Calculation of Budget Components
Technical Support Document
(Revised)

Office of Air and Radiation
U.S. Environmental Protection Agency
October 27, 1997

Chapter 1: Electric Generation

I. Introduction

This section describes how the electric generation component of the State budgets is determined. The budgets are determined by multiplying an activity level in millions of British thermal units (mmBtu) by an achievable emissions rate in pounds of NOx per million British thermal units (lb/mmBtu). The achievable emissions rate for the electric generation sector as determined by EPA's cost-effectiveness analysis is 0.15 lb/mmBtu. The rationale for this choice is described elsewhere. The focus of this section is how the activity level for 2007 summer season is determined. The summer season is defined as 01 May through 30 September. Utility owned and non-utility owned units will be considered separately since the quality of their historical inventories are fundamentally different.

All data presented are summarized at the State level (individual unit data can be found in Appendix A and B). Total values, like heat input and tons, are summarized for all units in a State's inventory. Averages, like growth rates, are weighted by the most appropriate factor. For example, a State's mass weighted growth rate is determined by multiplying each unit's growth rate by the tons of NOx emitted, summing this value, then dividing by the total tons emitted in the State.

II. Units Considered in Budget Development

For the purposes of the discussion in this chapter, a "unit" is considered a fuel combusting device. Those used in power production are typically boilers or combustion turbines. The units analyzed here are from two groups. The first is electric utility owned units feeding generators of at least 25 MW. These units are affected under Title IV of the CAAA (Acid Rain Provisions) and are required by 40 CFR Part 75 to report configuration, operating, test, and emissions data to the EPA. The second group is non-utility owned units (often referred to as independent power producers or IPPs) with a generation capacity of at least 25 MW. Data for these units were obtained from the Integrated Planning Model (IPM) Clean Air Power Initiative base-case inventories for 2000 and 2010. A total of 1180 units exist in these inventories for the states in question and are included in the analysis.

A. Utility Units

Units owned by utilities constitute the vast majority of units included in the determination of State budgets. (See Appendix A for a list of the utility units.) Of the total units considered in this chapter, 1062 or 90% are utility units and are tracked by the Acid Rain Program. Units affected by the Acid Rain program are only those with a generation capacity of at least 25 MW.

Table 1-1 shows the number of utility units considered in the budget determination by state and fuel type. The number in each column denotes the number of units reporting to the Acid

Rain program. Units that did not operate in 1995 and 1996 because they were deferred (in cold shutdown) or are retired are exempt from reporting requirements, and were thus not included in this analysis.

B. Non-Utility Units

The remaining 117 units considered are those not owned by electric utilities. (See Appendix B for a list of the non-utility units.) These units appeared in the IPM inventory for the year 2010 and include existing and future capacity. These units are included in the budget determination for electric generators to better approximate the units considered in the OTAG (Ozone Transport Assessment Group) budget determination process. The OTAG budget included units based primarily on the Source Classification Codes (SCCs) and an examination of the OTAG inventory shows that many non-utility owned electric generation units were included. The IPM 2010 inventory was used as it is the closest one available to the year 2007. Table 1-2 shows the number of non-utility units considered in the budget determination by State and fuel type.

III. Source Activity Level

Establishing a budget for the year 2007 assuming an average emission rate of 0.15 lb/mmBtu of NOx requires only the determination of the heat input for all units for 2007. Two major decisions are involved in determining a future activity level: (1) what baseline activity level should be used, and (2) how is that baseline to be projected into the future. For electric utility owned units the baseline is derived from the heat input each unit reports to the Acid Rain program. For non-utility owned units, no one inventory of acknowledged best-quality exists. The data EPA decided to use is the IPM projected heat input.

A. Utility Owned Units

Units affected by the Acid Rain Program are required to submit hourly heat input data that the utilities have certified as correct. EPA chose 1996, the latest year with data available, as the baseline year. To determine the baseline utilization, the unit hourly values for 01 May through 30 September were summed for the year 1996. Then all units in each State we summed to calculate the State heat input for the ozone season. To account for any unusual year-to-year variations (extreme weather, a significant number of units shut down, unusual cross-State transmission, etc.), EPA decided the most equitable method was to examine the 1995 seasonal data and use this year if, for a given State, it was higher than 1996. See Table 1-3 for utility owned unit State level heat input for 1995, 1996, and the higher of the two which is used as the baseline.

