could have resulted in differences.

XXXIII. Section 111 Modifications and New Source Review

A. Modification

1. Summary of Petitions

Petitioner objects that the EPA proposed that an EGU that undertakes a modification should remain subject to the final Rule (that is, remain treated as an existing source), while also becoming subject to the modification standard, but that the final Rule provides that such a unit does not remain subject to the final Rule. The petitioner claims comment should have been allowed on this change, and notes that the EPA did not announce how it would resolve the issue of how to treat such a source. Ameren 22.

2. Response

The petitioner's statement does not appear to be a petition to reconsider anything in the final Rule. The petitioner notes that the EPA did not include a provision in the final Rule, and objects to what it considers the lack of opportunity to comment on that omission, but does not request that any provision in the final rule be reconsidered. In any event, Petitioners had an opportunity to comment on whether a source that modifies should remain subject to the 111(d) requirements, and some commenters did comment that such as source should not remain subject to the 111(d) requirements. *See e.g.* UARG Comments at 66-72. Nor does petitioner provide any information to lead the EPA to determine that such a source should remain subject to the final rule, and, in any event, petitioner is not disadvantaged by the lack of such a provision in the final rule.

B. Large Modification

1. Summary of Petitions

The EPA should provide an exemption from new source review (NSR) for units undergoing a large modification to comply with the Clean Power Plan or a court order. Ameren 22

2. Response

The EPA is denying this petition to reconsider. Petitioners had an opportunity to comment on this issue because it was raised in the proposal, 79 FR 34928-34929; and commenters did comment on it. *See* UARG Comments at 11; *see also* 80 FR 64919-64920. In addition, the petition is not of central relevance because as we explained in the final rule, the EPA is not authorized to create an exemption from NSR. In addition, Petitioner did not provide any information that would lead the EPA to revise the final Rule. In any event, experience with applying the NSR requirements – and particularly the prevention of significant deterioration (PSD) best available control technology (BACT) requirements – to GHG emissions from modified and new plants indicates that those requirements have not been onerous or difficult to address. During the past six years that the EPA and the states have implemented these PSD requirements, they have issued hundreds of PSD permits for GHGs, a large number of which have been based on efficient operation of the plant.

C. Modification of Natural Gas Units

1. Summary of Petitions

The Petitioner notes that the EPA withdrew its proposal for a modification standard for modified natural gas plants, and that disparate treatment (a modification standard for coal-fired power plants but not natural gas-fired power plants) favors natural gas-fired plants. Ameren 22

2. Response

The EPA is denying this petition due to lack of central relevance because the Petitioner has not provided information that would lead the EPA to change anything in the final Rule. The difference in treatment of the two types of plants is due to differences in the available information. The EPA proceeded with a modification standard for coal-fired power plants because it had available information, but it did not have information available for natural gas fired plants. The EPA's approach is consistent with caselaw authorizing an agency to regulate in step-wise fashion. See., e.g., *Massachusetts v. EPA*, 549 U.S. 497, 524 (2007); *Grand Canyon Air Tour Coalition* v. *F.A.A.*, 154 F.3d 455, 477–78 (DC Cir. 1998). In any event, existing natural gas fired power plants that undertake changes that might qualify as modifications were there a modification standard, remain subject to the 111(d) requirements for existing sources, and therefore are not advantaged in comparison to the coal-fired power plants that modify and, as a result, are no longer subject to the 111(d) requirements.

XXXIV. Applicability

A. UARG

1. Summary of Petition

UARG argues that the EPA should reconsider one of the final Rule's applicability criteria for stationary combustion turbines because the EPA altered it in the final Rule by changing the definition of "base load rating" to include the heat input from duct burners. UARG at 17. UARG alleges that this is inconsistent with the EPA's historical treatment of stationary

combustion turbines in Subpart KKKK. *Id.* UARG suggests that the final criterion is problematic by pointing to its comments, where UARG explained that duct burners have different operational and emission characteristics from other equipment at the unit, so the generating capacity from duct burners should be treated differently from the rest of an NGCC unit's generating capacity. *Id.*

2. Response

The EPA is denying UARG's petition with respect to this issue. While the EPA agrees that it was impractical for UARG to raise this particular objection during the public comment period, UARG has failed to explain how its objection is of central relevance to the outcome of the final rule or how any of its members are harmed by the change. UARG has not identified a single existing NGCC unit that became subject to the final rule's requirements as a result of the change to the definition of "base load rating," and the EPA's independent assessment similarly did not identify any such units. UARG also fails to explain why a discrepancy between the definition of "base load rating" in Subpart KKKK and the definition in the final Rule is problematic or relevant. Under Subpart KKKK (the criteria-pollutant NSPS), the EPA subcategorized combustion turbines based on size to differentiate between smaller aeroderivative turbines and larger industrial frame turbines. Aeroderivative turbines have higher NO_X emissions than industrial frame turbines. Thus, if the EPA had included the heat input from duct burners[243] in the definition of "base load rating" in Subpart KKKK, some aeroderivative turbines with duct burners would have moved into the subcategory for larger industrial frame turbines and would not have been able to achieve the applicable standard of performance for NO_X. In the final Rule, however, the EPA did not subcategorize stationary combustion turbines based on size because the EPA determined in the new source rule that, among other things, there is no strong correlation between turbine size and GHG emissions. *See* 80 FR 64608-09. Because the EPA's rationale for excluding the heat input from duct burners from the definition of "base load rating" no longer applied, the EPA appropriately modified the definition to include the heat input from duct burners, which are an integral part of many NGCC units. Finally, UARG cites to its irrelevant comments on the proposed rule, where it incorrectly argued that building block 2 would allegedly require existing NGCC units to fire their duct burners on a continuous basis, to support its general argument that duct burners must always be treated differently. UARG's argument is unsupported and without merit. The sole effect of including the heat input from duct burners in the definition of "base load rating" is to potentially subject slightly smaller existing NGCC units to the requirements of the final Rule. But as the EPA already explained, UARG failed to identify any such units, and the EPA's independent assessment did not identify any such units either.

B. Southern Company

1. Summary of Petition

Southern Company argues that the EPA should reconsider the final Rule's applicability criteria because the EPA "drastically changed its path in the Final Rule by removing one exemption category and adding seven additional categories." Southern Company at 26-27. Southern Company alleges that the exemptions in the final Rule were "wholly independent of and not related to" the exemptions in the proposed rule, so Southern Company did not have an

[243] A typical NGCC unit is comprised of combustion turbines, a heat-recovery steam generator that uses waste heat from the combustion turbines to generate steam, and a steam turbine. Heat-recovery steam generators can be used with or without duct burners, 80 FR 64960, which provide supplemental firing to generate additional steam.

opportunity to comment. *Id.* at 27. Southern Company points to two exemptions in particular—the exemptions for steam generating units that have historically limited their electric sales or use of fossil fuels. *Id.* Southern Company asserts that these exemptions are too narrow in that they should not be limited to historical actions, but should also include current or future operations. *Id.*

2. Response

The EPA is denying Southern Company's petition with respect to this issue. In the proposed Rule, the EPA indicated that its rationale for the proposed applicability criteria was the same as its rationale for the proposed applicability criteria in the new source rule and incorporated that discussion by reference. 80 FR 34854/2. In the proposals for establishing standards of performance for new, modified, and reconstructed sources, the EPA described the proposed applicability criteria in detail and solicited comment on a host of applicability-related issues. *See* 79 FR 1445-46, 1459-62 (new sources); 79 FR 34972-73, 34979-81 (modified and reconstructed sources). Thus, without more specifics, Southern Company's bare allegation that it did not have the opportunity to comment on the final Rule's applicability criteria *at all* is simply not credible.

At proposal, the EPA included all "steam generating unit[s] or IGCC[s] that [have] a base load rating greater than 73 MW (250 MMBtu/h) heat input of fossil fuel (either alone or in combination with any other fuel) and [were] constructed for the purpose of supplying one-third or more of its potential electric output and more than 219,000 MWh net-electric output to a utility distribution system on an annual basis" as potentially affected EGUs. 79 FR 34954. For simplicity's sake, we will refer to the first half of this applicability definition as the "heat-input criterion," and the second half as the "electric-sales criterion." The EPA proposed no exemptions except for units that qualify as new units under Subpart TTTT. *Id.* In the proposed new source rule, the EPA specifically solicited comment on whether the electric-sales criterion should be based on source operation after construction or a source's purpose at the time of construction. 79 FR 1461. The EPA also included in the docket for comment alternative criteria that did not require a source to be "constructed for the purpose of" supplying a specific amount of electricity to the grid. OAQPS Memo to the Docket, EPA-HQ-OAR-2013-0495-0062, at 23, 34-35. The EPA received several comments explaining why applicability should not be based on a source's purpose at the time of construction. *See, e.g.*, Am. Fuel & Petrochemical Mfrs. Comments 5, EPA-HQ-OAR-2013-0495-10098-A1, JA005178; Duke Energy Comments 52, EPA-HQ-OAR-2013-0495-9426.

Consequently, in the final Rule, the EPA modified the general applicability definition as follows: (1) "Serves a generator or generators connected to a utility power distribution system with a nameplate capacity greater than 25 MW-net (i.e., capable of selling greater than 25 MW of electricity)" and (2) "Has a base load rating (i.e., design heat input capacity) greater than 260 GJ/hr (250 MMBtu/hr) heat input of fossil fuel (either alone or in combination with any other fuel)." 80 FR 64953/1. The final heat-input criterion is essentially identical to the proposed heat-input criterion except that the units changed from MW to GJ/hr. The final electric-sales criterion, however, covers EGUs capable of selling 25 MW of electricity to the grid rather than those EGUs that were constructed for the purpose of selling 219,000 MWh or less electricity to the grid.[244] This change, intended to avoid applicability uncertainty for both the regulated

[244] As the EPA explained in the proposed new source rule, "219,000 MWh net sales ... is functionally equivalent to the 25 MW net sales language." 79 FR 1446.

community and regulators, 80 FR 64544/2, is a logical outgrowth of the proposed new source rule and the comments the EPA received.

In addition, the EPA provided an exemption in the final rule for "[s]team generating units and IGCCs that are, and always have been, subject to a federally enforceable permit limiting annual net-electric sales to one-third or less of its potential electric output, or 219,000 MWh or less," 40 CFR § 60.5850(b), which allows some units with historically low electric sales to avoid applicability despite their capabilities. Southern Company takes issue with this exemption and another for units that have historically limited their use of fossil fuels (both of which benefit industry), arguing that the exemptions should be expanded to include current or future operations as well. But the EPA explained in the final new source rule why this would be problematic:

> Based on restrictions, if any, on annual total electric sales in the operating permit, it will be clear from the time of construction whether or not a new unit is subject to this rule. The applicability includes all utility boilers and IGCC units unless the electric sales restriction was in the original and remains in the current operating permit without any lapses (this is to be consistent with the 'constructed for the purpose of' criteria in subpart Da). We have concluded that this approach is equivalent to, but clearer than, the existing language used in subpart Da. In addition, we have concluded that it is important for both the 111(b) and 111(d) requirements for electric-only steam generating units that the permit restriction limiting annual electric sales be included in both the original and current operating permit. Without this restriction, existing units could avoid obligations under state plans developed as part of the 111(d) program by amending their operating permit to limit total annual electric sales to one-third of potential electric output. These units would not be subject to any GHG NSPS requirements because they would not meet the 111(b) or 111(d) applicability criteria and, at this time, there is no NSPS that would cover these units.

