Documentation of the

2012 Projection Emission Inventory

Prepared for:

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Table of Contents

Introduction **1**

1.0 2012 POINT SOURCE INVENTORY DEVELOPMENT **2**

1.1 EGU EMISSION PROJECTIONS 2
1.1.1 2012 IPM Projections *3*
1.1.2 Adjustments to IPM 2012 Projections *4*
1.1.2.1 Stack Exhaust Gas Temperature Adjustments 4
1.1.2.2 PM Emissions Adjustments 4
1.1.2.3 S/L Agency Adjustments 5
1.1.3 QA/QC of 2012 EGU Projections *5*
1.1.4 Summary of 2002/2009/2012/2018 EGU Point Source Inventories *6*
1.2 NON-EGU EMISSION PROJECTIONS 19
1.2.1 Growth assumptions for non-EGU sources *19*
1.2.2 Control Programs applied to non-EGU sources *21*
1.2.3 S/L Adjustments to 2012 Projections *21*
1.2.4 QA/QC of 2012 NonEGU Projections *22*
1.2.5 Summary of 2002/2009/2012/2018 nonEGU Point Source Inventories *22*

2.0 2012 PROJECTION INVENTORY FOR NONROAD SOURCES **34**

3.0 2012 AREA SOURCE PROJECTIONS **39**

3.1 VA CHANGES 39
3.2 NC CHANGES 42
3.3 AREA SOURCE RESULTS 42

4.0 2012 ONROAD MOBILE SOURCES **48**

4.1 DEVELOPMENT OF ON-ROAD MOBILE SOURCE INPUT FILES 48
4.1.1 Preparation of revised 2012 input data files *48*
4.1.2 VMT Data *49*
4.2 PROCESSING OF ON-ROAD MOBILE SOURCE EMISSIONS 50
4.3 ON-ROAD EMISSION SUMMARIES 52

Appendix A: EGU Controls for Coal and Oil/gas Units

List of Tables

Table 1.1-1. Adjustments to IPM Results Specified by S/L Agencies for the 2012 EGU Inventory.

Table 1.1-2. EGU Point Source SO_2 Emission Comparison for 2002/2009/2012/2018.

Table 1.1-3. EGU Point Source NO_x Emission Comparison for 2002/2009/2012/2018.

Table 1.1-4. EGU Point Source VOC Emission Comparison for 2002/2009/2012/2018.

Table 1.1-5. EGU Point Source CO Emission Comparison for 2002/2009/2012/2018.

Table 1.1-6. EGU Point Source NH_3 Emission Comparison for 2002/2009/2012/2018.

Table 1.1-7. EGU Point Source PM_{10}-PRI Emission Comparison for 2002/2009/2012/2018.

Table 1.1-8. EGU Point Source $PM_{2.5}$ -PRI Emission Comparison for 2002/2009/2012/2018.

Table 1.2-1. Facility Shutdowns Incorporated in the 2012 Non-EGU Inventory.

Table 1.2-2. Other S/L Agency Changes Incorporated in the 2012 Non-EGU Inventory.

Table 1.2-3. Non-EGU Point Source SO_2 Emission Comparison for 2002/2009/2012/2018.

Table 1.2-4. Non-EGU Point Source NO_x Emission Comparison for 2002/2009/2012/2018.

Table 1.2-5. Non-EGU Point Source VOC Emission Comparison for 2002/2009/2012/2018.

Table 1.2-6. Non-EGU Point Source CO Emission Comparison for 2002/2009/2012/2018.

Table 1.2-7. Non-EGU Point Source NH_3 Emission Comparison for 2002/2009/2012/2018.

Table 1.2-8. Non-EGU Point Source PM_{10}-PRI Emission Comparison for 2002/2009/2012/2018.

Table 1.2-9. Non-EGU Point Source PM25-PRI Emission Comparison for 2002/2009/2012/2018.

Table 2.0-1. 2012 Emissions Projections for NONROAD Model Sources (tons).

Table 2.0-2. Estimated Emission Reduction Impacts for 2012 based on T4 Rule.

Table 2.0-3. 2012 Emissions Projections for Aircraft, Locomotives, and Commercial Marine Vessels (tons per year).