Determining growth rates from 1996 to 2007 is the final element required for budget the calculation. Two sources of growth data were considered, OTAG and IPM. OTAG compiled

growth factors[1] for 1990 to 2007 for each unit. The growth was based on Bureau of Economic Analysis (BEA) projections by standard industrial classification (SIC). If a state provided growth data, this was used instead of the default BEA value. To calculate the State average growth rate, the growth factor for each unit was multiplied by the OTAG baseline ozone season daily NOx emissions. This value was summed for all units in the State and divided by the sum of the daily emissions. This factor was then adjusted by 2/3 to account for growth from 1996 (instead of 1990) to 2007. The resulting OTAG State (mass weighted) average growth rates are shown in Table 1-4. Mass weighting was used because baseline utilization data was unavailable for a significant portion of the sources in the OTAG inventory. All units in the OTAG electric generating sector inventory were used, versus only considering the Acid Rain affected units. This was done to better approximate overall growth of the industry as a whole.

IPM inventories including seasonal utilization were available for the years 2000 and 2010. A growth rate was calculated by summing the seasonal heat input for 2000 at the State level. The same was done for 2010 and the increase determined. This increase was adjusted by 1.1 to account for the 11 years from 1996 to 2007. The resulting IPM (heat input weighted) average growth rates are shown in Table 1-4. Again, the calculation was not limited to Acid Rain affected units; the IPM will add new capacity as needed which could offset utilization of current units if not considered. It should be noted that the IPM predicts a higher growth rate than OTAG for most states.

B. Non-Utility Owned Units

The 2007 season utilization for non-utility owned units was determined by interpolating between the values in the IPM inventory for 2000 and 2010. A value was determined for each unit listed in the 2010 inventory; so a new unit listed in 2010 and not in 2000 is included at 70% of its projected 2010 utilization. The IPM growth rates are included inherently in this determination.

IV. Final Sector Budget Determination

Table 1-5 lists the important values in the 2007 budget determination for the electric generation sector. The 2007 heat input for utility and non-utility units is shown. The utility values were determined by multiplying the baseline heat input by the IPM growth factor. Also shown is the tonnage budget determined by applying an emission rate of 0.15 lb/mmBtu to the utilization for utilities, non-utilities, and in total.

V. 2007 Baseline Inventory

---

[1] A Growth Factor is a number the baseline is multiplied by to determine the "grown" value. For example, 20% growth over the period corresponds a growth factor of 1.20.

Table 1-6 lists the NOx emissions (in tons) projected for the summer season in 2007 if only the current regulations applied for electric utility units; this inventory is referred to as the baseline. Specifically, the baseline includes Title IV NOx emission limits for coal-fired units and RACT for units in non-attainment areas. Units not affected by RACT or Title IV NOx are included in the baseline at their 1996 NOx emissions rate. The 2007 heat input for each unit is the same as that used in the determination of the utility budget (i.e., for utility units, their 1996 heat input grown by the projected State growth, for non-utility units, their IPM-projected 2007 heat input).

Table 1-1. Distribution of Fossil Fuel-burning Electric Utility Units by State

State	Number of Operating Units by Primary Fuel Type			
	Coal	Oil (or Diesel)	Gas	Total
Alabama	39	0	11	50
Connecticut	1	9	5	15
Delaware	6	5	1	12
District of Columbia	0	2	0	2
Georgia	36	5	14	55
Illinois	64	5	9	78
Indiana	74	5	6	85
Kentucky	56	7	0	63
Maryland	15	7	7	29
Massachusetts	8	14	2	24
Michigan	58	5	3	66
Missouri	36	0	2	38
New Jersey	6	19	13	38
New York	40	31	14	85
North Carolina	52	16	0	68
Ohio	81	0	8	89
Pennsylvania	58	11	1	70
Rhode Island	0	0	3	3
South Carolina	26	3	0	29
Tennessee	33	0	0	33
Virginia	27	2	1	30
West Virginia	33	0	0	33
Wisconsin	51	0	16	67
TOTAL	800	146	116	1062