80 FR 64544. Southern Company makes no attempt to refute the EPA's reasoning, and thus its objections are not centrally relevant to the outcome of the final rule.

C. Newmont

1. Summary of Petition

Newmont argues that the EPA should reconsider the final Rule's applicability language at 40 CFR §§ 60.5845 and 60.5850 and return to the applicability language used in older NSPS rules for fossil-fuel-fired power plants. Newmont at 1. Newmont asserts that the final Rule's applicability language was not included in the proposed Rule or the October 2014 NODA and that the language is not a logical outgrowth of the Proposal. *Id.* Newmont further asserts that the final Rule's applicability language is "a threshold issue" that is "central to the Final Rule" because it precludes steam generating units connected to the grid that function as industrial boilers from avoiding applicability. *Id.* Newmont explains that it submitted extensive comments on the proposed rule that allegedly demonstrated that its TS Power Plant did not meet the definition of an "affected EGU" under the proposed applicability language. *Id.* at 2. Specifically, Newmont's comments argued that the TS Power Plant was not "constructed for the purpose of supplying one-third or more if its potential electric output and more than 219,000 MWh net-electric output to a utility distribution system on an annual basis," but was instead

built for the primary purpose of providing power to Newmont's mining operations. *Id.* at 2-3. Newmont argues that the final Rule changed this proposed applicability language, which was itself based on applicability language in Subpart Da that the EPA adopted over thirty years ago, to cover EGUs that "serve[] a generator connected to a utility power distribution system with a nameplate capacity of 25 MW-net or greater (i.e., capable of selling greater than 25 MW of electricity)." *Id.* at 3-4. Newmont asserts that this new language "sweeps *all generators* connected to a utility power distribution system" into the ambit of the final Rule unless an exemption applies. *Id.* at 4. Newmont points to one such exemption for EGUs that "are currently and always been subject to a federally enforceable permit limiting annual net-electric sales to one-third or less of its potential electric output, or 219,000 MWh or less," but argues that the permit-aspect of the exemption makes it too narrow. *Id.* At bottom, Newmont believes that the EPA proposed to cover those units subject to Subpart Da (utility boilers) only, but then finalized applicability criteria that covered some units subject to Subpart Db (industrial boilers) as well. *Id.* at 4-5. Newmont argues that its TS Power Plant qualifies as an industrial boiler under Subpart Db and thus would have been exempt under the proposal, but will now be subject to the final Rule. *Id.* at 5-6.

2. Response

The EPA is denying Newmont's petition with respect to this issue. As explained in the prior response, the EPA's decision to remove the "constructed for the purpose of" language from the applicability criteria was a logical outgrowth of the new source proposal. Newmont's attempts to argue otherwise are unavailing. Newmont also criticizes the final Rule's historical-sales exemption, arguing that it should apply to all sources that have historically limited their electric sales below the applicable thresholds regardless of whether that limitation was found in the source's operating permit. Newmont's proposal is unworkable, however, because sources with historically low electric sales could still increase their sales in the future while avoiding the final rule's requirements. In any event, Newmont's primary objection is that the EPA should revert to the proposed applicability criteria so that its TS Power Plant will not be an affected EGU. Newmont's objection is not centrally relevant because the TS Power Plant would have been an affected EGU even under the proposed criteria. Newmont claims that the TS Power Plant was "constructed for the purpose of" supplying electricity to Newmont's mining operations, but these operations are not co-located with the TS Power Plant. Instead, the TS Power Plant supplies electricity directly to the grid using the transmission lines owned and operated by the local utility. While Newmont insists that the TS Power Plant "meets the regulatory requirements for an industrial boiler under [S]ubpart Db," the evidence suggests otherwise. In addition to the fact that the TS Power Plant is not co-located with Newmont's mining operating, as discussed above, the TS Power Plant's operating permit contains explicit references to Subpart Da. Newmont attempts to explain away these references by claiming that the TS Power Plant is subject to a BACT limit, and not Subparts Da or Db, but this makes no sense. BACT limits do not exempt sources from NSPS requirements. Thus, the TS Power Plant is either a utility boiler subject to Subpart Da or an industrial boiler subject to Subpart Db. The TS Power Plant's permit references Subpart Da, and Newmont never raised any objections to being identified as one of the best performing units[245] during the EPA's most recent revisions to Subpart Da. 77 FR 9304. For all of these reasons, the TS Power Plant would have been an

[245] *See* the docket memos at EPA-HQ-OAR-2011-0044-5762 and EPA-HQ-OAR-2011-0044-5763 at http://www.regulations.gov, which list the SO_2 and NO_X emissions performance data from new subpart Da facilities.

affected EGU even under the proposed rule, and Newmont's objections would not lead the EPA to revise the rule upon reconsideration.

XXXV. 111(d) is More Stringent than 111(b)

A. Summary of Petitions

Petitions for reconsideration stated that the final Rule is invalid because the uniform emission rates in the emission guidelines, which we sometimes refer to as the existing source performance standards (ESPS) or CPP, are more stringent than the standards of performance for new sources that the EPA set in the new source performance standards (NSPS) for new fossil fuel-fired power plants. Kansas 4. The petitions for reconsideration stated that this leads to perverse implications because sources may seek to modify to avoid the requirements of the ESPS. Prairie State 3-4.

B. Response

The EPA is denying the petitions to reconsider. Petitioners had adequate opportunity to comment on the relative stringency of the NSPS and the ESPS. In fact, as the EPA noted in the final ESPS, commenters made the same objection that petitioners make. 80 FR 64785.

In addition, the petitions are not of central relevance because they do not present information that would lead the EPA to revise the ESPS; nor is the EPA aware of any such information. The EPA discussed the relative stringency of the ESPS and the NSPS at length in the final ESPS. The EPA stated, "Comparing the control requirements of the two sets of rules, CAA section 111(d) and 111(b), is an "apples-to-oranges" comparison and, as a result, it is not possible – and it is overly simplistic – to conclude that the 111(d) requirements are more stringent that the 111(b) requirements." 80 FR 64785. The EPA went on to discuss in detail why the two sets of requirements cannot be compared. 80 FR 64785-87.

Specifically, the new source standards became effective immediately. 80 FR 64538. However, under the ESPS, existing sources will not be subject to CO_2 performance standards until 2022 at the earliest—in fact, states may delay imposing requirements until 2023 or, in most cases, 2024—and the standards are then gradually phased in through 2030. 80 FR 64785-86. Meanwhile, the EPA is required to review and, if appropriate, revise the stringency of new source standards no less frequently than every eight years—i.e., by 2023. Thus, the stringency of the limits that will apply to new sources when the existing source standards actually go into effect (2022 or later) and become fully effective (2030) is not yet known. Moreover, the new source standards apply directly to each new source individually and are expressed in the form of a rate that each source must meet in practice without reliance on emission-rate credits. In contrast, states have great flexibility in fashioning requirements for existing sources consistent with the EPA's guidelines, and existing sources are expected to be able to access cost-effective crediting measures to meet their eventual state standards. In any event, "[n]o provision in [S]ection 111, nor any statement in the legislative history, nor any of its case law, indicates that the standards for new sources must be more stringent than the standards for existing sources." *Id.* at 64787.

Although EPA's 1975 implementing regulations note that existing source guidelines will "ordinarily be less stringent." 40 FR 53344, there have been instances where existing source guidelines are more stringent. The Primary Aluminum Guidelines are one such instance. As the EPA noted in those guidelines, an "occasional old [aluminum] plant may have a [more stringent] guideline fluoride emission rate than a new plant subject to [a new source standard]; but such a rate will not be unreasonable to attain." 45 FR 26294, 26295.

In addition, as discussed in the Power Sector Trends Appendix, the business-as-usual trends of the energy sector towards cleaner energy sources since the record closed for the ESPS mean that at present, the overall costs for sources to comply with the CPP are projected to be significantly lower than the EPA projected at the time the record for the CPP closed. According to several studies, in more than one-third to more than a majority of states, sources will find it unnecessary to take any action at all to meet their CPP requirements. This further indicates that the stringency of the CPP requirements cannot be compared to the stringency of the NSPS requirements.

XXXVI. 111(d) Establishes Only Procedures; States Quantify Limits

A. Summary of Petitions

Petitions for reconsideration objected to the final Rule on grounds that section 111(d) authorizes the EPA to establish only procedures for states to submit plans. States are authorized to determine the emission limits. Kansas 3.

B. Response

The EPA is denying the petitions to reconsider. Petitioners had adequate opportunity to comment on the proper interpretation of section 111(d). In fact, as the EPA noted in the final ESPS, commenters made the same objection that petitioners make. *See* Legal Memorandum, 18-23.

In addition, the petitions are not of central relevance because they do not present information that would lead the EPA to revise the ESPS; nor is the EPA aware of any such information. The EPA discussed this issue at length in the final Rule. *Id.*

Under Section 111(d) and longstanding regulations (40 C.F.R. Part 60, Subpart B), the agency promulgates "guidelines" for states to follow when submitting "satisfactory" plans establishing emission standards for existing sources. While it is the states' job to establish such standards, those standards must "reflect[]" the "degree of emission limitation achievable through the application of the best system of emission reduction … the Administrator determines has been adequately demonstrated." 42 U.S.C. § 7411(a)(1) (emphasis added). Thus, it is the EPA's job to determine the best system of emission reduction and the degree of emission limitation achievable through that system—i.e., to establish a minimum level of stringency—which then enables states to create "satisfactory" plans.[246] The EPA regulations have so stated since 1975[247] making Petitioners' argument untimely. See 42 U.S.C. § 7607(b)(1).

Here, the EPA expressed the degree of emission limitation achievable through application of the BSER in the form of uniform CO_2 emission rates, and then translated those rates into state-specific rate- and mass-based goals. 80 FR 64667. But the EPA left it to each state to set particular standards for particular sources, taking advantage of the Rule's menu of

[246] Industry previously recognized the EPA's role in this regard. See UARG Mercury Rule Comments, 133-34 ("[S]tate plans must be consistent with the EPA's regulatory determination. … Nothing in the Act … gives states the ability to choose not to follow the guidelines that the EPA establishes under § 111 based on the Administrator's 'best system' determination.")

