Technical Support Document (TSD)

for the Transport Rule

Docket ID No. EPA-HQ-OAR-2009-0491

State Budgets, Unit Allocations, and Unit Emissions Rates

U.S. Environmental Protection Agency

Office of Air and Radiation

July 2010

State Budgets, Unit Allocations, and Unit Emissions Rates

This Technical Support Document (TSD) provides information that supports EPA's determination of state emissions budgets, unit-level allocations, direct control rate limits, and new unit set-asides for the Transport Rule proposal. Section IV.E in the Transport Rule preamble discusses state emissions budgets. Section V.D in the preamble discusses unit-level allocations, including the approach to allocate to new units from new unit set-asides in each state. Section V.D also discusses direct control rate limits.

This TSD provides additional information in support of the state budgets, unit-level allocations, direct control rate limits, and new unit set-asides. The TSD is organized as follows:

1. Overview
2. State Budgets
3. Unit-Level Allocations
4. Direct Control Rate Limits
5. New Unit Set-Asides

1. Overview

State budgets, unit-level allocations, and direct control rate limits are key interrelated components of the proposed Transport Rule. As discussed in preamble sections III.A and IV.D, each state's budget comprises the emissions that EPA estimates remain after the state has made the reductions required to eliminate its significant contribution to nonattainment and interference with maintenance of the relevant National Ambient Air Quality Standards (NAAQS) in other states in an average year.[1] As such, the budget relates directly to the statutory authority upon which the Transport Rule is

[1] As discussed in preamble section III.A, in the case of certain states for which EPA has only quantified a minimum amount of emissions reductions needed to make measurable progress towards eliminating their significant contribution and interference with maintenance with respect to the 1997 8-hour ozone NAAQS, the emissions budget is the emissions that will remain after removal of those emissions.

built. Under either the proposed State Budgets/Limited Trading remedy or the State Budgets/Intrastate Trading alternative remedy, each state's budget is allocated to sources within that state and determines how much each source can emit without trading allowances (allocations are discussed in preamble section V.D). Similarly, under the Direct Control alternative remedy, rate limits specify the maximum emissions rate at which an electric generating unit (EGU) may operate without averaging rates with other EGUs under the same ownership within the state (rate limits are discussed in preamble section V.D).

Besides their importance to the Transport Rule, state budgets, unit-level allocations, and direct control rate limits share a common development process. Each is derived from a combination of recent emissions and heat input data and electric power sector projections from the Integrated Planning Model (IPM) affecting an inventory of fossil-fuel-fired EGUs of more than 25 MW capacity. Specifically, each state's budget was constructed from a combination of data and IPM projections for the EGUs in that state, and each EGU's contribution to the budget formed the basis of its allocation and direct control rate limit calculations.

As discussed in preamble section V.D, EPA proposes to allocate emissions allowances to new units from small new unit set-asides in each state. To create new unit set-asides, EPA would distribute to existing EGUs a quantity of allowances less than the entire state emissions budgets and would hold back, for the new unit set-aside for a state, 3 percent of the state budget.

This TSD details the how the state budgets were formed, how allocations were derived, and how direct control rate limits were set. The TSD also describes how EPA determined the size of the new unit set-asides. Following these descriptions, an appendix showing each affected EGU's allocation under the allocation methodology in the proposed FIPs, as well as each EGU's allowable emissions rate under the direct control alternative, comprises most of the document.