Table 1-2. Distribution of Fossil Fuel-burning Non-Electric Utility Units by State

State	Number of Units by Primary Fuel Type		
	Coal	Oil and Gas	Total
Alabama	0	0	0
Connecticut	1	4	5
Delaware	0	3	3
District of Columbia	0	0	0
Georgia	0	2	2
Illinois	0	0	0
Indiana	0	0	0
Kentucky	0	0	0
Maryland	0	1	1
Massachusetts	0	10	10
Michigan	1	2	3
Missouri	0	0	0
New Jersey	2	6	8
New York	3	36	39
North Carolina	8	4	12
Ohio	0	0	0
Pennsylvania	1	5	6
Rhode Island	0	3	3
South Carolina	1	0	1
Tennessee	0	0	0
Virginia	10	13	23
West Virginia	1	1	2
Wisconsin	0	0	0
TOTAL	28	90	118

Table 1-3. Electric Utility Seasonal Heat Input by State

State	1995 Season Heat Input (10^12 Btu)	1996 Season Heat Input (10^12 Btu)	Higher Season Heat Input (10^12 Btu)
Alabama	342.061	349.949	349.949
Connecticut	26.497	40.888	40.888
Delaware	30.886	33.825	33.825
District of Columbia	2.026	0.128	2.026
Georgia	349.309	335.332	349.309
Illinois	331.123	344.469	344.469
Indiana	511.423	512.425	512.425
Kentucky	397.541	395.804	397.541
Maryland	130.525	123.057	130.525
Massachusetts	96.287	100.150	100.150
Michigan	280.733	287.794	287.794
Missouri	267.715	270.245	270.245
New Jersey	44.137	43.311	44.137
New York	249.259	223.357	249.259
North Carolina	286.709	310.605	310.605
Ohio	549.047	565.987	565.987
Pennsylvania	445.025	481.953	481.953
Rhode Island	0.319	11.938	11.938
South Carolina	130.148	150.371	150.371
Tennessee	279.734	268.878	279.734
Virginia	150.874	136.742	150.874
West Virginia	269.843	302.853	302.853
Wisconsin	196.841	191.728	196.841
TOTAL	5368.062	5481.789	5563.698

Table 1-4. State Growth Factors

State	OTAG 1996-2007 Growth Factor	IPM 1996-2007 Growth Factor
Alabama	1.21	1.03
Connecticut	1.11	0.92
Delaware	1.15	1.68
District of Columbia	1.00	1.00
Georgia	1.03	1.14
Illinois	1.08	1.23
Indiana	1.12	1.27
Kentucky	1.08	1.20
Maryland	1.05	1.14
Massachusetts	1.08	1.62
Michigan	0.94	1.13
Missouri	1.13	1.13
New Jersey	0.85	0.99
New York	1.08	1.11
North Carolina	1.10	1.10
Ohio	1.04	1.10
Pennsylvania	1.06	1.07
Rhode Island	0.39	0.43
South Carolina	1.03	1.32
Tennessee	1.13	0.92
Virginia	1.07	1.18
West Virginia	1.05	1.02
Wisconsin	1.04	1.07

Table 1-5. 2007 Heat Input and Budgets for Utility and Non-Utility Units by State

State	Heat Input (10^12 Btu)		NOx Budget (tons)		
	Utilities	IPPs	Utilities	IPPs	Total
Alabama	359.274		26946		26946
Connecticut	37.437	8.012	2808	601	3409
Delaware	56.942	1.596	4271	120	4390
District of Columbia	2.026		152		152
Georgia	398.055	4.052	29854	304	30158
Illinois	424.438		31833		31833
Indiana	650.549		48791		48791
Kentucky	477.605		35820		35820
Maryland	148.935	2.585	11170	194	11364
Massachusetts	162.225	10.527	12167	790	12956
Michigan	325.744	12.947	24431	971	25402
Missouri	305.758		22932		22932
New Jersey	43.649	23.570	3274	1768	5041
New York	275.681	53.021	20676	3977	24653
North Carolina	341.349	25.897	25601	1942	27543
Ohio	623.446		46758		46758
Pennsylvania	517.847	10.076	38839	756	39594
Rhode Island	5.108	6.957	383	522	905
South Carolina	198.994	2.202	14925	165	15090
Tennessee	257.579		19318		19318
Virginia	178.710	46.405	13403	3480	16884
West Virginia	308.345	2.399	23126	180	23306
Wisconsin	210.068		15755		15755
TOTAL	6309.764	210.246	473232	15768	489001