[247] 4 See 40 64 at 53,342-43 (rejecting argument that it was inappropriate for the EPA to determine minimum stringency); 40 C.F.R. § 60.24(c) (requiring that state "emission standards shall be no less stringent than the [EPA] guidelines"). The regulations under section 111(d) authorize the EPA to approve state plans that are less stringent than EPA's emission guidelines when addressing pollutants that endanger welfare but not health. 40 CFR 60.24(d). CO_2, however, endangers both health and welfare, 80 FR 64682, so 60.24(c), not 60.24(d), applies to the ESPS, which precludes state plans that are less stringent than the guidelines.

options. *Id.* 64707, 64823-24. Thus, "state[s] may apply a standard of performance that is either more stringent or less stringent than the performance level in the emission guidelines, as long as, in total, the state's sources achieve at least the same degree of emission limitation as included in the EPA's emission guidelines." *Id.* 64719. This division of responsibilities is consistent with Section 111(d) and cooperative federalism principles.

XXXVII. Calculation of Final Emission Performance Rates

A. Summary of Petitions

In calculating the fossil steam rate the Petitioners say the EPA added existing NGCC CO_2 pounds to the final coal pounds, which the Petitioners failed to explain, and argue that the EPA double counted NGCC capacity by including it in the fossil steam calculation. Hoosier, EKPC, Minnkota 6-7.

B. Response

Contrary to the Petitioner's claim, the final Rule explains how and why incremental NGCC emissions and capacity calculated under building block 2 are appropriately included in calculations for the fossil-steam emission performance rate. As discussed in section VI.D.4 of the final Rule preamble:

> [T]he EPA had to answer the question of how to reflect the building blocks in the equations defining the rates in a manner that would enable the generation shifts that are essential components of the BSER. In the case of building block 3, the EPA accomplished this by incorporating the pro rata share of incremental (above baseline) zero emitting generation into the emission rates for each group of affected EGUs, thus ensuring that these EGUs would have to include a corresponding amount of zero-emitting generation in their compliance calculations, either through the acquisition of credits or through some other mechanism as determined by their state in its implementation plan. For building block 2, a similar mechanism is needed. Accordingly, a portion of the NGCC generation and emissions used to replace fossil steam must be averaged into the steam rate, analogous to what was done with building block 3.

See 80 FR 64818.

Failing to account for these incremental building block 2 NGCC emissions and generation in the fossil-steam emission performance rate would understate the effect of building block 2 on fossil-steam sources. As stated in the preamble, including these NGCC emissions and generation in the fossil-steam emission performance rate ensures that fossil-steam EGUs include a corresponding amount of lower-emitting generation in their compliance calculations. For example, consider a state with a starting rate of 4,000 lb/2 MWh (equivalent to a 2,000 lb/MWh rate) that replaces 1 MWh of fossil steam generation and emissions with NGCC and does not factor the NGCC generation and emissions into its steam rate. The resulting steam rate would remain unchanged at 2,000 lb/MWh. In this example, replacing the higher emitting fossil steam generation with lower emitting NGCC generation does not get reflected in the fossil steam rate which fails to properly account for the emission reductions achieved through application of building block 2. Therefore, it is necessary to add the NGCC generation and emissions that replace fossil steam into the fossil steam rate to reflect the BSER and application of building block 2. Moreover, this treatment allows for the flexibility of co-firing compliance by ensuring the gas and steam emissions and generation are accounted for in the same rate.

As the petitioner acknowledges, the EPA correctly includes these NGCC emissions and generation in the calculation of the NGCC emission performance rate. The EPA explains that, "[t]he full NGCC generation (and corresponding emissions) expected under the BSER calculation from that source category is included in the NGCC rate, even though a portion of it is also reflected in the fossil steam rate. Failing to do so would leave the NGCC sources with a lower rate than what is expected post building block 2 and building block 3 when accounting for all of their generation and block three responsibility. Keeping the full NGCC generation amount in the NGCC rate recognizes the dual role NGCC has in terms of compliance responsibility as an affected EGU and a mitigation measure under building block two that that can offset fossil steam generation." See "CO_2 Emission Performance Rate and Goal Computation Technical Support Document for CPP Final Rule" at page 17 (Docket ID: EPA-HQ-OAR-2013-0602-36850).

The issues raised by the Petitioner are not errors or "unexplained" as the Petitioner alleges. The calculations used to derive the emission performance rates and the rationale behind those calculations are clearly explained in section VI of the preamble to the final Rule as well as the technical support document entitled, "CO_2 Emission Performance Rate and Goal Computation Technical Support Document for CPP Final Rule" (Docket ID: EPA-HQ-OAR-2013-0602-36850).

XXXVIII. Insufficient Time to Comment on NODA

Petitions to reconsider objected that the EPA did not provide sufficient time for comment on the NODA, and some objected in particular that the NODA included revisions to the building block methodology. Ameren 20, Kansas 5, New Jersey 7.

The EPA signed the NODA and posted it on the EPA's web-site on October 27, 2014. The EPA published notice of the NODA on October 30, 2014, and the comment period for the NODA, along with the proposed Rule, closed on December 19, 2014. Commenters had 54 days to comment on the NODA from the date it was posted, and 51 days from the date it was published. The EPA received extensive comments on the NODA. Accordingly, the EPA concludes that commenters had adequate opportunity to comment.

XXXIX. Title V Compliance Certification

Petitioner Ameren objects that the final Rule requires an affected EGU to certify compliance with its standard of performance its Title V permit, even though compliance with the state standard may require certifications from numerous entities and the affected source will have little control over whether and how the state will meet its goal. Ameren requests reconsideration on the basis that "[t]his matter flows directly from the initial change in logic, must be addressed, and the EPA has taken no comments on this specific issue." Ameren 20. The EPA is denying this petition for reconsideration.

The final Rule does not require an affected source to certify that the state in which it is located will achieve its statewide CO_2 emission goal. The CPP itself contains no requirements regarding Title V permits and certifications; these requirements are contained in 40 CFR. Parts 70 and 71. *See* 79 FR 34929 ("Requirements resulting from this rule that are imposed on affected EGUs or any other potentially affected entities that have title V operating permits are applicable requirements under the title V regulations and would need to be incorporated into the source's title V permit...."). Moreover, Ameren conflates the statewide CO_2 emission goals with the standards of performance applicable to individual affected EGUs. An individual source must certify compliance with its applicable standard of performance; whether and how the state will

meet its statewide CO_2 emission reduction goal is irrelevant with respect to the obligation of an affected EGU to certify compliance in its Title V permit.

Because the final Rule does not contain the requirement of which the Petitioner is requesting reconsideration, the EPA is denying its reconsideration request.

XL. Costs

A. Wisconsin DNR and PSC

1. Summary of Petition

Wisconsin DNR and PSC argue that the EPA should grant reconsideration of the final Rule because the EPA failed to model the building blocks together or perform "integrated utility system modeling," which allegedly prevented the EPA from truly evaluating the compliance costs of the rule. Wisconsin DNR and PSC at 3. They point to the state's comments on the proposed Rule, which argued that the building blocks were not additive and worked against each other when applied together. *Id.* They also argue that the EPA should not have included demand-side energy efficiency measures in the IPM modeling that supported the RIA because it is not one of the building blocks. *Id.* Finally, citing a 2013 MISO study, they argue that the EPA failed to assess the cost impacts associated with increased natural gas demand, such as the need for new NGCC units in 2030, interstate or localized natural gas infrastructure constraints, and increased natural gas use outside of the utility sector. *Id.* at 4.

2. Response

The EPA is denying Wisconsin DNR and PSC's petition with respect to these issues. First, Wisconsin DNR and PSC do not explain how it was impracticable to raise their objections during the period for public comment or provide new information as the basis for their objections. With respect to their argument that the EPA should have modeled the building blocks together, they admit that they already made this objection during the public comment period on the proposed Rule. Likewise, the MISO study that they cite to support their argument that the EPA failed to account for natural gas infrastructure constraints was issued in 2013, a full year before the EPA published the proposed Rule. Furthermore, Wisconsin DNR and PSC had adequate notice that the EPA would include demand-side energy efficiency measures in the IPM modeling used to support the final RIA because the EPA included these measures in the proposed RIA for the same reason—they are compliance options available to states and affected sources. Thus, it is irrelevant that demand-side energy efficiency measures were part of the BSER at proposal. Similarly, the EPA did not conduct "integrated utility system modeling" to support the proposed Rule, so Wisconsin DNR and PSC could have raised an objection to the lack of such modeling in their public comments, but did not. In summary, Wisconsin DNR and PSC have failed to present any objections that they did not or could not have raised during the public comment period.

Second, Wisconsin DNR and PSC do not explain how their objections are of central relevance to the outcome of the Rule. All of their objections relate to the IPM modeling runs the EPA performed to develop the RIA. The EPA did not rely on these modeling runs or the benefit-cost analysis in the RIA to justify the BSER determination in the final Rule, 80 FR 64751/1, so Wisconsin DNR and PSC's objections are not relevant, let alone centrally relevant, to its outcome.

In addition, each of their arguments lacks merit as the EPA does not anticipate that states will fully require implementation of the building blocks. As the EPA explained in the proposed Rule, "States are not required to use each of the measures that the EPA determines constitute the

BSER or use those measures to the same degree or extent that the EPA determines is feasible at a reasonable cost. Thus, each state has the flexibility to choose the most cost-effective measures given that state's energy profile and economy, as long as the state achieves the reductions necessary to meet its goal." 79 FR 34899/3. Consequently, to determine the compliance costs of the final Rule, the EPA did not simply model the building blocks, but instead presented illustrative scenarios designed to achieve the state goals. These illustrative scenarios "reflect states and affected EGUs pursuing building block strategies," but "are not limited to the technologies and measures included in the BSER." RIA at ES-4. The final Rule allows states to use demand-side energy efficiency measures for compliance purposes, so the RIA's "scenarios include a representation of demand-side energy efficiency compliance potential because energy efficiency is a highly cost-effective means for reducing CO_2 from the power sector." *Id*. The RIA explains that "it is reasonable to assume that a regulatory requirement to reduce CO_2 emissions will motivate parties to pursue all cost-effective means for making emission reductions accordingly, regardless of what particular emission reduction measures were assumed in determining the level of that regulatory requirement." *Id*. Wisconsin DNR and PSC do not dispute this reasoning.

Nor do they explain how the EPA failed to account for the cost impacts associated with increased demand for natural gas. As explained in the RIA:

> The [IPM] includes an endogenous representation of the North American natural gas supply system through a natural gas module that reflects a partial supply/demand equilibrium of the North American gas market accounting for varying levels of potential power sector and non-power sector gas demand and corresponding gas production and price levels. This module consists of 118 supply, demand, and storage nodes and 15 liquefied natural gas re-gasification facility locations that are tied together by a series of linkages (i.e., pipelines) that represent the North American natural gas transmission and distribution network.

Id. at 3-2. Wisconsin DNR and PSC's objection appears to stem from their mistaken premise that the EPA should have modeled the building blocks to determine the final Rule's compliance costs. However, the cost-minimizing solutions produced by the IPM to achieve the state goals did not project the same level of existing NGCC utilization as under building block 2. Thus, the EPA did not fail to account for the costs associated with increased natural gas demand; the IPM simply predicted that natural gas demand will be less than if states were required to fully implement building block 2. Finally, Wisconsin DNR and PSC offer no support for their assertion that the EPA should have conducted "integrated utility system modeling." The EPA is entitled to significant deference in its modeling decisions and has used the IPM and its predecessors for more than 30 years to inform air regulatory policy and model the impacts of power-sector rulemakings. The IPM is a detailed power system model that reflects the entire system with incredible detail, including generating resources, regional interconnections and dispatch decisions, and a sophisticated representation of fuel markets. In summary, Wisconsin DNR and PSC have failed to demonstrate that their objections are centrally relevant to the outcome of the rule.