2. State Budgets

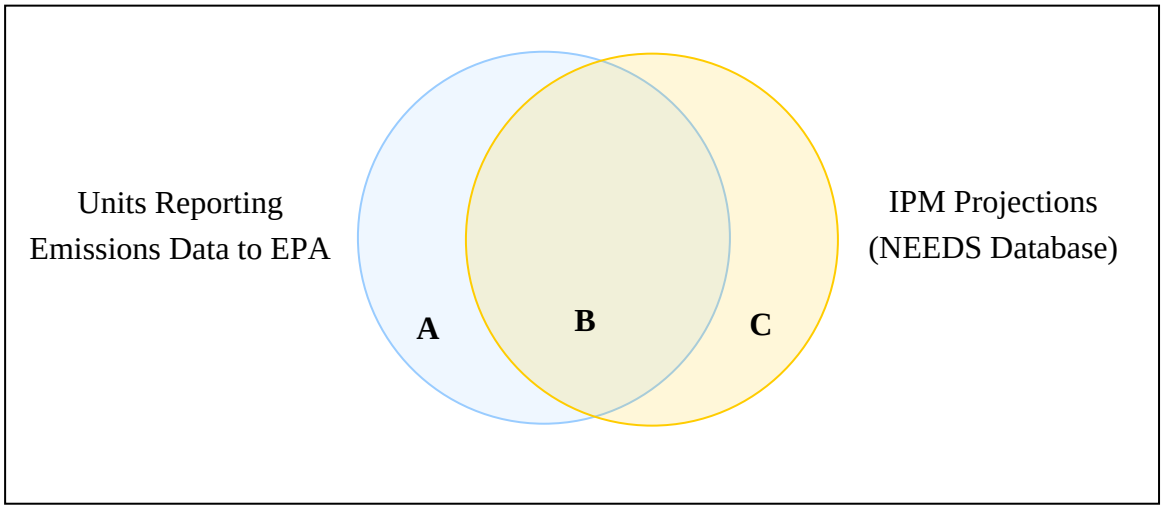
Inventory of Units

The inventory of units on which state budgets are based is the union of units reporting emissions data to EPA (via various emissions trading programs) and units included in IPM modeling (identified in NEEDS v302_EISA database). Generally, since IPM is a representation of all units which are capable of supplying electricity to the US

electric grid and only units subject to EPA trading programs report emissions data, the units reporting data are a subset of the IPM/NEEDS inventory. However, both inventories must be considered due to potential inconsistencies. For example, it is possible that a new unit is captured in reported data but not yet included in IPM modeling. Additionally, the breakdown of a plant into multiple generating units might be done differently in each data set, for example, where there is not a 1:1 relationship between boiler and generator. Similarly, a combined cycle gas turbine and heat recovery steam generator may be treated as either a single unit or two separate units.

Figure 1 provides a stylistic representation of the unit inventory, aggregating the population into three sets (A, B, and C) by data source. The stylistic data sets in this figure are referred to throughout the remainder of this document.

Figure 1. Stylistic Representation of Unit Inventory



The inventory of units on which budgets are based is limited to only fossil-fired units with greater than 25 MW electric generating capacity. For Set B and C, generating capacity and fuel type is defined in the NEEDS database. Units in Set A are assumed to be fossil-fired EGUs greater than 25 MW if they reported data to one of the following programs: CAIR NO_X, CAIR SO_2, ARP, and/or CAIROS in MA, CT, or AR.

Where possible, EPA determined a crosswalk between those units in the intersection of the two data sources. This set is stylistically represented as Set B in Figure 1. This crosswalk is used to compare total state emissions from historic data to model projections. In cases where one unit with reported emissions matched to multiple units in the IPM/NEEDS inventory, emissions were divided equally.

Determining Reported Emissions

For those units which report emissions data to EPA (Sets A and B), the reported annual data (SO_2, NO_X, and heat input) is assumed to be the most recent non-null first quarter, second quarter, third quarter, and fourth quarter emissions and heat input, between quarter 1 2007 and quarter 3 2009. The reported ozone season NO_X emissions and heat input are assumed to be the most recent ozone season data reported to EPA between 2007 and 2009.

Determining Projected Emissions

For those units present in the NEEDS v302 EISA database and thus included in IPM modeling, (Sets B and C), projected data are assumed to be the annual (SO_2, NO_X, heat input) and ozone season (NO_X, heat input) data projected by the IPM run that is designated "TR_Base_Case," as apportioned to the unit level in the 2012 parsed file. The IPM runs and parsed files can be found in the docket for this rulemaking (Docket ID No. EPA-HQ-OAR-2009-0491).