Table 1-6. 2007 Clean Air Act Base Emissions

State	2007 CAA Base Utility Tons	2007 CAA Base IPP Tons	2007 CAA Base Total Tons
Alabama	81,704		81,704
Connecticut	5,002	713	5,715
Delaware	10,741	160	10,901
District of Columbia	385		385
Georgia	92,541	405	92,946
Illinois	115,053		115,053
Indiana	177,888		177,888
Kentucky	128,688		128,688
Maryland	34,815	517	35,332
Massachusetts	27,231	1,053	28,284
Michigan	80,785	1,272	82,057
Missouri	92,313		92,313
New Jersey	12,406	2,147	14,553
New York	34,425	5,214	39,639
North Carolina	80,971	2,302	83,273
Ohio	185,757		185,757
Pennsylvania	124,207	988	125,195
Rhode Island	77	696	773
South Carolina	42,989	374	43,363
Tennessee	71,994		71,994
Virginia	41,369	4,350	45,719
West Virginia	83,515	204	83,719
Wisconsin	51,004		51,004
TOTAL	1,575,860	20,395	1,596,255

Chapter 2: Non-Utility Point Sources

I. Introduction

This section describes how the non-utility point source components of the State budgets were determined. The non-utility point source sector includes a wide variety of source categories, ranging from large non-utility boilers to chemical manufacturing and metals processing. Of these sources, fossil fuel combustion accounts for approximately 75 percent of the total NOx emissions from the source sector. OTAG identified potential controls for nine categories of NOx sources that represent over 86 percent of the NOx emissions from non-utility point sources. Potential control measures were assigned to different levels (1, 2, or 3, with 3 being the most stringent), based on their range of cost-effectiveness. The proposed State-by-State seasonal budget components for the non-utility point sectors generally reflect the OTAG recommendations.[2] The OTAG recommendations for the non-utility point sector are to reduce emissions from medium and large sized units in a manner equitable with utility controls. Specifically, OTAG recommended that large non-utility sources should meet approximately 70% reduction and medium-sized sources should meet reasonably available control technology (RACT) if utilities are subject to the 0.15 lb/mmBtu utility limit.

II. Application of Controls

The non-utility point source budget components were calculated based on the OTAG recommendations as follows:

1. 70 percent control for large (> 250 mmBtu/hr) sources (measured from uncontrolled emissions).

2. RACT-level controls for all other NOx sources with more than 1.0 tpd of NOx emissions (medium-sized sources).

3. Small source NOx emissions were estimated using OTAG Base 1c scenario emission values.

A. Overall Approach

The budget components for non-utility point sources were computed using emission data files developed by OTAG for three emission control scenarios: (1) 1990 control level grown to 2007, (2) OTAG scenario Base 1c with RACT-level controls applied in all non-waivered areas, and (3) OTAG scenario Level 0 with OTC Phase II NOx MOU controls applied. The other key component for this analysis was a control file assembled by Pechan for EPA/OTAG that has estimates of NOx emission reduction percentages by source and source category for 1990

---

[2] Ozone Transport Assessment Group, Final Recommendations, July 8, 1997.

controls and RACT controls. The assumptions used to develop these inventories and control files are documented in the Draft Emission Inventory Report.[3] Note that all emission size distinctions in this analysis were made using 1990 emissions as contained in the OTAG inventory.

The emission files described above were used in the following way to estimate the non-utility point source budget components:

1. Uncontrolled 2007 emissions were calculated by removing the NOx control efficiency from the current control 2007 emissions.