B. Southern Company

1. Summary of Petition

Southern Company argues that the EPA should grant reconsideration of the final Rule's

"chosen BSER" because the EPA failed to properly consider cost and ignored the results of the RIA modeling. Pet. at 19-21. Southern Company asserts that the EPA "uncoupled" its BSER analysis from the analysis in the RIA because the former relied on a significant shift to natural and gas and renewable energy generation, but the latter relied upon modeling that predicted only modest changes in the nation's generation mix and a dramatic reduction in total electricity demand in 2030. *Id.* at 19. Southern Company argues that these modeling results, which it characterizes as "surprising," were only released in the final Rule and were based on an entirely new version of the IPM model. *Id.* at 20. As a result, Southern Company alleges that the public never had an opportunity to comment on the modeling results or the assumptions underlying the model's cost inputs. *Id.* Southern Company further asserts that, because the EPA did not include demand-side energy efficiency measures in the BSER, there is "a complete disconnect" between the EPA's BSER cost analysis and the RIA's cost analysis. *Id.* Finally, Southern Company states that, even though many commenters criticized the EPA for including demand-side energy efficiency measures in the proposed BSER, they "could not have expected" that the EPA would remove that building block, but then "hard-code" energy efficiency into the EPA's compliance modeling scenarios. *Id.* at 21.

2. Response

The EPA is denying Southern Company's petition with respect to these issues. First, Southern Company does not credibly explain how it was impracticable to raise its objections during the period for public comment or provide new information as the basis for its objections. Southern Company suggests that the modeling results in the final RIA were "surprising" and "uncoupled" from the EPA's BSER analysis. However, they reflect the same methodology the EPA used in the proposed Rule and RIA. The fact that the EPA updated the inputs to the model to reflect the requirements of the final Rule and the best available information does not warrant reconsideration. Similarly, Southern Company alleges that the EPA used "an entirely new version of the IPM model" to support the final Rule, but the differences between the version used at proposal and the version used at final were incremental and routine. As explained in the RIA:

> EPA frequently updates the IPM base case to reflect the latest available electricity demand forecasts as well as expected costs and availability of new and existing generating resources, fuels, emissions control technologies, and regulatory requirements. EPA's IPM modeling platform used to analyze this final rule (v.5.15) incorporates updates to the version of the model used to analyze the impacts of the proposed rule (v.5.13). These updates are primarily routine calibrations with the Energy Information Agency's (EIA) Annual Energy Outlook (AEO), including updating the electric demand forecast consistent with the AEO 2015 and an update to natural gas supply. Additional updates, based on the most up-to-date information and/or public comments received by the EPA, include unit-level specifications (e.g., pollution control configurations), planned power plant construction and closures, and updated cost and performance for onshore wind and utility-scale solar technologies.

Id. at 3-4 to 3-5. Finally, Southern Company's statement that it "could not have expected" the EPA to "hard-code" energy efficiency into the EPA's compliance modeling scenarios after the EPA removed building block 4 from the BSER is specious. Like the IPM modeling for the final

RIA, the IPM modeling for the proposed RIA included demand-side energy efficiency measures not because they were components of the BSER, but because they were compliance options available to states and affected sources. In summary, Southern Company has failed to demonstrate that its objections could not have been raised during the public comment period.

Second, Southern Company's objections are not of central relevance to the outcome of the rule. Rather, Southern Company's objections all boil down to an erroneous conflation of the cost analysis the EPA performed to support its BSER determination with the benefit-cost analysis in the RIA. In the final rule, the EPA estimated that the costs of building blocks 1, 2, and 3, respectively, were $23/ton, $24/ton, and $37/ton. 80 FR 64749/1. The EPA also conservatively estimated that the three building blocks together could achieve CO_2 reductions at an average cost of $30/ton. *Id.* The EPA compared all of these costs to two cost benchmarks—the costs that affected EGUs incur to reduce other air pollutants and the CO_2 prices that owners of affected EGUs use for planning purposes in their IRPs. *Id.* at 64750. The EPA determined that the costs associated with the building blocks were reasonable compared to both benchmarks. *Id.* In addition, the EPA considered the costs of the building blocks "[i]n light of the severity of the observed and projected climate change effects on the U.S., U.S. interests, and U.S. citizens, combined with EGUs' large contribution to U.S. GHG emissions," and concluded that the costs were reasonable when compared to other potential control measures available for the sector. *Id.* at 64750-51. Southern Company does not challenge this analysis or explain why it was arbitrary or capricious. Instead, Southern Company appears to be arguing that the EPA was required to justify its BSER determination by conducting a formal benefit-cost analysis of the building blocks. But Section 111 does not require the EPA to conduct a benefit-cost analysis when determining the BSER. *Portland Cement Ass'n v. Train*, 513 F.2d 506, 508 (D.C. Cir. 1975). As the EPA explained in the final Rule:

> While benefit-cost analysis can help to inform policy decisions, as permissible and appropriate under governing statutory provisions, the EPA does not use a benefit-cost test (i.e., a determination of whether monetized benefits exceed costs) as the sole or primary decision tool when required to consider costs or to determine whether to issue regulations under the Clean Air Act, and is not using such a test here. Nonetheless, the EPA observes that the costs of the building block 1, 2 and 3 measures, both individually and combined ... , are less than the central estimates of the social cost of carbon.

Id. at 64571/1. Moreover, the EPA explained that the benefit-cost analysis in the RIA, which the EPA prepared for the separate purpose of complying with Executive Order 12866, "appropriately includes a representation of the flexibility available under the rule to comply using a combination of BSER and non-BSER measures (such as demand-side energy efficiency)." *Id.* at 64571/1 n.431. For these reasons, Southern Company has failed to demonstrate that its objections are centrally relevant to the outcome of the rule.

C. Ameren

1. Summary of Petition

Ameren Corporation argues that the EPA should grant reconsideration of the final Rule because the EPA introduced new cost estimates for each of the BSER building blocks without allowing the public an opportunity to review the estimates. Pet. at 20. Ameren notes that the EPA concluded that the cost of each building block was reasonable under any articulation of the

case law's cost standard because building block 1 was $23/ton, building block 2 was $24/ton, and building block 3 was $37/ton. *Id.* at 20-21. Ameren suggests that the EPA failed to justify these estimates and that states and affected sources must be afforded an opportunity to comment on and scrutinize the estimates because they are "critical" in determining which building blocks states may choose to use for compliance. *Id.* at 21.

2. Response

The EPA is denying Ameren's petition with respect to these issues. First, the EPA provided adequate notice of the costs of the building blocks, and the final cost estimates are a logical outgrowth of the proposed estimates and public comments. For building block 1, the EPA assumed at proposal that affected EGUs could achieve a four-percent heat-rate improvement by implementing best practices without making equipment upgrades. 79 FR 34861. The EPA estimated that the cost per ton of CO_2 reduction for a four-percent heat-rate improvement would be reasonable, ranging from $5.81/ton to $11.63/ton. *Id.* at 34,861/3. The EPA invited comment on all aspects of its analysis. *Id.* at 34862/1. In the final Rule, to address concerns that the proposed estimates were too low, the EPA conservatively assumed that affected EGUs would rely on equipment upgrades only to reduce their heat rates, rather than cheaper best practices, and thus revised its cost estimate upward to approximately $23/ton, which the EPA also found to be reasonable. 80 FR 64791.

For building block 2, the EPA conservatively estimated at proposal that the cost of achieving a 70-percent nameplate utilization rate for existing NGCC units over the 2020-2029 period would be a reasonable $30/ton to $33/ton, depending on whether re-dispatch was limited to regional or state boundaries. 79 FR 34865. The EPA invited comment on all aspects of its analysis, *Id.* at 34866/2, and specifically invited comment on whether regional or state scenarios should be given greater weight in assessing costs, *Id.* at 34,865/3. In the final Rule, the EPA made several changes to building block 2 in response to adverse comments. For example, the EPA adopted a regional approach, and to address concerns regarding the proposal's incorporation of the full shift in generation by the first year of the interim period (i.e., 2020), the EPA revised the interim period to start in 2022 and implemented a gradual phase-in of the shift in generation over the interim period. 80 FR 64798. The EPA also expanded upon the proposal's extensive analysis of cost by considering the availability of other emission reductions methods available to units for compliance to determine the least-cost scenario for meeting electricity demand while satisfying operating and bulk power transfer constraints. *Id.* 64801-02. The EPA concluded that building block 2 would cost approximately $24/ton, slightly less than the $30/ton figure for the regional approach at proposal, due to these and other changes. *Id.* at 64802.

For building block 3, the EPA estimated at proposal that RE deployment at the levels represented in the best practices scenario for each state could be achieved at reasonable costs of $10/ton to $40/ton. 79 FR 34869/2. The EPA invited comment on all aspects of its analysis. *Id.* at 34869/3. In the final Rule, the EPA made several changes to building block 3 in response to adverse comments, but ultimately concluded that the cost of achieving CO_2 reductions through the expansion of RE generation would be a reasonable $37/ton on average from 2022 through 2030, near the high end of the EPA's proposed estimates. 80 FR 64810/3. Ameren has failed to explain how the EPA's final cost estimates, which were in the range of the EPA's proposed estimates and reflect changes made to the building blocks that were responsive to public comments, are not a logical outgrowth of the proposal. Consequently, Ameren's objections to the final Rule's cost estimates do not warrant reconsideration.

Second, Ameren's objections are not of central relevance to the outcome of the Rule. Ameren alleges, without explanation or analysis, that the EPA failed to justify its final cost estimates. On the contrary, the EPA discussed the basis for its cost estimates in the final Rule, *see Id.* at 64749-51 (all three building blocks); 80 FR 64791 (building block 1); 80 FR 64801-02 (building block 2); 80 FR 64810-11 (building block 3), and at considerable length in the "Greenhouse Gas Mitigation Measures Technical Support Document." GHG Mitigation Measures TSD, EPA-HQ-OAR-2013-0602-36748. As the D.C. Circuit has held, a petitioner fails to demonstrate that its objection is of central relevance when the petitioner "vaguely alludes to the EPA's incorrect factual assumptions," but "fails to support [its] assertion." *North Carolina v. EPA*, 531 F.3d 896 (D.C. Cir. 2008).