Table 3.1-1. 2012 Control Efficiency (CE), Rule Effectiveness (RE), Rule Penetration (RP) and Control Device ID for VA Counties with OTC Controls.

Table 3.3-2. Comparison of the 2012 ASIP NH_3 Emissions with 2002, 2009 and 2018 VISTAS B&F Inventory Values.

Table 3.3-3. Comparison of the 2012 ASIP NO_x Emissions with 2002, 2009 and 2018 VISTAS B&F Inventory Values.

Table 3.3-4. Comparison of the 2012 ASIP PM_{10} Emissions with 2002, 2009 and 2018 VISTAS B&F Inventory Values.

Table 3.3-5. Comparison of the 2012 ASIP $PM_{2.5}$ Emissions with 2002, 2009 and 2018 VISTAS B&F Inventory Values.

Table 3.3-6. Comparison of the 2012 ASIP SO_2 Emissions with 2002, 2009 and 2018 VISTAS B&F Inventory Values.

Table 3.3-7. Comparison of the 2012 ASIP VOC Emissions with 2002, 2009 and 2018 VISTAS B&F Inventory Values.
Table 4.3-1. On-road Mobile Source SO_2 Emission Comparison.
Table 4.3-2. On-road Mobile Source NO_x Emission Comparison.
Table 4.3-3. On-road Mobile Source VOC Emission Comparison.
Table 4.3-4. On-road Mobile Source CO Emission Comparison.
Table 4.3-5. On-road Mobile Source NH_3 Emission Comparison.
Table 4.3-6. On-road Mobile Source PM_{10} Emission Comparison.
Table 4.3-7. On-road Mobile Source $PM_{2.5}$ Emission Comparison.

Documentation of the 2012 Projection Emission Inventory

Introduction

This document provides information related to the development of the 2012 projection emission inventory prepared for the Association for Southeastern Integrated Planning (ASIP). The emissions developed were prepared using methods similar to those used for the Visibility Improvement State and Tribal Association of the Southeast (VISTAS) 2009 and 2018 emission inventories. MACTEC Engineering and Consulting, Inc (MACTEC) prepared estimates for point, area, and nonroad sectors. The details on how each of these sectors was projected to 2012 are provided below. This initial 2012 inventory was developed by MACTEC and reviewed by the states in June 2008, revised and delivered by MACTEC in NIF format to the VISTAS emissions and air quality modeling team in July 2008.

1.0 2012 Point Source Inventory Development

The starting point for the development of the ASIP 2012 point source emission inventory was the 2009 VISTAS Best & Final (B&F) inventory. The 2009 B&F inventory has been extensively reviewed, updated, and approved by the VISTAS States. Complete documentation of the 2009 B&F inventory is contained in *Documentation of the Base G2 and Best & Final 2002 Base Year, 2009 and 2018 Emission Inventories for VISTAS* (B&F Document), March 14, 2008, prepared by MACTEC Engineering and Consulting, Inc..

We used different approaches for different sectors of the 2012 point source inventory:

- For the EGUs, we relied primarily on the Integrated Planning Model® (IPM®) to project generation in 2012 as well as to calculate the impact of regulatory control programs on emissions in 2012. The IPM results were adjusted based on S/L agency knowledge of planned emission controls at specific EGUs that were likely to be in place in 2012.
- For non-EGUs, we used growth and control data consistent with the data used in EPA's Clean Air Interstate Rule (CAIR) analyses, and supplemented these data with available S/L agency knowledge of planned emission controls or other changes at specific non-EGUs.

For both sectors, we generated the 2012 inventory to account for post-2002 emission reductions from promulgated and proposed non-EGU federal control programs as of July 1, 2004; the final proposed Clean Air Interstate Rule (CAIR); consent decrees, and other State, local, and site-specific control programs. Section 1.1 discusses the EGU projection inventory development, while Section 1.2 discusses the non-EGU projection inventory development. The inventory was completed prior to the DC Circuit Court vacatur of CAIR. Thus the initial 2012 ASIP inventory includes EGU controls assumed under CAIR implementation. After the CAIR vacatur, the states developed inventories for legally enforceable controls in absence of the CAIR requirements. These inventories are documented in a separate report (*Documentation of the VISTAS/ASIP "No-CAIR" 2009, 2012, and 2018 Emission Inventory for Electric Generating Units*, October, 2008).