2. The appropriate NOx control efficiency, based on the source size, from the control strategy file was applied to each daily uncontrolled NOx emission value (Thursday, Saturday, Sunday) to calculate "controlled" emissions.

3. Seasonal emissions were calculated as discussed in Section III of this Chapter.

B. Large Sources

The OTAG recommendations define large non-utility point sources as:

- A boiler greater than or equal to 250 mmBtu/hour
- A reciprocating internal combustion engine greater than or equal to 8000 horsepower (hp)
- A turbine greater than or equal to 20,000 hp
- Any other source greater than or equal to 2 tons/average summer day

For the purpose of calculating the budget component, we applied a 70 percent reduction to large sources, from uncontrolled levels. Large sources were defined as those with heat input greater than or equal to 250 mmBtu/hr. Source size was determined as described in the Draft Emission Inventory Development report. Where no information was available on source size, sources were treated as medium-sized or small based on emissions. A list of the sources that were treated as large sources is contained in Appendix C.

C. Medium-sized Sources

The OTAG recommendation defines medium non-utility point sources as:

- A boiler between 100 and 250 mmBtu/hour
- A reciprocating internal combustion engine between 4000 and 8000 hp
- A turbine between 10,000 and 20,000 hp
- Any other source between 1 and 2 tons/average summer day

---

[3] "Ozone Transport Assessment Group (OTAG) Emissions Inventory Development Report," February, 1997 (draft), June 1997 (draft).

For the purpose of calculating the budget, we applied RACT to medium-sized sources. Medium-sized sources were defined as those with daily emissions greater than 1 ton/day and with heat input less than 250 mmBtu/hr. Because the OTAG data base does not have a great deal of information on the size of individual sources, we were not able to use the size cutoffs listed above for many source categories. Application of NOx RACT controls was simulated using information developed for OTAG emission modeling. The following hierarchy was used to estimate the NOx emission reductions associated with NOx RACT requirements at any individual source:

1. For States in the Northeast Ozone Transport Region, where RACT-level NOx emission rates were included for sources in the OTC NOx Baseline Inventory, these emission rates were used. Where source-specific information was not provided in the OTC NOx Baseline, default RACT percentage reductions and emission rate limits available from the OTC NOx Baseline were applied.

2. A RACT emission rate limit data base developed from an EPA summary of State NOx RACT rules was applied where source-specific data was not available. This data base contains State (and in some cases, county) specific emission limits by source type.

3. National default NOx RACT reduction percentages by SCC were applied to all other sources in areas with NOx RACT requirements where NOx emission limits were not available in 1. or 2. above.

III. Seasonal Emissions

In general, the OTAG emission inventory information is expressed in terms of tons per typical summer day. Seasonal emissions for the non-utility point source sector were calculated using a typical summer weekday level, typical summer Saturday level, and a typical summer Sunday level. The methodology for calculating these emissions is documented in a draft OTAG Emission Inventory Development Report. Typical summer day emissions were multiplied by 109 (the number of weekdays in the season), and typical Saturday and Sunday emissions were each multiplied by 22 (the number of Saturdays and Sundays in the season), and these were summed to get the seasonal total. Tables 2-1 and 2-2 show the Thursday (typical weekday), Saturday, Sunday, and seasonal emissions for the 2007 CAA base and the proposed non-utility point source budget components.

Table 2-1. Daily and Seasonal Non-utility Point Source Emissions for 2007 CAA Base