Adjusting Emissions

Both reported emissions and projected emissions require adjustment to reflect the fact that some sources installed advanced SO_2 and NO_X control equipment to comply with CAIR but might not operate that equipment if they are not covered by the Transport Rule (because once the Transport Rule is finalized, the CAIR requirements will cease to exist). For both NO_X and SO_2, reported data is adjusted to account for retrofit controls that are expected to be built by 2012 but were not in place during the time period for which the data was reported. Conversely, projected data is adjusted to account for "dispatchable" controls that may not have operated fully in the base case projections.[2] Also, both reported and projected emissions for annual NO_X are adjusted to account for the year-round operation of post-combustion controls which may only have operated during the ozone season. Notably, all of these adjustments represent potential decreases, not increases, to the unadjusted reported or projected emissions; that is, only downward adjustments are made to a unit's emissions total. The adjustments made are shown in summary in Tables 1 and 2 below and described in the following section.

---

[2] Dispatchable controls are described in detail in the Transport Rule model documentation, "Updates to EPA Base Case v3.02 EISA Using the Integrated Planning Model."

For many of the adjustments in Tables 1 and 2 below, the calculations use a "controlled model projection" of EGU emissions to prevent removal rates from being applied to units that are already controlling. For example, if a dispatchable scrubber with a 95% removal percentage were operating with a reduced removal percentage of 60%, simply applying 95% removal would yield an erroneous removal percentage of 98%. Instead, adjusting based on the greater of that result and a controlled model projection yields the correct 95% removal corresponding to full operation of the scrubber. The controlled model projections used for this purpose are 2014 parsed results from three IPM runs: TR_SO2_1600 for SO_2; TR_NOX_500 for annual NO_X; and TR_NOX_OS_500 for ozone-season NO_X.[3]

Apart from the controlled model projections described above, assumptions about controls follow those of EPA modeling using IPM[4]. Existing scrubbers have removal rates specified in NEEDS. 2012 retrofit scrubbers, for which a NEEDS rate is not available, are assumed to achieve 95% removal. Post-combustion NO_X controls are assumed to achieve the removal rates specified in the IPM documentation, including 90% for SCR on coal-fired units, 35% for SNCR on conventional coal, and 50% for SNCR on fluidized bed coal units. As in IPM, NO_X controls were assumed not to control beyond a floor of 0.06 lbs/mmBTU.

Adjustments for scrubbers also account for the tendency to operate scrubbed units more than they operated as unscrubbed units. The rate determined with the criteria above was applied to the greater of reported heat input and heat input from the controlled model projection. For example, consider a hypothetical unit installing a scrubber in 2011 with a removal rate of 95%. As a relatively well-controlled unit in the controlled model projection, assume this unit operated 50% more in the controlled model projection than in the most recent reported data. Adjustment to this unit's SO_2 emissions would account not only for the 95% reduction but also for the 50% increase in utilization, accurately reflecting the combination of these two changes.

Adjustments to reported data of units with controls installed in 2009 were treated on a case-by-case basis. Quarterly emissions rates were assessed to determine when the control might have been installed. If a clear drop commensurate with the new control

---

[3] These model runs were originally used for analysis of significant contribution and are described in the TSD, "Analysis to Quantify Significant Contribution."

[4] Specifically, the discussion in this paragraph draws from Tables 5.5 and 5.2 from "Documentation for EPA Base Case 2006 (v3.0) Using the Integrated Planning Model," available at http://www.epa.gov/airmarkt/progsregs/epa-ipm/index.html.

could be determined, the rate implied by the post-installation data was used. If the data did not clearly indicate when the control was installed, the control was treated as though it were a 2010 or 2011 control as specified in Table 1 below.