1.1 EGU Emission Projections

The following subsections discuss the following specific aspects of the development of the EGU projections. First, we briefly describe how the IPM was used to develop emission projections for 2012. Second, we document the changes to the IPM results that S/L agencies specified for incorporation in the ASIP 2012 inventory based on new information that was not accounted for in the IPM runs. Finally, we present summaries of the base year and projected EGU emissions by state and pollutant.

1.1.1 2012 IPM Projections

For previous modeling efforts for 2009 and 2018, VISTAS relied primarily on IPM to project future generation as well as to calculate the impact of future emission control programs. Section 2.1.1 of the B&F Document provides a detailed discussion of VISTAS's use of the IPM to project emissions in 2009/2018 from EGUs, including the following topics:

- A chronology of the evolution of the EGU emission projection methodology, resulting in the ultimate use of IPM runs sponsored by VISTAS/CENRAP that are referred to as VISTAS/CENRAP Phase II analysis (called IPM VISTAS version 2.1.9);
- A description of the post-processing of the IPM parsed files to estimate emissions for pollutants other than SO_2 and NO_x; augment the IPM results by adding in control efficiencies, stack parameters, latitude-longitude coordinates, and State identifiers (plant ID, point ID, stack ID, process ID); site generic units to account for new generation capacity; and avoid double counting of EGU emissions.
- A description of quality assurance steps taken to ensure that the IPM results were properly merged with the State's point source emission inventory.

The 2012 EGU projections were based primarily on the IPM VISTAS version 2.1.9 results in the same manner that the 2009/2018 projections were made.

MACTEC obtained the 2012 IPM parsed file from the LADCO web site:

http://www.ladco.org/Regional_Air_Quality.html
File: VISTASII_PC_1f_All_Units_2012 (To Client) 08-12-05.xls

LADCO developed 2012 NIF files for EGUs from the IPM parsed files. MACTEC obtained the NIF files from the MARAMA ftp site:

ftp.marama.org
User Name: mane-vu
Password: exchange
Folder: 2012 EGU files for GA
Files: 2012b_ipm.tgz (zip file with NIF tables – TR, SI, ER, EU, EP, PE, CE, and EM)

MACTEC developed several QA reports to verify that the post-processed NIF files were consistent with the results contained in the IPM parsed files. We verified that the emissions in the NIF 2012 EM file for SO_2 and NO_x were the same as those contained in the IPM 2012 parsed file.

MACTEC next developed algorithms to perform a unit-by-unit matching of the 2012 EGU NIF files and the 2009 VISTAS B&F NIF files. Various efforts were made to ensure proper matching of existing units and the addition of new generic units in 2012 that were not in the 2009 file. Once the matching of units was accomplished, MACTEC used the projected emissions from the 2012 post-processed NIF files as the starting point for the 2012 inventory for EGUs in the VISTAS/ASIP states. The VISTAS/ASIP Emission Inventory Technical Advisor used these same methods to process MANE-VU and MRPO 2012 EGU files for use in ASIP air quality modeling.

1.1.2 Adjustments to IPM 2012 Projections

Several adjustments to the information obtained from the post-processed 2012 IPM/NIF files were necessary. These adjustments are described in this section.

1.1.2.1 Stack Exhaust Gas Temperature Adjustments

Changes to stack parameters were also made in cases where new controls are scheduled to be installed. In cases where an emission unit was projected to have a SO_2 scrubber in both 2009 and 2012, some States were able to provide revised stack parameters for some units based on design features for the new control system. These stack parameters were used when available. Other units projected to install scrubbers by 2012 are not far enough along in the design process to have specific design details. For those units, the same process adopted by the VISTAS EGU SIWG was used. That process included the following assumptions: 1) the scrubber is a wet scrubber; 2) the current stack height was maintained; 3) the current flow rate was maintained, and 4) the stack exit temperature was changed to 169 degrees F (this is the virtual temperature derived from a wet temperature of 130 degrees F). VISTAS EGU SIWG had determined that an exit temperature (wet) of 130 degrees F +/- 5 degrees F is representative of different size units and wet scrubber technology.