State	Thursday (tons/day)	Saturday (tons/day)	Sunday (tons/day)	Seasonal (tons/season)
Alabama	308.38	308.38	308.38	47,182
Connecticut	28.9	34.69	33.21	4,644
Delaware	34.33	33.3	33.23	5,206
District of Columbia	2.04	2.04	2.04	312
Georgia	223	215.41	208.3	33,629
Illinois	426.07	396.77	385.06	63,642
Indiana	341.56	326.17	319.37	51,432
Kentucky	124.28	122.11	117.73	18,823
Maryland	58.84	9.31	4.95	6,727
Massachusetts	70.14	68.97	66.78	10,632
Michigan	373.79	373.79	373.79	57,190
Missouri	82.63	74.24	73.1	12,248
New Jersey	218.95	218.95	218.95	33,499
New York	133.91	124.04	116.54	19,889
North Carolina	212.32	205.01	202.43	32,107
Ohio	341.66	313.3	309.62	50,945
Pennsylvania	472.87	329.97	233.49	63,939
Rhode Island	2.35	1.77	1.51	328
South Carolina	233.94	215.46	206.89	34,791
Tennessee	420.83	442.77	429.06	65,051
Virginia	154.08	149.05	148.13	23,333
West Virginia	275.9	263.19	256.67	41,510
Wisconsin	139.86	136.08	135.03	21,209
Total	4680.63	4364.77	4184.26	698,267

Table 2-2. Daily and Seasonal Non-utility Point Source Emissions for Proposed Budgets

State	Thursday (tons/day)	Saturday (tons/day)	Sunday (tons/day)	Seasonal (Tons/season)
Alabama	164.25	164.25	164.25	25,131
Connecticut	28.68	31.37	29.92	4,475
Delaware	21.26	20.23	20.16	3,206
District of Columbia	2.04	2.04	2.04	312
Georgia	136.96	129.37	122.62	20,472
Illinois	269.20	243.58	234.25	39,855
Indiana	237.56	222.77	218.53	35,603
Kentucky	81.37	79.20	74.82	12,258
Maryland	42.28	6.78	3.02	4,825
Massachusetts	50.52	48.48	46.19	7,590
Michigan	230.83	230.83	230.83	35,317
Missouri	55.52	48.81	47.66	8,174
New Jersey	174.78	174.78	174.78	26,741
New York	114.28	104.51	98.80	16,930
North Carolina	140.42	133.11	130.85	21,113
Ohio	219.07	204.58	200.90	32,799
Pennsylvania	467.47	225.67	168.31	59,622
Rhode Island	2.35	1.77	1.51	328
South Carolina	136.40	122.07	115.61	20,097
Tennessee	210.99	214.38	201.09	32,138
Virginia	103.07	98.05	97.12	15,529
West Virginia	209.31	197.14	192.04	31,377
Wisconsin	81.43	77.65	76.60	12,269
Total	3,180	2,781	2,652	466,159

Chapter 3: Other Sources

I. Introduction

Budget components for area sources, highway vehicles and nonroad mobile sources were based on information developed by OTAG. The methodologies for developing base year emissions, growth factors and control levels are documented in the OTAG Emission Inventory Development Reports.[4]

II. Application of Controls

A. Area Sources

For the purpose of calculating Statewide budgets, no additional controls were assumed for this sector. Assumptions used to calculate the area source budget component reflect Level 1 as described in the draft OTAG Emission Inventory report.

B. Highway Vehicles

In addition to the controls that were assumed in the 2007 CAA Base, the proposed budget components for this source sector reflect implementation of a National Low Emission Vehicle Program, 2004 Heavy-Duty Vehicle Standards, and Federal Test Procedure revisions. The methodology used to apply these controls is documented in the draft OTAG Emission Inventory Report.

C. Nonroad Sources

For nonroad sources, the budget components are based on implementation of Federal small engine standards (Phase II), Federal marine engine standards (diesel >50 horsepower), Federal locomotive standards, and 1997 proposed nonroad diesel engine standards. The methodology used to apply these controls is documented in the draft OTAG Emission Inventory Report.

III. Seasonal Calculations

Seasonal emissions for the area, highway vehicle and nonroad sectors were calculated using a typical summer weekday level, typical summer Saturday level, and a typical summer Sunday level. The methodology for calculating these emissions is documented in a draft OTAG Emission Inventory Development Report. Typical summer day emissions were multiplied by 109 (the number of weekdays in the season), and typical Saturday and Sunday emissions were each

---

[4] Volume I: 1990 Base Year Development (Draft, February 1997); Volume III: Projections and Controls (Draft, June 1997).

multiplied by 22 (the number of Saturdays and Sundays in the season), and these were summed to get the seasonal total. Tables 3-1 through 3-5 show the Thursday (typical weekday), Saturday, Sunday, and seasonal emissions for the 2007 CAA base and the proposed highway vehicle and nonroad sector budget components. The area sector budget components are not presented because they are the same as the 2007 CAA base.