Table 1. Adjustments to Reported Emissions to Account for Controls

<table>
<tr><th>Control Type</th><th>Online Year of Control</th><th>Pollutant</th><th colspan="2">Procedure for Adjustment</th></tr>
<tr><td rowspan="2">SCR or SNCR</td><td rowspan="2">2010–2011 in NEEDS</td><td rowspan="2">Annual NO_X or Ozone-season NO_X</td><td colspan="2">Use the greater of the emissions that result from applying:</td></tr>
<tr><td>Removal rate from IPM documentation*</td><td>0.06 lbs/mmBTU</td></tr>
<tr><td>SCR or SNCR</td><td>2009 in NEEDS</td><td>Annual NO_X or Ozone-season NO_X</td><td colspan="2">Reflect post-installation data if available. Otherwise, treat like 2010–2011 controls above.</td></tr>
<tr><td rowspan="2">SCR or SNCR</td><td rowspan="2">2012 retrofit in TR_Base_Case</td><td rowspan="2">Annual NO_X or Ozone-season NO_X</td><td colspan="2">Use the greater of the emissions that result from applying:</td></tr>
<tr><td>Removal rate from IPM documentation*</td><td>Emissions rate in controlled model projection</td></tr>
<tr><td>SCR or SNCR</td><td>Before 2009 in NEEDS</td><td>Annual NO_X</td><td colspan="2">Reflect emissions rate in reported ozone-season data.</td></tr>
<tr><td rowspan="5">FGD</td><td rowspan="5">2010–2011 in NEEDS</td><td rowspan="5">SO_2</td><td colspan="2">1) Use the greater of the emissions rates that result from applying:</td></tr>
<tr><td>FGD removal rate in NEEDS</td><td>Emissions rate in controlled model projection</td></tr>
<tr><td colspan="2">2) Apply the emissions rate to the greater of these heat inputs:</td></tr>
<tr><td>Reported heat input</td><td>Heat input in controlled model projection</td></tr>
<tr><td>FGD</td><td>2009 in NEEDS</td><td>SO_2</td><td colspan="2">Reflect post-installation data if available. Otherwise, treat like 2010–2011 controls above.</td></tr>
<tr><td rowspan="5">FGD</td><td rowspan="5">2012 retrofit in TR_Base_Case</td><td rowspan="5">SO_2</td><td colspan="2">1) Use the greater of the emissions rates that result from applying:</td></tr>
<tr><td>95% removal rate</td><td>Emissions rate in controlled model projection</td></tr>
<tr><td colspan="2">2) Apply the emissions rate to the greater of these heat inputs:</td></tr>
<tr><td>Reported heat input</td><td>Heat input in controlled model projection</td></tr>
</table>

*As described above, removal rates are 90% for SCR and 35% (conventional) or 50% (FBC) for SNCR.

Table 2. Adjustments to Projected Base Case Emissions to Account for Controls

<table>
<tr><th>Control Type</th><th>Online Year of Control</th><th>Pollutant</th><th colspan="2">Procedure for Adjustment</th></tr>
<tr><td rowspan="2">Dispatchable SCR</td><td rowspan="2">Any year in NEEDS</td><td rowspan="2">Annual NO_X or Ozone-season NO_X</td><td colspan="2">Use the greater of the emissions that result from applying:</td></tr>
<tr><td>Removal rate from IPM documentation*</td><td>Emissions rate in controlled model projection</td></tr>
<tr><td>SNCR or non-dispatchable SCR</td><td>Any year in NEEDS or 2012 retrofit in TR_Base_Case</td><td>Annual NO_X</td><td colspan="2">Reflect emissions rate in TR_Base_Case 2012 ozone-season projection.</td></tr>
<tr><td rowspan="5">Dispatchable FGD</td><td rowspan="5">Any year in NEEDS</td><td rowspan="5">SO_2</td><td colspan="2">1) Use the greater of the emissions rates that result from applying:</td></tr>
<tr><td>FGD removal rate in NEEDS</td><td>Emissions rate in controlled model projection</td></tr>
<tr><td colspan="2">2) Apply the emissions rate to the greater of these heat inputs:</td></tr>
<tr><td>Reported heat input</td><td>Heat input in controlled model projection</td></tr>
</table>

*As described above, IPM removal rates are 90% for SCR and 35% (conventional) or 50% (FBC) for SNCR.

Prior to making the above adjustments for controls, a few units were adjusted on a case-by-case basis to correct for inaccurate or unrepresentative data. Brayton Point unit 3 is expected to have a dry scrubber rather than a wet scrubber by 2012. For Rodemacher unit 2, 2007 quarter 4 heat input is used instead of incomplete 2008 quarter 4 heat input. Seminole (Florida) units 1 and 2 are assumed to have had SCR installed prior to 2009. These adjustments are summarized below in Table 3, and the resulting allocations and direct control rate limits are shown in the Appendix of this document.