1.1.2.2 PM Emissions Adjustments

As was the case with the 2009/2018 EGU projections, we identified significantly higher PM emissions in the 2012 post-processed IPM/NIF files than in the VISTAS B&F 2002 inventory. VISTAS had determined that the emission increase from 2002 to 2009/2018 was simply an artifact of the change in emission factor, not anything to do with changes in activity or control technology application. As a result, for ASIP MACTEC decided to base the 2012 PM emissions on the State-supplied 2002 PM emissions and adjust the 2002 emissions based on the ratio of forecasted heat input to base year heat input. For the 2009 VISTAS B&F inventory VISTAS had used the emission rate (as calculated from 2002 emissions and heat input) in conjunction with the IPM forecasted 2009 heat input to generate 2009 $PM_{10}/PM_{2.5}$ emissions. For 2012, we used the 2009 B&F emissions and associated IPM heat input to generate a new 2009 emission rate for VISTAS units, and then used that same emission rate with IPM forecasted 2012 heat input estimates to get the 2012 ASIP emissions. States did not identify any new PM controls that were to be applied between 2009 and 2012.

1.1.2.3 S/L Agency Adjustments

For the 2012 inventory, adjustments previously made to the 2009/2018 VISTAS B&F inventories were reviewed for consistency with the IPM 2012 control assumptions. Consistency means that no unit has lower controls in 2012 compared to the VISTAS 2009 B&F controls. However, there are instances where there are more controls in 2012 compared to the VISTAS 2009 B&F controls. For example, when IPM predicts no controls in 2009 but does predict controls in 2012, the 2012 controls used were based on the 2012 IPM control assumption.

For the 2012 inventory, S/L agencies reviewed the 2012 IPM results and specified a number of changes to better reflect current information on when/where future controls would occur and when/where new generating capacity would come on-line. Specifically, S/L agencies reviewed the 2012 IPM results to:

- Identify any updates needed to better reflect current information on when and where future controls would occur based on the best available data from state rules, enforcement agreements, compliance plans, permits, and discussions/commitments from individual companies;
- Identify any updates needed to change the IPM determination that most oil/gas steam units would either retire early or have no operation in 2009 or 2018; and
- Identify any updates needed to change the IPM assignment and VISTAS post-processing of generic units with specific information on new capacity.

A comparison of the IPM and ASIP control assumptions for all coal- and oil-fired steam plants in the 2012 inventory are summarized in Appendix A.

1.1.3 QA/QC of 2012 EGU Projections

We prepared several data files for review by the State and local agencies to confirm the emission projections for 2012:

- We maintained a log of requested changes that identified the name of the person/agency requesting the change, the date of the request, the nature of the change, and MACTEC's action to address the change request. This log was circulated among the States to ensure that all change requests were addressed and acted upon.
- We prepared a master spreadsheet that identified all coal- and oil-fired units and included both the IPM-generated and VISTAS Best & Final SO_2 and NO_x emissions for 2002, 2009, 2012, and 2018; also included in the spreadsheet was an identification of post-combustion controls (i.e., scrubbers, SCRs) as generated by IPM and as assigned in the VISTAS Best & Final inventory.
- We provided NIF files for State and local agency review and comment.

State and local agency reviewed these files, which resulted in several iterations of changes and final confirmation by each State accepting the results of the 2012 EGU inventory. The changes to the 2012 IPM results are documented in the Table 1.1-1.

1.1.4 Summary of 2002/2009/2012/2018 EGU Point Source Inventories

Tables 1.1-2 through 1.1-8 summarize the B&F 2002/2009/2018 EGU point source inventories as well as the initial 2012 ASIP EGU inventory. Some notable changes in emissions by pollutant include:

- SO_2 emissions gradually decrease from 2002 to 2018 due to the projected installation of scrubbers to meet CAIR or other requirements.
- NO_x emissions generally decrease from 2002 to 2018 due to the projected installation of SCRs to meet CAIR or other requirements. For SC, NO_x emissions increased from 2009 to 2012 due to two new Santee Cooper coal units planned for Florence County with NO_x permitted emissions of 3,500 additional tons in 2012. For VA, NO_x emissions in 2012 are lower than in 2009 and 2018 because VA used actual emissions for the Possum Point plant in 2012 to better reflect future emission levels; previously for 2009 and 2018, VA used the permitted emission rates based on VA's understanding from EPA Region 3 that modeling for the 2009 attainment plan should reflect the permitted NO_x levels. For WV, NO_x emissions in 2012 are higher than in 2009 and 2018 because WV changed the control assumptions for the Harrison and Kammer plants based on updated information that was not available when the 2009 and 2018 inventories were developed.
- CO and VOC emissions generally increase from 2002 to 2018 because of increased generation capacity, particularly in gas-fired gas turbines and combined cycle units.
- PM_{10} and $PM_{2.5}$ emissions generally increase from 2002 to 2018 in States (NC, SC, and VA) where IPM generated coal-fired "Generic Units" - each coal-fired Generic plant adds about 1500 – 1800 tons of PM_{10} and $PM_{2.5}$. Also, new gas-fired Generic Units are adding smaller amounts of PM. Florida showed a large decrease in PM emissions from 2012 to 2018 due to retirement of several large oil-fired units.
- NH_3 emissions generally increase from 2002 to 2018 due to projected installation of SCRs to meet CAIR or other requirements. NH_3 emissions in 2012 tend to be higher than in 2018 due primarily to a difference in the emission factors used in 2012 versus 2018.

Other minor inconsistencies between the 2012 inventory and the 2009/2018 inventories result from States providing updated information that was not available when the 2009 and 2018 inventories were developed.

Table 1.1-1. Adjustments to IPM Results Specified by S/L Agencies for the 2012 EGU Inventory.

State	Plant Name and ID	Unit	Nature of Update/Correction
AL	Alabama Power – Green County ORIS=10	1 & 2	IPM assigned scrubbers in 2012; AL does not expect scrubbers to be operational in 2012; removed scrubber controls (90% for SO_2) from these two units.
	Alabama Power - Miller ORIS=6002	1 to 4	IPM did not have scrubbers in 2012, AL expects scrubbers to be operational in 2012; added scrubber controls (90% reduction) for these four units; reduced NO_x emissions to account for year round operation compared to IPM assumption of ozone season operation only.
	Alabama Power - Barry ORIS=3	1-4	Added SNCR controls (35% reduction in NO_x emissions) that were not accounted for in IPM.
	Alabama Power - Barry ORIS=3	5	IPM did not have scrubber or SCR in 2012, AL expects both scrubber and SCR to be operational in 2012; added scrubber and SCR controls (90% reduction in both SO_2 and NO_x) for Unit 5.
	Alabama Power - E C Gaston ORIS=26	1 to 4	IPM had reduced 2012 emissions by about 50% from 2002 emissions; used 2002 emissions for 2012 since AL could not determine the reason for the 50% reduction. IPM assigned SCRs in 2012; AL does not expect SCRs to be operational in 2012; removed SCR controls (90% for NO_x) from these four units.
	Alabama Power - E C Gaston ORIS=26	5	IPM did not have scrubber in 2012, AL expects scrubber to be operational in 2012; added scrubber controls (90% reduction) for Unit 5.
	Alabama Power - Gorgas ORIS=8	8, 9, 10	IPM did not have scrubbers in 2012, AL expects scrubbers to be operational in 2008; added scrubber controls (90% reduction) for these units.
	AL Electric Coop - Charles R Lowman ORIS=56	1	IPM did not have scrubber in 2012, AL expects scrubber to be operational in 2012; added scrubber controls (90% reduction) for Unit 1.
FL	Cape Canaveral Indian River Port Everglades Turkey Point Manatee Martin Riviera Anclote CD McIntosh Northside B Suwannee River	1, 2 1, 2, 3 1 – 4 1, 2 1, 2 1, 2 3, 4 1, 2 1 3 3	The IPM 2012 solution has either shut-down these oil-fired units or converted them to natural gas only. FLDEP has reason to believe that these units may continue to operate using oil. We assumed that the oil-fired units will operate in 2012 exactly as they operated in 2002.