Table 3-1. Daily and Seasonal Area Source Emissions for 2007 CAA Base

State	Thursday (tons/day)	Saturday (tons/day)	Sunday (tons/day)	Seasonal (tons/season)
Alabama	188.01	134.18	81.07	25,229
Connecticut	31.51	27.97	24.43	4,587
Delaware	7.52	5.77	4.01	1,035
District of Columbia	5.42	4.08	2.75	741
Georgia	86.35	66.47	46.66	11,901
Illinois	51.12	42.76	34.4	7,270
Indiana	190	136.56	83.19	25,545
Kentucky	290.25	205.29	120.33	38,801
Maryland	59.23	45	30.76	8,123
Massachusetts	73.76	58.78	43.81	10,297
Michigan	207.08	149.6	102.87	28,126
Missouri	48.15	36.87	25.75	6,626
New Jersey	83.42	62.58	41.75	11,388
New York	113.77	86.17	58.58	15,585
North Carolina	62.81	56.49	50.2	9,193
Ohio	143.03	106.3	68.97	19,446
Pennsylvania	116.61	105.42	94.23	17,103
Rhode Island	2.93	2.51	2.08	420
South Carolina	61.99	45.85	29.75	8,420
Tennessee	87.15	66.49	46.77	11,991
Virginia	188.77	130.1	82.87	25,261
West Virginia	35.76	27.09	18.51	4,901
Wisconsin	75.9	56.93	37.96	10,361
Total	2210.54	1659.26	1131.7	302,350

Table 3-2. Daily and Seasonal Highway Vehicle Emissions for 2007 CAA Base

State	Thursday (07-Jul-88) (tons/day)	Saturday (09-Jul-88) (tons/day)	Sunday (10-Jul-88) (tons/day)	Seasonal (tons/season)
Alabama	416.8	383.27	333.73	61,205
Connecticut	159.47	146.83	128.81	23,446
Delaware	60.3	55.37	48.9	8,867
District of Columbia	20.96	19.25	16.96	3,081
Georgia	599.03	559.68	488.88	88,363
Illinois	622.86	577.8	502.39	91,656
Indiana	491.79	454.17	395.34	72,294
Kentucky	338.91	311.77	272.23	49,789
Maryland	271.66	249.69	219.84	39,941
Massachusetts	240.22	220.88	193.86	35,308
Michigan	622.31	573.69	499.81	91,449
Missouri	420.19	387.72	338.5	61,778
New Jersey	381.86	342.28	301.35	55,783
New York	777.35	714.8	626.24	114,234
North Carolina	551.56	505.43	441.62	80,955
Ohio	710.83	654.3	570.3	104,422
Pennsylvania	556.86	510.13	449.31	81,805
Rhode Island	51.46	47.43	41.52	7,566
South Carolina	365.3	333.38	291.53	53,566
Tennessee	496.75	454.93	397.84	72,907
Virginia	603.89	556.12	487.88	88,792
West Virginia	158.49	145.23	127.11	23,267
Wisconsin	315.35	291.18	255.02	46,390
Total	9234.2	8495.33	7428.97	1,356,864