D. New Jersey DEP and Kansas DHE

1. Summary of Petitions

New Jersey DEP and Kansas DHE argue that the EPA should grant reconsideration of the final Rule because the EPA failed to perform a state-by-state benefit-cost analysis of compliance with the rule. N.J. Pet. at 9; Ks. Pet. at 6. They contest the EPA's conclusion that the final Rule will reduce electricity costs in the long-term, arguing that the EPA offered no credible analysis to support the assertion because the EPA did not perform a state-by-state analysis using each state's emissions reduction target. *Id.* They allege that electricity costs will instead increase in their states. *Id.*

2. Response

The EPA is denying New Jersey DEP and Kansas DHE's petitions with respect to these issues. First, neither state explains how it was impracticable to raise their objections during the period for public comment or provides new information as the basis for their objections. In fact, numerous commenters raised precisely the same issue during the public comment period. *See, e.g.*, RTC Chapter 8.5 at 113 ("The commenters stated that EPA has not made a determination that the costs for Pennsylvania - or any other state - are reasonable, notwithstanding that the rule would require compliance on a state-by-state basis."); *Id.* at 120 ("Commenters stated that the EPA has not undertaken a state-by-state analysis of the costs and reliability impact of meeting the goal established for each state."); *Id.* at 124 ("Commenters stated that the Proposed Rule provides no analysis of the critical costs of compliance on a state-by-state basis. The commenters stated that this is a significant deficiency, especially when the proposed limits are vastly different from state to state and impose disproportionate costs upon states that have taken early action. The commenters stated that without a state-by-state analysis, there is no way any state can determine whether the costs of compliance are reasonable."); RTC Chapter 8.6 at 244, 284 ("The commenters stated that EPA's RIA fails to adequately consider the costs of compliance for state and local economies and, instead, inappropriately focuses on national level impact; this analysis is inapposite to the proposed rule, which proposes emission rate goals on a state-by-state basis.").

Second, neither state explains how their objections are of central relevance to the outcome of the Rule. Their objections relate to the EPA's benefit-cost analysis in the RIA. The EPA did not rely on this to justify the BSER determination in the final Rule, 80 FR 64751/1, so New Jersey DEP and Kansas DHE's objections are not relevant, let alone centrally relevant, to its outcome. In addition, their arguments lack merit. The EPA has never conducted a benefit-cost analysis on a state-by-state basis for its power-sector rulemakings because the electric grid and electricity prices are not constrained by state borders. Instead, the IPM calculates

compliance costs and electricity prices across 64 electricity-demand regions,[248] meaning the EPA's analysis is even more granular than a state-by-state analysis would be. Finally, neither state supports its assertion that electricity prices will significantly increase in their states. In the RFCE region, which includes New Jersey, the EPA projected that electricity prices will increase 6.1 percent in 2020, change by -0.2 percent to 2.1 percent in 2025, and then decrease by 5.2 percent to 6.5 percent in 2030 compared to business as usual. RIA at 3-37 to 3-39. In the SPNO region, which includes Kansas, the EPA projected that electricity prices will decrease by 0.8 percent to 0.9 percent in 2020, increase by 2.9 percent to 4.3% in 2025, and increase by 2.7 percent to 5.8 percent in 2030 compared to business as usual. *Id.* New Jersey DEP and Kansas DHE present no new information to dispute the EPA's analysis that electricity prices will either decrease or increase modestly in the long-term, depending on the region, as a result of the final rule's requirements. Therefore, they have failed to demonstrate that their objections are centrally relevant to the outcome of the rule.

E. Basin Electric Power Cooperative

1. Summary of Petition

Basin Electric Power Cooperative argues that the EPA should grant reconsideration of the final Rule because the EPA failed to model the three building blocks together at the identified stringency levels when determining the costs of the final Rule. Pet. at 22-23. Basin Electric Power Cooperative also argues that there is a "substantial disconnect" between the cost of the modeled compliance scenarios, $5.4 to $8.4 billion, and the costs of building blocks 2 and 3 in 2030, $15.7 billion and $13.2 billion, which requires the EPA to reconsider and withdraw the final Rule. *Id.* at 23. Finally, Basin Electric Power Cooperative alleges that the EPA made several questionable and inadequately supported assumptions in its modeling that "skewed the results and downplayed the ultimate costs" of the final Rule. *Id.* at 23-26. Specifically, Basin Electric Power Cooperative asserts that the EPA (1) incorrectly assumed that a large number of coal plants will retire by 2020 even without the final Rule and did not explain discrepancies between this assumption and EIA projections or the assumptions used in the proposed Rule; (2) made aggressive and unsupported assumptions about the amount of new renewable generation that will come online even without the final Rule; (3) assumed without justification that natural gas generation will increase in amounts that exceed EIA projections even without the final Rule; and (4) "hardwired" into the model input assumptions about decreases in energy demand as a result of the final Rule relative to the business-as-usual scenario. *Id.* at 24-25. Basin Electric Power Cooperative argues that these assumptions served to significantly reduce the cost of the final Rule in the EPA's RIA modeling and that the EPA therefore cannot reasonably rely on the modeling results to claim that the BSER is adequately demonstrated. *Id.* at 26.

2. Response

The EPA is denying Basin Electric Power Cooperative's petition with respect to these issues. First, Basin Electric Power Cooperative does not explain how it was impracticable to raise its objections during the period for public comment or provide new information as the basis for its objections. The EPA did not model the building blocks together at the identified stringency levels for the proposal or the final Rule, so Basin Electric Power Cooperative could have raised its objection during the period for public comment. *See, e.g.*, RTC Chapter 8.5 at

[248] *see* "EPA Base Case v.5.15 Using IPM," at 4 (Aug. 2015), *available at* https://www.epa.gov/sites/production/files/2015-08/documents/epa_base_case_v.5.15_incremental_documentation_august_2015.pdf

114 ("Commenters stated that EPA has attempted to mask the cumulative cost of its BSER determination by only analyzing the costs of its individual components, that EPA's cost analysis fails to account for numerous costs associated with each of the proposed Building Blocks and that EPA has not evaluated the combined cost of the four Building Blocks as a system as required for a BSER determination."). Likewise, the alleged "substantial disconnect" that Basin Electric Power Cooperative identifies in the final Rule was present during the Proposal as well, where the EPA similarly analyzed the cost-reasonableness of the BSER and the benefits and costs of the final Rule separately. *Compare* 79 FR 34861, 34865-66, 34869-71, 34874-75 (BSER) *with Id.* 34933-36 (benefit-cost and economic impact analyses). Finally, Basin Electric Power Cooperative critiques the "assumptions" behind the final Rule's IPM modeling for the RIA, but these assumptions were derived from those used at Proposal, responsive to the comments the EPA received, and reflective of relevant new data. The fact that the EPA updated the inputs to the model to reflect the requirements of the final Rule and the best available information does not warrant reconsideration. In summary, Basin Electric Power Cooperative has failed to demonstrate that its objections could not have been raised during the public comment period.

Second, Basin Electric Power Cooperative's objections are not of central relevance to the outcome of the rule. All of Basin Electric Power Cooperative's objections relate to the IPM modeling runs the EPA performed to develop the RIA. The EPA did not rely on these modeling runs or the benefit-cost analysis in the RIA to justify the BSER determination in the final Rule, 80 FR 64751/1, so Basin Electric Power Cooperative's objections are not relevant, let alone centrally relevant, to its outcome. In addition, each of Basin Electric's arguments lacks merit. As the EPA explained in the proposed Rule, "States are not required to use each of the measures that the EPA determines constitute the BSER or use those measures to the same degree or extent that the EPA determines is feasible at a reasonable cost. Thus, each state has the flexibility to choose the most cost-effective measures given that state's energy profile and economy, as long as the state achieves the reductions necessary to meet its goal." 79 FR 34899/3. Consequently, to determine the compliance costs of the final Rule, the EPA did not simply model the building blocks, but instead presented illustrative scenarios designed to achieve the state goals. These illustrative scenarios "reflect states and affected EGUs pursuing building block strategies," but "are not limited to the technologies and measures included in the BSER." RIA at ES-4. The final Rule allows states to use demand-side EE measures for compliance purposes, so the RIA's "scenarios include a representation of demand-side energy efficiency compliance potential because energy efficiency is a highly cost-effective means for reducing CO_2 from the power sector." *Id.* The RIA explains that "it is reasonable to assume that a regulatory requirement to reduce CO_2 emissions will motivate parties to pursue all cost-effective means for making emission reductions accordingly, regardless of what particular emission reduction measures were assumed in determining the level of that regulatory requirement." *Id.* Basin Electric Power Cooperative does not dispute this reasoning.

While Basin Electric Power Cooperative is correct that the EPA's BSER cost analysis is different than the benefit-cost analysis in the RIA, Basin Electric Power Cooperative is incorrect that the BSER is so expensive that it is not adequately demonstrated. The EPA conservatively estimated that the three building blocks together could achieve CO_2 reductions at an average cost of $30/ton. *Id.* The EPA compared all of these costs to two cost benchmarks—the costs that affected EGUs incur to reduce other air pollutants and the CO_2 prices that owners of affected EGUs use for planning purposes in their IRPs. *Id.* at 64750. The EPA determined that the costs

associated with the building blocks were reasonable compared to both benchmarks. *Id.* In addition, the EPA considered the costs of the building blocks "[i]n light of the severity of the observed and projected climate change effects on the U.S., U.S. interests, and U.S. citizens, combined with EGUs' large contribution to U.S. GHG emissions," and concluded that the costs were reasonable when compared to other potential control measures available for the sector. *Id.* 64750-51. Basin Electric Power Cooperative does not challenge this analysis or explain why it was arbitrary or capricious.

Finally, Basin Electric Power Cooperative's unsupported allegation that the EPA relied upon faulty or unjustified assumptions when conducting the IPM modeling for the RIA is without merit. The EPA uses sophisticated modeling tools and conducts detailed analysis to support its regulatory efforts, using the best data and information available. To be as accurate as possible, the EPA makes routine improvements and updates to these information, data, and modeling tools based upon the EPA's own research and public comments. Basin Electric Power Cooperative cites EIA AEO 2015 as proof that the EPA's assumptions were flawed, but provides no technical details or data to explain why EIA's projections are more accurate than the assumptions in the IPM base case. Modeling projections are inherently uncertain, but the EPA is not alone in projecting that there will be larger increases in natural gas and renewable generation due to their favorable economics, and correspondingly lower coal generation, compared to the projections in EIA AEO 2015.[249] The EPA thoroughly explained all of the changes and updates made to the IPM base case between Proposal and Final.[250] The documentation for the model is hundreds of pages and includes thousands of data points that are all publicly available. Moreover, the EPA specifically took comment on the fundamental aspects of building blocks 2 and 3 in the proposal, and the updates to the IPM base case reflect the information provided to the EPA through public comments, as well as the most recent data available to the EPA using its own sources. At bottom, the IPM modeling assumption are rooted in "real world" trends that are already occurring, which contrasts with many of the analyses submitted to the EPA over the course of the rulemaking that rely on an overly optimistic future for coal given today's economics.