Table 1.1-1 – (continued)

State	Plant Name and ID	Unit	Nature of Update/Correction
FL	Northside ORISID=667	1A, 1B	These units were estimated to be non operational by IPM in 2012. FLDEP believes these units will continue to operate. Emissions were estimated using the 2002 base case emissions and growth factors for Northside units 1A and 2A.
	Cedar Bay Generating ORISID=10672	GEN1	FLDEP disagrees with IPM projections - no knowledge of expansion of this facility and the cogeneration facility should not grow faster than the underlying industry. Cedar Bay is connected to Stone Container (12-031-0310067). Replaced IPM emissions with 2002 emissions for Cedar Bay (12-031-0310337) times the growth factors for Stone Container.
	Crist ORISID=641	4, 5 6, 7	IPM did not assign scrubbers to these units in 2012. Scrubbers are currently being installed and should be operational in 2009. SO_2 emissions reduced by 90% for all four units.
	Indiantown Cogeneration ORISID=50976	GEN1	FLDEP disagrees with IPM projections - no knowledge of expansion of this facility and the cogeneration facility should not grow faster than the underlying industry. Indiantown is connected to Louis Dreyfus Citrus (12-085-0850002). Replaced IPM emissions with 2002 emissions for Indiantown (12-085-0850102) times the growth factors for Louis Drefus Citrus.
	Central Power and Lime ORISID= 10333	GEN1	Central Power and Lime (ORIS10333) is a duplicate entry. This is point 18 in Florida Crushed Stone (12-053-0530021). Removed IPM emissions for Central Power and Lime.
GA	Georgia Power - Bowen ORIS=703	1BLR 2BLR 3BLR 4BLR	GA EPD updated scrubber efficiency to reflect 95% reduction in SO_2 compared to IPM reduction of about 90%.
	Georgia Power - McDonough ORIS=710	MB1, MB2	Coal boilers units 1 & 2 are being decommissioned and replaced with three (dual unit) gas-fired combustion turbine blocks (6 units). These units will contain SCR controls and exhaust through separate stacks (6 stacks). IPM projected emissions were evenly distributed between the six units and the following emission reductions applied: 99.8% SO_2 reductions, 85.6% NO_x reductions, and 62.3% $PM_{2.5}$ reductions.
GA	Georgia Power - Hammond ORIS=708	1, 2, 3	IPM did not assign reductions from scrubbers to these units in 2012; GA EPD expects scrubbers to be operational in 2012; added scrubber controls (95% reduction in SO_2) for these units.
	Georgia Power - Hammond ORIS=708	4	IPM assigned scrubber to this unit in 2012; GA EPD updated scrubber efficiency to reflect 95% reduction in SO_2 compared to IPM reduction of about 90%.

Table 1.1-1 – (continued)

State	Plant Name and ID	Unit	Nature of Update/Correction
GA	Georgia Power - Wansley ORIS=6052	1, 2	IPM assigned scrubber to these units in 2012; GA EPD updated scrubber efficiency to reflect 95% reduction in SO_2 compared to IPM reduction of about 90%.
	Georgia Power - Scherer ORIS=6257	3	IPM did not assign scrubber to this unit in 2012; GA EPD expects scrubber to be operational in 2012; added scrubber controls (95% reduction in SO_2) for this unit.
	Georgia Power - Harllee Branch ORIS=709	3	IPM did not assign SCR to this unit in 2012; GA EPD expects SCR to be operational in 2012; added SCR controls (82.5% reduction in NO_x) for this unit.
	Generic Unit ORIS=900113	1	Set emissions to zero for the IPM assigned coal-fired Generic Unit (ORIS900113) in Walton County (13297).
KY	Kentucky Utilities - Ghent ORIS=1356	1, 2, 3, 4	IPM did not assign scrubbers to units 2, 3, and 4 in 2012; KY expects scrubbers to be operational in 2012; added scrubber controls (90% reduction in SO_2) for these units. IPM did not assign SCR to unit 1 in 2012; KY expects SCR to be operational in 2012; added SCR controls (90% reduction in NO_x) for Unit 1. Changed SCR efficiency to 90% for units 3 and 4.
	Western KY Energy Coleman ORIS=1381	C1, C2, C3	IPM did not assign scrubbers to these units in 2012; KY expects scrubbers to be operational in 2012; added scrubber controls (90% reduction in SO_2) for these units.
	Kentucky Power - Big Sandy ORIS=1353	BSU2	IPM assigned scrubber to this unit in 2012; KY does not expect scrubbers to be operational in 2012; removed scrubber controls (90% for SO_2) from this unit.
	Kentucky Utilities – E W Brown ORIS=1355	1, 2, 3	IPM did not assign scrubbers to these units in 2012; KY expects scrubbers to be operational in 2012; added scrubber controls (90% reduction in SO_2) for these units.
	HMP&L Station 2 ORIS=1382	H2	IPM did not assign SCR to this unit in 2012; KY expects SCR to be operational in 2012; added SCR controls (90% reduction in NO_x) for this unit.
MS	Entergy Delta Entergy Rex Brown Entergy Baxter Wilson Entergy Gerald Andrus	1, 2 3, 4 1, 2 1	The IPM 2009/2018 solution has either shut-down these oil-fired units or converted them to natural gas only. MSDEQ has reason to believe that these units may continue to operate using oil. To be conservative, MSDEQ assumed that the oil-fired units will operate in 2009/2018 exactly as they operated in 2002.
	Jack Watson (2049) Victor J Daniel (6073) Chevron Oil (2047)	All	MS DEQ specified that the emission projections provided by the Southern Company for their units in Mississippi were to be used instead of the IPM results.
	R D Morrow ORISID=6061	1, 2	Revised the 2012 emissions to reflect controls that will be coming online 2009 or 2010 per guidance from MS DEQ.