Table 3. Unit-specific Adjustments

NEEDS ID	ORIS Code	Plant Name	Unit ID	Adjustment to Data	Affected Pollutant
1619_B_3	1619	Brayton Point	3	Scrubber achieves 90% rather than 95% removal	SO_2
6190_B_2	6190	Rodemacher	2	Use 2007 Q4 for calculation of annual heat input data	SO_2
136_B_1	136	Seminole	1	Has pre-2009 SCR	Annual NO_X
136_B_2	136	Seminole	2	Has pre-2009 SCR	Annual NO_X

Reported annual and ozone season NO_X emissions are adjusted to account for unusually low utilization in 2009. For units reporting emissions (Sets A and B), the annual emissions assumed in the budget calculation are calculated by applying the 2008 heat input to the annual average emissions rate determined from the most recent quarter 1, quarter 2, quarter 3, and quarter 4 (and potentially adjusted for controls, as described above). 2009 heat input is used for units which did not report 2008 heat input data. Ozone season emissions are assumed to be 2008 ozone season heat input multiplied by the most recent ozone season average emissions rate.

Because 2009 was an unusually low year, rebasing emissions on 2008 heat input in this way typically results in larger annual NO_X emissions.

2012 SO_2 Budgets

2012 SO_2 budgets are the lower of the recent actual emissions or projected base case emissions, at the state level. The unit-level data used in developing 2012 SO_2 state budgets is based on the inventory of units described in section 2 “Inventory of Units” and adjusted as summarized in Tables 1-3..

Each state’s 2012 SO_2 budget is the sum of

(1) adjusted emissions from units with only reported data (Set A), plus

(2) adjusted emissions from units with only projected data (Set C), plus

(3) from units with both reported and projected data (Set B), the lesser of:

a. total emissions based on adjusted reported data, or

b. total emissions based on adjusted projected data.

2014 and Beyond SO_2 Budgets

For group 2 states[5] (Alabama, Connecticut, Delaware, Florida, Kansas, Louisiana, Maryland, Massachusetts, Minnesota, Nebraska, New Jersey, South Carolina) the 2014 and beyond budgets are equal to the 2012 budgets. 2014 and beyond SO_2 budgets for group 1 states (Georgia, Illinois, Indiana, Iowa, Kentucky, Michigan, Missouri, New York, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, Wisconsin) are based on 2014 IPM projected emissions from fossil units greater than 25 MW capacity.

Group 1 state budgets are based on reductions projected to be cost-effective at $2000 per ton of SO_2 in the significant contribution analysis. The TSD titled "Analysis to Quantify Significant Contribution" contains details about this analysis. More information on the IPM run (TR_SO2_2000) is available in the docket for this rulemaking (Docket ID No. EPA-HQ-OAR-2009-0491). Each group 1 state's budget, with the exception of Tennessee, is equal to the projected state emissions from covered units (fossil-fired, greater than 25 MW capacity) in this IPM run.

For Tennessee, the 2012 SO_2 budget calculation methodology resulted in a slightly smaller budget than would have been as calculated under the 2014 and beyond methodology for group 1 states. As a result, the budget for the state of Tennessee does not change in 2014.

Annual NO_X Budgets

2012 and beyond annual NO_X budgets are the lower of the recent actual emissions or projected base case emissions at the state level. The unit-level data used in developing 2012 annual NO_X state budgets is based on the inventory of units described in section 2 "Inventory of Units" and adjusted as summarized in Tables 1-3.

Each state's 2012 NO_X budget is the sum of

(1) adjusted emissions from units with only reported data (Set A), plus

(2) adjusted emissions from units with only projected data (Set C), plus

---

[5] As discussed in the preamble, the proposed Transport Rule divides the states required to make SO_2 reductions into two groups reflecting the differing stringency of SO_2 reductions required to address significant contribution and interference with maintenance for each state.

(3) from units with both reported and projected data (Set B), the lesser of:

a. total emissions based on adjusted reported data, or

b. total emissions based on adjusted projected data.

Ozone-season NO_X Budgets

2012 and beyond ozone season NO_X budgets are the lower of the recent actual emissions or projected base case emissions at the state level. The unit-level data used in developing 2012 ozone season NO_X state budgets is based on the inventory of units described in section 2 "Inventory of Units" and adjusted as summarized in Tables 1-3.