Table 3-3. Daily and Seasonal Highway Vehicle Proposed Budget Components

State	Weekday (tons/day)	Saturday (tons/day)	Sunday (tons/day)	Seasonal (Tons/season)
Alabama	386.24	352.02	307.13	56,601
Connecticut	118.71	108.25	94.17	17,392
Delaware	57.67	52.39	45.94	8,449
District of Columbia	15.46	14.08	12.33	2,267
Georgia	529.59	483.50	422.61	77,660
Illinois	529.99	484.35	421.19	77,690
Indiana	454.61	416.19	362.53	66,684
Kentucky	315.42	288.39	251.48	46,258
Maryland	195.28	177.74	155.67	28,620
Massachusetts	157.66	144.76	124.84	23,116
Michigan	555.53	507.94	442.08	81,453
Missouri	375.51	343.64	298.43	55,056
New Jersey	268.82	244.12	213.84	39,376
New York	642.00	585.36	509.66	94,068
North Carolina	498.25	454.44	397.71	73,056
Ohio	631.24	577.06	502.21	92,549
Pennsylvania	499.34	454.88	397.32	73,176
Rhode Island	38.89	35.69	30.79	5,701
South Carolina	337.58	307.76	269.83	49,503
Tennessee	461.03	423.72	367.60	67,662
Virginia	544.69	496.87	433.88	79,848
West Virginia	147.62	134.76	117.53	21,641
Wisconsin	284.20	259.18	225.99	41,651
Total	8,045.33	7,347.09	6,404.76	1,179,477

Table 3-4. Daily and Seasonal Nonroad Source Emissions for 2007 CAA Base

State	Thursday (tons/day)	Saturday (tons/day)	Sunday (tons/day)	Seasonal (tons/season)
Alabama	173.69	76.23	51.49	21,742
Connecticut	88.51	49.23	43.09	11,679
Delaware	32.81	25.44	23.96	4,663
District of Columbia	21.57	28.84	28.35	3,609
Georgia	220.12	84.83	58.72	27,151
Illinois	507.12	282.77	210.21	66,122
Indiana	236.76	128.54	84.27	30,489
Kentucky	195.77	107.03	74.24	25,327
Maryland	168.42	86.45	66.22	21,717
Massachusetts	165.96	115.21	101.84	22,865
Michigan	221.63	123.31	97.01	29,005
Missouri	176.03	89.13	65.18	22,582
New Jersey	187.69	115.45	97.83	25,150
New York	278.14	143.35	111.95	35,934
North Carolina	187.45	63.67	47.02	22,867
Ohio	351.08	207.84	153.37	46,214
Pennsylvania	266.25	124.95	88.04	33,707
Rhode Island	19.92	8.29	7.16	2,511
South Carolina	124.95	49.72	33.28	15,446
Tennessee	430.49	200.74	153.19	54,710
Virginia	223.08	127.54	92.65	29,160
West Virginia	79.68	54.72	48.94	10,966
Wisconsin	149.64	77.29	54.4	19,208
Total	4506.76	2370.57	1792.41	582,824

Table 3-5. Daily and Seasonal Nonroad Source Proposed Budget Components

State	Weekday (tons/day)	Saturday (tons/day)	Sunday (tons/day)	Seasonal (tons/season)
Alabama	147.68	71.05	48.49	18,727
Connecticut	70.15	46.48	41.48	9,581
Delaware	29.31	24.87	23.63	4,262
District of Columbia	21.33	28.81	28.33	3,582
Georgia	181.44	78.47	55.04	22,714
Illinois	426.53	256.58	195.12	56,429
Indiana	208.19	121.00	79.88	27,112
Kentucky	172.21	100.43	70.45	22,530
Maryland	136.99	79.87	62.42	18,062
Massachusetts	134.77	110.62	99.16	19,305
Michigan	181.09	113.51	91.31	24,245
Missouri	146.48	81.65	60.88	19,102
New Jersey	158.23	109.23	94.22	21,723
New York	227.21	132.85	105.87	30,018
North Carolina	152.13	60.24	45.02	18,898
Ohio	315.45	199.31	148.32	42,032
Pennsylvania	227.00	117.70	83.81	29,176
Rhode Island	16.05	7.85	6.89	2,074
South Carolina	102.63	44.47	30.26	12,831
Tennessee	364.63	187.28	145.44	47,065
Virginia	190.70	119.67	88.11	25,357
West Virginia	71.74	53.22	48.07	10,048
Wisconsin	116.38	64.64	47.14	15,145
Total	3,798.32	2,209.80	1,699.34	500,018

Appendix A
Unit-Specific Electric Generation Data
Utility-Owned Units

Appendix B
Unit-Specific Electric Generation Data
Non Utility-Owned Units

Appendix C
List of Large Non-Utility Point Sources