Table 1.1-1 – (continued)

State	Plant Name and ID	Unit	Nature of Update/Correction
NC	G G Allen (2718) Belews Creek (8042) Buck (2720) Cliffside (2721) Dan River (2723) Marshall (2727) Riverbend (2732)	All	Replaced all IPM 2012 results with emission projections from Duke Power's NC Clean Air Compliance Plan for 2008. Added Unit 6 to Cliffside which was not in IPM 2012.
	Asheville (2706) Cape Fear (2708) Lee (2709) Mayo (6250) Roxboro (2712) Sutton (2713) Weatherspoon (2716)	All	Replaced all IPM 2012 results with emission projections from Progress Energy's NC Clean Smokestacks Act Calendar Year 2008 compliance plan.
	Dwayne Collier Battle Cogeneration Facility ORISID=10384	GEN1 GEN2	Dwayne Collier Battle is a duplicate entry. This is Cogentrix of Rocky Mount (37-065-3706500146, stacks G-26 and G-27). Duplicate entries were removed from the 2012 inventory.
	Kannapolis Energy Partners ORISID=10626	GEN2 GEN3	Kannapolis Energy emissions are being used as credits for another facility. IPM emissions from this facility (37-025-ORIS10626) were removed from the EGU inventory for 2012. Emissions from Kannapolis Energy (37-025-3702500113) were carried forward in the 2012 inventory.
	Generic Unit ORIS=900137		Set emissions to zero for the coal-fired Generic Unit IPM projected for Cleveland County where Cliffside units 6 will be
SC	99 Oil-fired Units		The IPM 2012 solution has either shut-down 99 oil-fired units or converted them to natural gas only. SCDHEC has reason to believe that these units may continue to operate using oil. To be conservative, SCDHEC assumed that the oil-fired units will operate in 2012 exactly as they operated in 2002.
	Santee Cooper - Jefferies ORIS=3319	3	IPM assigned SCR in 2012; SC does not expect SCR to be operational in 2012; removed SCR controls (90% for NO_x) from this unit.
	SCE&G – Canadys ORIS=3280	CAN3	IPM did not assign scrubbers to this unit in 2012; SC expects scrubber to be operational in 2012; added scrubber controls (90% reduction in SO_2) for this unit.
	SCE&G – Wateree ORIS=3297	WAT1	IPM did not assign scrubbers to this unit in 2012; SC expects scrubber to be operational in 2012; added scrubber controls (90% reduction in SO_2) for this unit.