Each state's 2012 ozone season NO_X budget is the sum of

(1) adjusted emissions from units with only reported data (Set A), plus

(2) adjusted emissions from units with only projected data (Set C), plus

(3) from units with both reported and projected data (Set B), the lesser of:

a. total emissions based on adjusted reported data, or

b. total emissions based on adjusted projected data.

3. Unit-level Allocations

The allocation methodology distributes the state budgets to individual units. The proposed unit-level allocations are calculated analogous with the way each state budget is calculated – each unit receives a proportional share of its state budget based on that unit's share of state emissions assumed in developing the budget. The following sections describe in more detail the proposed allocation methodology for each pollutant: SO_2 (2012-2013, 2014 and beyond), annual NO_X, and ozone season NO_X.

SO_2 Allocations for 2012–2013

The basis for 2012-2013 SO_2 allocations is the unit-level emissions assumption (tons) used in determining the state budget. Consistent with state budget calculation, the allocations to units with only reported data (Set A) are based on that reported data. Similarly, allocations to units with only projected data (Set C) are based on that projected data. For those units with both reported and projected data (Set B), allocations are based on the data source used in the state budget (the source resulting in the lowest total budget from Set B units at the state level).

Units are allocated 97% of the assumed unit-level emissions of each state's budget. The remaining 3% of allowances are withheld for a new-unit set-aside. See section 5 for discussion of the new unit set-asides. Proposed allocations are rounded to the nearest ton.

SO_2 Allocations for 2014 and Beyond

For group 2 states (Alabama, Connecticut, Delaware, Florida, Kansas, Louisiana, Maryland, Massachusetts, Minnesota, Nebraska, New Jersey, South Carolina), 2014 and beyond allocations are equal to 2012-2013 allocations. For group 1 states (Georgia, Illinois, Indiana, Iowa, Kentucky, Michigan, Missouri, New York, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, Wisconsin), unit-level allocations are a proportional share of the state's budget based on projected SO_2 emissions from fossil-fired greater than 25 MW capacity units in the TR_SB_Limited_Trading IPM run, as apportioned to the unit level in the 2014 parsed file. Units in group 1 states without an IPM projection do not receive SO_2 allocations in 2014 and beyond.

The proposed unit-level allocations are 97% of each unit's proportional share of emissions. The remaining 3% of allowances are withheld for a new unit set-aside. See section 5 for discussion of the new unit set-aside. Proposed allocations are rounded to the nearest ton.

Annual NO_X Allocations for 2012 and Beyond

The basis for 2012 and beyond annual NO_X allocations is the unit-level emissions assumption (tons) used in determining the state budget. Consistent with state budget calculation, the allocations to units with only reported data (Set A) are based on that reported data. Similarly, allocations to units with only projected data (Set C) are based on that projected data. For those units with both reported and projected data (Set B), allocations are based on the data source used in the state budget (the source resulting in the lowest total budget from Set B units at the state level).

The proposed unit-level allocations are 97% of the unit-level emissions assumed in developing each state's budget. The remaining 3% of allowances are withheld for a new unit set-aside. See section 5 for discussion of the new unit set-aside. Proposed allocations are rounded to the nearest ton.

Ozone-season NO_X Allocations for 2012 and Beyond

The basis for 2012 and beyond ozone season NO_X allocations is the unit-level emissions assumption (tons) used in determining the state budget. Consistent with state budget calculation, the allocations to units with only reported data (Set A) are based on that reported data. Similarly, allocations to units with only projected data (Set C) are based on that projected data. For those units with both reported and projected data (Set B), allocations are based on the data source used in the state budget (the source resulting in the lowest total budget from Set B units at the state level).

The proposed unit-level allocations are 97% of the unit-level emissions assumed in developing each state's budget. The remaining 3% of allowances are withheld for a new unit set-aside. See section 5 for discussion of the new unit set-aside. Proposed allocations are rounded to the nearest ton.