With respect to Basin Electric Power Cooperative's specific points, they are all incorrect. First, the EPA did not assume that a large number of coal plants would retire by 2020. The RIA's coal-retirement projections are an output of the IPM's fundamental economics, not an input. The IPM projected a certain amount of coal capacity in 2020 as an output, and that output was lower than at proposal as a result of changes made to the IPM's inputs, specifically the price of natural gas and renewables. With respect to renewables, the EPA used updated cost data from NREL, rather than the relatively pessimistic costs from EIA. Basin Electric Power Cooperative describes NREL's assumptions as "aggressive," but NREL is the nation's expert on the development and deployment of renewable energy, and NREL's estimates are more in line with current costs and recent market analysis and projections than EIA's estimates. *See* GHG Mitigation Measures TSD, EPA-HQ-OAR-2013-0602-36748, at 4-14. EPA reasonably

[249] *Modeling the Evolving Power Sector and Impacts of the Final Clean Power Plan*, Bipartisan Policy Center. June, 2016 ("State energy policies, falling natural gas prices, and the extension of federal tax incentives for renewables mean many states are currently on track to comply with the Clean Power Plan" and "The CPP is not binding in the early years" available at http://cdn.bipartisanpolicy.org/wp-content/uploads/2016/06/BPC-Energy-Clean-Power-Plan-Modeling.pdf.

[250] See Regulatory Impacts Analysis for Final CPP (Chapter 3) and EPA v.5.15 Supplemental Documentation for the Clean Power Plan, available at https://www.epa.gov/airmarkets/analysis-clean-power-plan.

concluded that NREL was a better data source "based on the quality of its data" and its "demonstrated success in both reflecting and anticipating [renewable-energy] cost and performance trends." 80 FR 64807. Indeed, the EIA costs for renewables that the EPA used to support the proposal were higher than actual, real-world, observable costs for projects being built.[251] The EPA provided a detailed and thorough examination of the costs for new renewables in the GHG Mitigation Measures TSD and provides additional information in the Power Sector Trends Appendix to this document. With respect to natural gas, the EPA uses its own natural-gas-supply model, which predicts a more robust supply for natural gas than EIA, consistent with current and foreseeable market trends. Furthermore, the EPA's projections that natural gas supplies will remain robust and that prices will remain relatively low for the foreseeable future are similar to the EIA AEO 2015 scenario for high oil and gas resources. Under that scenario, EIA projects that coal generation will be roughly 4 percent lower than the EPA's own projections by 2030.[252] Finally, the EE assumptions that the EPA hardwired into the IPM are consistent with what many states are already achieving, more conservative than those used at proposal, and thoroughly documented and explained. *See* Demand-Side Energy Efficiency TSD, EPA-HQ-OAR-2013-0602-36842; RIA at 3-12 to 3-16. For all of these reasons, Basin Electric Power Cooperative has failed to demonstrate that its objections are centrally relevant to the outcome of the Rule.

XLI. Non-BSER Measures

One Petitioner objected that non-BSER measures are irrelevant to whether the BSER is adequately demonstrated because they are not part of the BSER and if they are relevant, the EPA failed to notice them. Basin Electric Power Cooperative at 22. The EPA is denying this petition to reconsider. It does not allege lack of notice, and in fact, the EPA solicited comment widely on non-BSER measures and received extensive comment. This objection is not centrally relevant because it does not provide additional information that could lead the EPA to change the final Rule. Non-BSER measures, by definition, are not part of the BSER, but they can be used by sources to achieve their emission standards and as a result, they support the overall reasonableness of the Rule.

One Petitioner also objected that due to time and logistical constraints, the EPA is all but forcing states to adopt the FIP which – by requiring, according to the petitioners, an "astronomical buildout of renewable energy and blind faith in the abundance of allowances/ERCs" – will not allow states to adequately ensure reliability and avoid substantial stranded capital." Ameren 17. EPA is denying this petition to reconsider. The EPA explains elsewhere that the amounts of RE included in the BSER are reasonable, that the rule does not jeopardize reliability, that trading can be reasonably expected to develop, and that stranded capital is not likely. The EPA's conclusions are supported by the fact that sources have many ways to achieve their emission limits without relying on the BSER means, and that, as discussed in the Non-BSER CPP Flexibilities Appendix, information that has become available since the EPA promulgated the CPP shows that the non-BSER measures for states and sources to meet their requirements have continued to develop and, in some cases, the cost has dropped.

XLII. Modified and Reconstructed Units

Petitioner Utility Air Regulatory Group (UARG) seeks reconsideration of the EPA's treatment of modified and reconstructed units in the final CPP. Specifically, UARG requests

[251] See GHG Abatement Measures TSD for Final CPP and Response to Comment Document for Final CPP.
[252] Annual Energy Outlook 2015, High Oil and Gas Resource scenario.

that the agency include language in 40 CFR 60.5850(a) stating that EGUs subject to subpart TTTT as a result of commencing modification or reconstruction are excluded from being affected EGUs for the purposes of the CPP. UARG 17–18. The EPA is denying the request to reconsider this issue.

The EPA proposed that "an existing source that becomes subject to requirements under CAA section 111(d) will continue to be subject to those requirements even after it undertakes a modification or reconstruction." 79 FR 34830, 34903 (June 18, 2014). The agency explained that section 111(a)(2) provides that a new source is "any stationary source, the construction or modification of which is commenced after" a proposed or final section 111(b) rule becomes applicable to that source, while an existing source under § 111(a)(6) is any stationary source other than a new source. *Id.* at 34903–04 (citing 42 U.S.C. § 7411(a)(2), (a)(6)) (internal quotations omitted). Section 111(d)(1) provides that state plans must establish standards of performance for any existing source, but does not speak to whether an existing source that is included in a state plan that subsequently ceases to be an existing source *continues* to be subject to that state plan. *Id.* at 34904. The EPA explained that this statutory silence provides it with the authority to supply a reasonable interpretation regarding the treatment of modified and reconstructed sources under a section 111(d) state plan. *Id.*

The practical effect of the EPA's proposed interpretation was that a modified or reconstructed source would be required to comply with both the section 111(d) requirements to which it had originally been subject and the relevant modified or reconstructed source standard under section 111(b). The EPA determined this interpretation was reasonable for two reasons: (1) requiring modified and reconstructed sources to remain subject to section 111(d) would assure the integrity of state plans by eliminating uncertainty about whether units would remain part of those plans, and (2) requiring sources to remain subject to section 111(d) would avoid creating incentives for sources to modify or reconstruct simply to avoid being subject to otherwise applicable state plans. *Id.* The EPA invited comment on the proposed interpretation of the treatment of modified and reconstructed sources under section 111(d)(1).

The EPA received many comments disagreeing with our proposed approach and stating that section 111(d) should not be applicable to an existing source that has been modified and/or reconstructed, thereby subjecting it to section 111(b) and subpart TTTT. 80 FR 64966, 65039 (Oct. 23, 2015); RTC Chapter 6 at 384. After considering these comments, we concluded that an alternative interpretation is appropriate. However, because we wanted to provide the public an opportunity to comment on this alternative interpretation, we did not finalize a position on the issue of modified and reconstructed sources in the final CPP rulemaking. 80 FR at 64854. Instead, we explained in the preamble to the final CPP that we were reproposing and taking comment on this issue in the context of the federal plan rulemaking. *Id.*

The agency proposed the revised statutory interpretation in the preamble of the proposed federal plan, which was released concurrently with the final CPP. Under this revised interpretation, when section 111(d) emission guidelines are promulgated for existing sources in response to corresponding section 111(b) standards of performance for the same pollutant, the statute precludes new, modified, or reconstructed sources from simultaneously being subject to the section 111(b) standards and state plans under section 111(d). 80 FR at 65039. We explained that this interpretation gives meaning to the definition of "existing source" in section 111(a)(6) and is consistent with the definition of "new source" in section 111(a)(2), and that it is also consistent with the historical treatment of modified and reconstructed sources under section 111. *Id.* We invited comment on our proposed revised interpretation. Petitioner UARG addressed this

issue in its comments on the proposed federal plan, stating that "EPA's revised, alternative interpretation of the CAA is correct." UARG Comments on Proposed Federal Plan 129 (Jan. 21, 2016), Docket ID EPA-HQ-OAR-2015-0199-1476.

UARG requests that the EPA grant reconsideration of the treatment of modified and reconstructed EGUs in the final CPP and explicitly include modified and reconstructed EGUs in the list of sources excluded from being affected EGUs under 40 CFR § 60.5850(a). UARG 17–18. In its petition, UARG points to language the EPA erroneously included in the unofficial, pre-publication version of the final CPP that included such language and requests that the agency restore this language to § 60.5850(a). *Id.* (citing Memorandum from Janet G. McCabe, Acting Assistant Adm'r, EPA, to Gina McCarthy, Adm'r, EPA, "Correction of Inadvertent Errors in the Final Rule, 'Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units,' and Associated Supporting Documents," Attachment 1 at 18 (Sept. 2, 2015), EPA-HQ-OAR-2013-0602-37107). UARG further requests that, if the EPA has not taken a final position on its interpretation, the default position should be to exclude modified and reconstructed units from § 111(d) state plans.

The EPA is denying UARG's requests for reconsideration of this issue as both moot and premature. The request is moot because the EPA reproposed and took comment on our interpretation of section 111(d)(1) in the proposed federal plan rulemaking. Because this issue is a matter of statutory interpretation that is applicable across the section 111(d) program, the vehicle through which the agency promulgates this interpretation is immaterial. Our interpretation will apply in the CPP context with or without explicit regulatory text in 40 CFR 60.5850(a). The EPA has effectively granted UARG's request to reconsider the treatment of modified and reconstructed units under the CPP by engaging in notice and comment rulemaking on this issue in the context of the proposed federal plan; UARG participated in the resulting process when it commented on our revised interpretation in the context of the proposed federal plan. The instant reconsideration request is therefore moot.

UARG's reconsideration request is also premature. The EPA explicitly provided in the preamble to the final CPP that we were not finalizing an interpretation of section 111(d)(1) in that rulemaking and that we were deferring action on this issue. 80 FR at 64854. A petition for reconsideration of the final CPP is thus inappropriate because the EPA made it clear that there has not yet been a final agency action on this issue. Although UARG may argue that the absence of regulatory text in the final CPP explicitly exempting modified and reconstructed units from continued inclusion in section 111(d) state plans is the final action of which it requests reconsideration, the EPA's statements in the preambular text clearly belie any argument that we intended that rulemaking to be the agency's final word on this issue. Furthermore, as explained above, this is a matter of statutory interpretation that transcends the CPP; therefore, explicit regulatory language in the CPP is not required to effectuate the Agency's final interpretation. The EPA thus additionally does not find it necessary to define a default position on the treatment of modified and reconstructed units under section111(d) at this time.

Although not relevant to resolving the request for reconsideration, the EPA disagrees with UARG's assertion that the CAA requires that units subject to a section 111(d) state plan that subsequently modify or reconstruct to be subject only to the newly applicable section 111(b) standards of performance. UARG 18. Clean Air Act section 111(d) is silent on whether an existing source that is subject to a state plan remains subject to that plan even after it modifies or reconstructs. 80 FR at 34904. The statute is ambiguous and does not require any

particular outcome; therefore, the EPA has authority to provide a reasonable interpretation.