4. Direct Control Rate Limits

EPA is taking comment on a direct control rate limit alternative remedy. The unit-level rates which sources must comply with under this approach are determined analogously to unit-level allocations – each unit's proposed allocation is divided by the reported or projected heat input associated with that tonnage. The heat input assumed in this approach is determined identically to emissions. For units in Set A, reported annual heat input is calculated from the most recent first, second, third, and fourth quarters for SO_2, and 2008 heat input for annual and ozone season NO_X. For units in Set C, the heat input is projected by IPM in TR_Base_Case, as apportioned to the unit-level in the 2012 parsed file (or, in the case of group 1 states in 2014 and beyond, projected by IPM in TR_SB_Limited_Trading, as apportioned to the unit level in the 2014 parsed file). The source of the heat input for units in Set B (both projected and reported data available) is identical to the source of the emissions data for that unit. Note that this data source could be different based on pollutant, at the same unit.

5. New Unit Set-Asides

The new unit set-aside for SO_2, annual NO_X, and ozone season NO_X for each state is determined based on the percentage of the total emissions represented by the net new emissions calculated by IPM in TR_SB_Limited_Trading, as parsed to the unit level in the 2020 run year. This method for calculating the new unit set aside ensures new units have sufficient allocations, while balancing the allocation needs of existing EGUs. The

total emissions for each pollutant are the sum of emissions from all covered units (fossil-fired, greater than 25 MW capacity) in the 2020 run year of TR_SB_Limited_Trading. The net new emissions for each pollutant is equal to the projected 2020 emissions from newly built units in IPM, less the sum of allocations to units projected to retire for more than 3 years by 2020 (after 6 years, allocations to retired units are returned to the new unit set-aside). The percentages of the total emissions represented by the projected net new emissions calculated by IPM in 2020 are:

SO_2: 0.60%

Annual NO_X: 3.06%

Ozone season NO_X: 2.74%

To allow for reasonable flexibility, EPA proposes new unit set-asides that are 3 percent of the state emissions budgets. The size of the new unit set-aside is 3 percent for the SO_2 group 1, SO_2 group 2, NO_X annual, and NO_X ozone season trading programs, as appropriate, for each state. See Tables 4 and 5.

For each control period, any allowances remaining in a state's new unit set-aside (after allocations are made to new units that requested allowances) are distributed to the existing units in that state in proportion to the existing unit's original allocations. This ensures that total allocations to units in the state equal the state budget.

Table 4. SO_2 and Annual NO_X State New Unit Set-Aside Budgets for Electric Generating Units (tons)

State	SO_2, 2012-2013	SO_2, 2014 and Later	NO_X, 2012 and Later
Alabama	4,856	4,856	2,075
Connecticut	92	92	83
Delaware	234	234	186
District of Columbia	10	10	5
Florida	4,852	4,852	3,600
Georgia	6,998	2,572	2,214
Illinois	6,269	4,546	1,681
Indiana	12,011	6,042	3,471
Iowa	2,822	2,583	1,382
Kansas	1,718	1,718	1,540
Kentucky	6,586	3,415	2,224
Louisiana	2,714	2,714	1,318
Maryland	1,190	1,190	511

Massachusetts	237	237	179
Michigan	7,540	4,670	1,948
Minnesota	1,413	1,413	1,240
Missouri	6,111	4,763	1,730
Nebraska	2,148	2,148	1,297
New Jersey	339	339	355
New York	1,996	1,261	700
North Carolina	3,345	2,456	1,554
Ohio	13,949	5,349	2,919
Pennsylvania	11,658	4,251	3,417
South Carolina	3,494	3,494	1,016
Tennessee	3,000	3,000	851
Virginia	2,178	1,224	887
West Virginia	6,163	3,570	1,560
Wisconsin	2,893	2,000	1,345
Total	116,816	75,000	41,288

Table 5. Ozone Season NO_X State New Unit Set-Aside Budgets for Electric Generating Units (tons)

State	NO_X Ozone Season, 2012 and Later
Alabama	892
Arkansas	500
Connecticut	39
Delaware	74
District of Columbia	3
Florida	1,708
Georgia	964
Illinois	707
Indiana	1,500
Kansas	643
Kentucky	927
Louisiana	637
Maryland	217
Michigan	848
Mississippi	496

New Jersey	158
New York	333
North Carolina	706
Ohio	1,220
Oklahoma	1,113
Pennsylvania	1,448
South Carolina	457
Tennessee	347
Texas	2,267
Virginia	378
West Virginia	667
Total	19,249

Appendix: Table of Unit-level Allocations and Rate Limits

See “TSD Allocation Table” available in the docket.