As explained in this section, the EPA is denying UARG's request to reconsider the treatment of modified and reconstructed units in the final CPP because the Petitioner's request is both moot and premature. Moreover, the EPA clearly provided notice of and an opportunity to comment on its interpretation of the relevant statutory provisions, and the Petitioner has not provided any additional information demonstrating its objection is one of central relevance.

XLIII. Revisions from Proposed to Final Regulatory Text

A. Introduction

Petitioner UARG argues that the final Rule was not adequately noticed because the regulatory text was extensively changed from proposal to final, and provides a redline strikeout exhibit of said changes. Petitioner acknowledges that "the 111(d) Rule is premised on the proposed version's fundamental legal rationale" but contends that "EPA significantly altered the Rule's program elements and requirements" without providing an opportunity for notice and comment, as supposedly demonstrated by the changes between the proposed and final regulatory text.

As a legal matter, changes from proposed to final regulatory text alone are not indicative of lack of sufficient notice as required under the APA and the CAA. Regardless, Petitioner UARG is incorrect in its assertion that the changes between the proposed and final regulatory text shows that the EPA significantly altered the final Rule's state plan elements and requirements without an opportunity for notice and comment. To the contrary, the final regulatory text reflects state plan elements and requirements that the EPA explicitly took comment on. The following examples demonstrate that either the preamble or regulatory text for the proposal, or both, explicitly discussed and solicited comment on a number of state plan elements and requirements, and the final regulatory text reflects such elements or requirements. In some cases, the preamble for the proposal may have discussed all alternatives for a state plan element or requirement while the proposed regulatory text contained only one alternative. It is reasonable for the EPA to provide proposed regulatory text for only one set of options rather than all possible options, and the Petitioner neither explains nor supports with any sort of evidence as to why the EPA must provide proposed regulatory text for each and every possible alternative for a given state plan element or requirement in order to provide notice, especially when the preamble itself clearly provides notice and solicits comment.

B. Multi state plans

The preamble for the proposed rule at 79 FR 34911-12 primarily proposes that states wishing to participate in a multi-state plan must submit only one joint plan signed by all participating states, and such joint plan would have the legal effect as an individual submittal for each participating state. The preamble goes on to seek comment on two alternative approaches: 1) a joint submittal for all plan elements common to the participating states, and individual submittals for elements that are uniquely state-specific, and 2) all states participating in a multi-state plan submit individual plans that address all common and unique elements of the multi-state construct.

The proposed regulatory text at 40 CFR 60.5747 covers the primary proposed multi-state construct, requiring that a multi-state plan may be submitted, "provided it is signed by authorized officials for each of the states participating in the multi-state plan. In this instance, the joint submittal will have the same legal effect as an individual submittal for each participating state." Thus, while the proposed regulatory text does not cover each and every

alternative approach for states submitting multi-state plans, the proposal explicitly takes comment on such alternatives and therefore the public had sufficient notice of what the state plan requirements and elements for multi-state plan submissions might be. In response to the proposal's preamble's solicitation of comment on this issue, the EPA received various comments advocating for the final rule to allow multi-state plans to be submitted in all three approaches the EPA proposed. Accordingly, the EPA finalized that states could submit a multi-state plan in several different forms, and the final regulatory text at 40 CFR 60.5750 authorizes all three forms of multi-state plan submissions that were proposed (the joint submission, and the two alternative forms). In this case, Petitioner UARG's redline strikeout comparison of the proposed and final regulatory text fails to support a contention regarding a lack of opportunity for notice and comment.

C. Corrective measures

The proposal preamble on page 34912 seeks comment on whether the final emission guidelines should establish a deadline for implementation of corrective measures, and provides an example of two years from a proposed July 1 deadline for reporting plan performance including any deficiencies. The proposed regulatory text at 60.5740(a)(7)(ii) requires the state plan to include a schedule for implementing corrective measures. The final regulatory text at 60.5785(c) requires states to implement corrective measures within 6 months of EPA's approval of such measures. Therefore, the public, including Petitioner, was on notice both from the proposal preamble's explicit solicitation of comment and the proposed regulatory text's proposed requirement of a schedule that the EPA might establish a deadline for implementation of corrective measures, and had ample opportunity to weigh in on what that deadline should be. Petitioner's redline strikeout proves no substantive issue as demonstrated by this example.

D. Portfolio approach

The proposal preamble on pages 34901-34903 solicits comment on whether section 111(d) legally can be read to authorize the portfolio approach and extend obligations to entities other than affected sources for achieving emission reductions, or whether 111(d) must be read to allow the imposition of standards of performance on affected sources only. EPA primarily proposed that 111(d) authorizes the portfolio approach, with an alternative reading that the required emission performance level must be assigned solely to affected EGUs (pg. 34903).

The proposed regulatory text defines "affected entity" under 40 CFR 60.5820 as an affected EGU, or another entity with obligations under the EGs for the purpose of meeting the state goal. The regulatory text throughout utilizes this term when discussing requirements for sources, including in the context of meeting the state goal. Proposed 40 CFR 60.5740 requires identification of the emission performance level that will be achieved by affected entities, identification of emission standards for each affected entity, identification of applicable monitoring/reporting/recordkeeping requirements for each affected entity, and supporting materials projecting the state goal will be achieved by affected entities.

By comparison, the final regulatory text does not contain the term "affected entity" and instead defines "affected EGU" as an EGU that meets the applicability criteria of the CPP. The regulatory text throughout uses "affected EGU" when discussing requirements for these sources, including in the context of meeting the state goal. 60.5747 identifies state plan requirements specific to affected EGUs, such as identification of emission standards, identification of the goal the affected EGUs will achieve, monitoring/reporting/recordkeeping requirements, etc. This is because in response to the proposal's explicit solicitation of comment on the legality of the proposed portfolio approach, the EPA considered the legal structure of

section 111(d) *and* comments from the public, including from Petitioner UARG, stating that the section 111(d) state plans could not contain requirements for entities other than affected sources. The changes between the proposal and final regulatory text regarding "affected entity" therefore reflect a change made based on explicit notice and solicitation of comment, and thus Petitioner's redline strikeout proves nothing without further context.

Based on these examples, it is evident that the EPA took comment on a number of issues that inform why there were changes between the proposed regulatory text and final text. Therefore, the EPA denies the petition on these grounds. Additionally, Petitioner UARG's exhibit of the changes of the regulatory text between proposal and final is not probative of any sort of supposed lack of notice because the proposal preamble clearly solicited comment on issues which were not accompanied by proposed regulatory text, but were finalized with accompanying regulatory text as appropriate. Petitioner's redline strike out demonstration simply ignores the proposal preamble solicitation of comment on issues that were properly finalized with accompanying regulatory text.

For these reasons, the EPA is denying UARG's petition. The EPA provided adequate notice of the changes between the proposed and final regulatory text as evidenced by the extensive solicitation of comment in the proposal's preamble, and the final regulatory text reflects the outcomes of such solicitation. Furthermore, Petitioner has not explained whatsoever why it is unreasonable for the EPA to have proposed one set of regulatory text accompanying a more robust discussion in the preamble of proposed alternatives, rather than proposing regulatory text for each and every alternative the EPA was soliciting comment on. Petitioner has also not suggested or supported what the EPA should have done in the alternative to the route it actually took in the proposal, which was to solicit comment on a full suite of state plan requirements and elements, and alternatives for each, with accompanying regulatory text for one set of options, and to finalize regulatory text that reflects the outcome of its proposal and comments received.

XLIV. Validity of NSPS for CO_2 Emissions from Coal-fired Power Plants

A. Summary of Petitions

According to Petitioners, (1) the standards of performance for CO_2 emissions from new sources (the "111(b) rule") is a statutorily required predicate for the CPP; (2) the 111(b) rule is invalid; and (3) the CPP is invalid because there is no valid predicate. *See* Wisconsin PSC at 1. In general, critics of the 111(b) rule have objected to the EPA's identification of a new supercritical boiler implementing partial carbon capture and storage (CCS) as the BSER for newly constructed steam generating units because they consider CCS an unproven technology that is too expensive. They argue that the 111(b) rule is therefore inval*Id.* During the comment period on the proposed 111(b) rule, industry commenters asserted that the BSER for newly constructed steam generating units should be based on the performance of a plant utilizing supercritical steam conditions alone. Critics have also argued that the 111(b) rule is invalid because the EPA did not conduct a new "endangerment finding" before promulgating the rule.

B. Response

The EPA is denying the petitions for reconsideration on this issue because it is not an issue that can be addressed in the CPP rulemaking and is therefore not of central relevance to the outcome of the CPP, and for the reasons discussed below. Petitioners had the opportunity to comment on the validity of the 111(b) rule in that proceeding, and the EPA responded to all comments it received. In addition, the EPA received petitions for reconsideration of the 111(b)

rule, including on the issue of whether the EPA appropriately determined that partial CCS was part of the BSER, and the EPA denied the petitions with respect to that issue and most other issues. The 111(b) rule and the EPA's denial of the corresponding petitions for reconsideration are currently being litigated before the D.C. Circuit. The EPA has confidence that the 111(b) rule is valid based on the record for that rule. This is true for the final standards for newly constructed, modified, and reconstructed steam generating units and newly constructed and reconstructed stationary combustion turbines. Each of the standards for steam generating units, independently of the others, provides an adequate predicate for regulating coal-fired power plants under the CPP. Likewise, each of the standards for stationary combustion turbines, which no petitioner challenged in litigation, provides an adequate predicate for regulating natural gas-fired power plants under the CPP.

In addition, even if the 111(b) rule were held invalid or withdrawn, the CPP would remain valid. Section 111(d)(1) states that the EPA "shall prescribe regulations ... under which each State shall submit ... a plan which ... establishes standards of performance for any existing source" that meets two criteria. 42 U.S.C. § 7411(d)(1). The first criterion is that the air pollutant being regulated must be one "for which air quality criteria have not been issued or which is not included on a list published under section [108(a)] of this title or emitted from a source category which is regulated under section [112] of this title." *Id.* § 7411(d)(1)(A)(i). The second criterion is that the air pollutant being regulated must be one "to which a standard of performance under [section 111] would apply if such existing source were a new source." *Id.* § 7411(d)(1)(A)(ii).

As long as these two criteria are met at the time that the EPA "prescribe[s] regulations" (i.e., promulgates 111(d) emission guidelines), then the emission guidelines are valid (assuming other statutory criteria and standards of reasoned agency decision-making are met). Here, at the time that the EPA promulgated the CPP, a standard of performance under section 111(b) would have applied to existing sources regulated under the CPP if they were new sources. Therefore, the CPP would remain valid even if the original criteria are later no longer met. Nothing in the language of section 111(d)(1) or its legislative history indicates that Congress intended otherwise validly prescribed emission guidelines to be rendered invalid by future EPA action, such as the promulgation of a NAAQS for the air pollutant in question or the rescission of a predicate 111(b) rule, or by future court action related to a 111(b) rule. In fact, while the EPA disagrees with the interpretation that the first criterion is source category-focused rather than pollutant-focused, the EPA notes that even supporters of that interpretation have recognized that a rule that meets the first criterion at the time of promulgation would not be invalidated if that criterion is no longer met in the future. *See* 80 FR 64714 n.292 ("Supporters of this interpretation have noted that the EPA could regulate power plants under both CAA section 111(d) and CAA section 112 if it regulated under section 111(d) first, before the Section 112 Exclusion is triggered."). With no contrary indication from Congress, the second criterion should be interpreted as operating in the same fashion as the first. In other words, if both criteria are met at the time that the EPA "prescribe[s] regulations," then future events will not invalidate those validly prescribed regulations.

This interpretation is particularly reasonable with respect to the second criterion. Section 111 is clear that Congress had a particular time-table in mind for the EPA's rulemaking under that provision. Specifically, Congress intended the EPA first to list source categories that cause or contribute significantly to air pollution that endangers public health or welfare, and do so within 90 days of enactment of the 1970 CAA Amendments, 42 U.S.C. § 7411(b)(1)(A); then

propose standards of performance for new sources within each category within a year after the listing and promulgate those standards within a year after proposal, *Id.* § 7411(b)(1)(B); and finally prescribe regulations that require states to establish standards of performance for existing sources, *Id.* § 7411(d)(1). While the legislative history does not address Congress's purpose for this timetable, it does indicate that Congress expected the EPA to address new sources promptly to ensure that new sources would install the latest control technologies at the time that it was most economically efficient to do so—when they are built or modified. But while section 111 contemplates that the EPA would promulgate new source performance standards before existing source emission guidelines, section 111(d) does not, by its terms, mandate that once the EPA promulgates emission guidelines, the new source standards must stay in effect for those guidelines to remain valid. It would be unreasonable to interpret the second criterion as requiring the invalidation of validly prescribed emission guidelines that achieve important air quality objectives simply because a separate and distinct 111(b) rule has since been invalidated.[253]

In addition, even assuming that section 111(d) were interpreted to require that a valid section 111(b) rule remain in place for the CPP to remain valid, and even assuming that EPA agreed with Petitioners' concerns over the validity of certain standards within the 111(b) rule, EPA's response would be governed by the standards the U.S. Supreme Court in *AEP v. Connecticut*, 564 U.S. 410 (2011).[254] In *AEP*, the Court held that under section 111, "Congress delegated to EPA the decision whether and how to regulate carbon-dioxide emissions from power-plants." *Id.* at 426. However, the Court "hasten[ed] to add" that "EPA's judgment … would not escape judicial review." *Id.* The Court explained:

> the Clean Air Act directs EPA to establish emissions standards for categories of stationary sources that, "in [the Administrator's] judgment," "caus[e], or contribut[e] significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare." § 7411(b)(1)(A) [CAA section 111(b)(1)(A)]. "[T]he use of the word 'judgment,' " we explained in *Massachusetts*, "is not a roving license to ignore the statutory text." 549 U.S., at 533, 127 S. Ct. 1438, 167 L. Ed. 248. "It is but a direction to exercise discretion within defined statutory limits." *IbId.* EPA may not decline to regulate carbon-dioxide emissions from powerplants if refusal to act would be "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." § 7607(d)(9)(A) [CAA section 307(d)(9)(A)].

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[253] The EPA has previously stated that a NSPS "provides the requisite predicate" for a section 111(d) emission guideline. 80 FR 64715. In making that and similar statements, the EPA did not intend to address the issue considered here, which is whether a NSPS, once promulgated, needs to remain in place after the related section 111(d) emission guideline is promulgated for that guideline to remain valid. Thus, the interpretation discussed in the accompanying text is not inconsistent with those statements. However, if those statements are read to state that such a NSPS, once promulgated, does need to remain in place, then the EPA has appropriate reasons for revising its interpretation of section 111, as discussed above. *See Encino Motorcars, LLC v. Navarro*, 136 S. Ct. 2117, 2125 (2016) ("Agencies are free to change their existing policies as long as they provide a reasoned explanation for the change. *See, e.g., Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs.*, 545 U.S. 967, 981-982 (2005); *Chevron*, 467 U.S. at 863-864. When an agency changes its existing position, it 'need not always provide a more detailed justification than what would suffice for a new policy created on a blank slate.' *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515 (2009). But the agency must at least 'display awareness that it is changing position' and 'show that there are good reasons for the new policy.' *Ibid.* (emphasis deleted).").

[254] As noted above, apart from including the standards for newly constructed steam generating units, the 111(b) rule also includes standards for modified and reconstructed steam generating units that each provide a predicate for the regulation of those sources in the CPP.

Id. at 426-27.

In light of *AEP*, with respect to the NSPS for coal-fired power plants, even if EPA were to agree with industry commenters that the appropriate BSER is based on technology using supercritical steam conditions, rather than a BSER that includes partial CCS, it would be reasonable for the EPA to revise it while it remains in effect, rather than rescind it, for the following reasons.

At the outset, as discussed in the Power Sector Trends Appendix, for at least the near term when natural gas prices are projected to continue to be relatively low, EPA does not project construction of any new coal-fired generating capacity, except for some plants that are already planned (and that are already designed to include CCS). However, as also noted in the Power Sector Trends Appendix, and as the EPA noted in the section 111(b) rulemaking, it is common for companies to consider new coal generating capacity as a resource option in their integrated resource planning process, and the industry generally continues to view fuel diversity as desirable. 80 FR at 64526-27. that it is conceivable that some additional new coal-fired capacity may be built for reasons of fuel diversification, as a hedge against the possibility of natural gas prices far exceeding projections. 80 FR at 64513. In addition, commenters stated that new coal-fired capacity may be built if the power sector's cost trends change (e.g., natural gas prices increase). *See, e.g.*, UARG Comments on Standards of Performance for Greenhouse Gas Emissions from New Stationary Sources: Electric Utility Generating Units at 15-17 (EPA-HQ-OAR-2013-0495-9666). In addition, as noted the section 111(b) rulemaking, companies may have interest in building new coal-fired plants to co-produce both power and chemicals, including capturing CO_2 for use in enhanced oil recovery projects. 80 FR at 64513-14.

The category of steam generating power plants (generally coal-fired) was in the first group of source categories that EPA "determine[d] may contribute significantly to air pollution which causes or contributes to the endangerment of public health or welfare," and therefore listed under section 111(b)(1)(A), in 1971.[255] In the 111(b) rule, EPA determined that it has a rational basis for concluding that CO_2 emissions from fossil fuel-fired power plants adversely affects human health and welfare. *See* 80 FR 64517-54520 ("Climate change caused by human emissions of GHGs threatens the health of Americans in multiple ways."). Indeed, EPA determined that if it were required to make a finding that greenhouse gases from fossil fuel-fired power plants contribute significantly to air pollution that endangers human health and welfare (an "endangerment finding"), the information presented as part of its rational basis would qualify as such a finding. Those health and environmental impacts provide a compelling reason to assure that newly constructed fossil fuel-fired power plants, as well as modified and reconstructed ones, are subject to emission limits. Thus, under *AEP*, it would be unreasonable for EPA to rescind the 111(b) rule without simultaneously replacing it.

If EPA were concerned that the emission limits in the current 111(b) rule are unduly stringent, the reasonable course would be for EPA to revise them. Importantly, if EPA chose to revise the 111(b) rule, it could do so expeditiously because the rule is significantly less complex than the 111(d) rule.[256] First, to revise it, no endangerment finding would be needed. Commenters objected that the 111(b) rule failed to include an endangerment finding. The EPA explained why no new endangerment finding is required and why, if one were required, the "rational basis" that EPA included in the preamble of the NSPS would qualify as one.

[255] "Air Pollution Prevention and Control: List of Categories of Stationary Sources," 36 FR 5931 (March 31, 1971).
[256] The proposal to revise the CPS would signal to the regulated community that the standards may be revised.

Second, the 111(b) rulemaking established a robust record. EPA proposed a rule in 2012 that based the BSER for all intermediate and baseload electric generating units (EGUs) on the performance of NGCC units, and EPA received extensive comments on that proposal. On September 20, 2013, EPA signed notices withdrawing that proposal, and replacing it with a re-proposal that identified the BSER for new steam generating EGUs to include implementation of partial CCS. EPA published the withdrawal and re-proposal on January 8, 2014. 79 FR 1430. The EPA initially provided a 60-day public comment period but later extended that by an additional 60 days, giving stakeholders over 120 days (counting the period between signature and publication) to review, and comment upon, the proposal, as well as the supporting documentation. A public hearing was held on February 6, 2014, with 159 speakers presenting testimony. Industry commenters urged EPA to identify the BSER for newly constructed steam generating EGUs to be supercritical technology or, in some cases, ultra-supercritical technology (a more efficient version of the supercritical technology), and provided detailed information about that technology. EPA closely reviewed that information, as well as information about recently proposed and constructed power plants, including, among other things, their technology, fuel use, and capacity utilization. EPA also extensively reviewed the current status, cost, and technical feasibility of CCS technologies. In this manner, EPA developed a robust record about the industry and the options for BSER.

EPA finalized the 111(b) rule by notice dated October 23, 2015, 80 FR 64510.[257] The EPA is unaware of any new coal-fired power plants that have been proposed since the record closed for the 111(b) rule. There have been developments with already proposed, but not constructed, new plants, which EPA has described in the Power Sector Trends Appendix for this action. In addition, there have been little additional technological developments, except for further advancements in CCS, which EPA has reviewed in the non-BSER CPP Flexibility Appendix for this action. Therefore, any action to revise any of the 111(b) standards would be able to rely in significant part on the record for the 111(b) rule, which has been updated by the record for this action. By the same token, any reconsideration of the NSPS for modifications and reconstructions could be conducted promptly as well, simply because no modifications or reconstructions have been reported since the completion of the rulemaking and, as a result, the record that EPA compiled in the NSPS rulemaking is also complete.

[257] It should be noted that the EPA chose to finalize completion of the NSPS rulemaking for newly constructed sources at the same time that it finalized requirements for modified and reconstructed sources, instead of earlier, because each of those sets of sources is treated as a type of "new" source under section 111(a)(1) and is subject to an NSPS. EPA did not propose the requirements for modified and reconstructed sources until June 18, 2014. 79 FR 34960.

XLV. Response to the Petitions to Stay the Rule

The EPA received 22 petitions asking that the agency issue an administrative stay of the CPP until the resolution of judicial review or the completion of the agency's reconsideration process.[258] The EPA has determined to deny all of these petitions.

The Administrative Procedure Act section 705 provides, "When an agency finds that justice so requires, it may postpone the effective date of action taken by it, pending judicial review." 5 U.S.C. § 705. In addition, under section 307(d)(7)(B), the EPA may stay the effectiveness of a rule while it is being reconsidered "for a period not to exceed three months."

As noted above, on February 9, 2016 the U.S. Supreme Court granted applications for a stay of the CPP pending disposition of the stay applicants' petitions for review in the D.C. Circuit, including any subsequent review by the Supreme Court. *West Virginia, et al.* v. *EPA, et al.*, No. 15A773 (February 9, 2016). The petitions for an administrative stay, which request the stay pending the resolution of litigation, have been mooted by the Supreme Court's grant of a stay.

[258] The list of petitioners is included above.