Table 1.1-1 – (continued)

State	Plant Name and ID	Unit	Nature of Update/Correction
SC	Santee Cooper Cross ORISID=130	1, 2	Unit 1: upgrade scrubber from 82 percent to 95 percent removal efficiency by June 30, 2006. Recalculate emissions based on upgrade in control efficiency. Unit 2: upgrade scrubber from 70 percent to 87 percent removal efficiency by June 30, 2006. Recalculate emissions based on upgrade in control efficiency.
	Santee Cooper Cross ORISID=130	4	Added in a new 660 MW Unit 4 (not in IPM) that is identical to the new Unit 3 (which was in IPM). NO_x permitted emissions for these two units were 1,750 tpy each, for a total of 3,500 additional tons in 2012.
	Winyah ORISID=6249	1 – 4	Unit 1: Install scrubber that meets 95 percent removal efficiency by Dec. 31, 2008; Upgrade ESP from 0.38 to 0.03 lb/mmBTU by Dec. 31, 2008 Unit 2: Replace scrubber with one that meets 95 percent removal efficiency from 45 percent by Dec. 31, 2008; Upgrade ESP from 0.10 to 0.03 lb/mmBTU by Dec. 31, 2008 Unit 3: Upgrade scrubber from 70 percent to 90 percent removal efficiency by Dec. 31, 2012; Upgrade ESP from 0.10 to 0.03 lb/mmBTU by Dec. 31, 2012 Unit 4: Upgrade scrubber from 70 percent to 90 percent removal efficiency by Dec. 31, 2007; Upgrade ESP from 0.10 to 0.03 lb/mmBTU by Dec. 31, 2007 Recalculated SO_2 and PM emissions based on upgrade in control efficiencies.
TN	TVA Johnsonville ORIS=3406	1 - 10	IPM assigned SCRs in 2012; TN does not expect SCRs to be operational in 2012; removed SCRs controls (90% for NO_x) from these units.
	TVA Kingston ORIS=3407	1 - 9	IPM did not assign scrubbers to these units in 2012; TN expects scrubbers to be operational in 2012; added scrubber controls (90% reduction in SO_2) for these units.
	TVA Kingston ORIS=3407	9	IPM did not assign SCR to this unit in 2012; TN expects SCR to be operational in 2012; added SCR controls (90% reduction in NO_x) for this unit.
VA	Dominion – Altavista ORIS=10773	1, 2	Replaced IPM 2012 SO_2 emissions with permit limit for facility supplied by VA DEQ.
	Dominion – Chesterfield ORIS=3797	3, 4	IPM did not assign scrubbers to these units in 2012; VA DEQ expects scrubbers to be operational in 2012; added scrubber controls and emissions provided by VA DEQ for these units. IPM did not assign SCR to this Unit 4 in 2012; VA DEQ expects SCR to be operational in 2012; added SCR controls (80% reduction in NO_x) for this unit.
	Birchwood Power Partners ORIS=54304	1	Replaced IPM 2012 SO_2 emissions with permit limit for facility supplied by VA DEQ.

Table 1.1-1 – (continued)

State	Plant Name and ID	Unit	Nature of Update/Correction
VA	Mecklenburg Cogen ORIS=52007	GEN1 GEN2	Replaced IPM 2012 SO_2 emissions with permit limit for facility supplied by VA DEQ.
	Dominion Possum Point ORISID=3804	5	Unit 5: IPM had zero heat input. Replaced 2012 IPM result using VADEQ's growth and control estimates.
		3&4	2009/2018 emissions used the permitted level for the combined emissions from 3 &4 (3,066 tpy NO_x) based on VADEQ understanding from EPA Region 3 that the modeling for the attainment plan should reflect the permitted NO_x levels. For 2012, VA decided the permitted levels were in no way reflective of how the facility actually operates since the units operate very infrequently as they are now gas units. To make the 2012 runs truly reflective of future emission rates, VA used the IPM generated emission rates since IPM does correctly predict the gasification of these two units. Emissions for 2009 and 2018 were 3,066 tpy, but only 160 tpy in 2012
	AEP Clinch River ORIS=3775	1, 2, 3	Federal Consent Order caps facility emissions at 21,700 tpy SO_2 starting 01/01/2010. IPM did not have scrubbers. Federal Consent Order requires SNCR on all 3 boilers by 12/31/2009. IPM did not predict SNCR control on these units. A 40% reduction for SNCR was assumed.
	LG&E Westmoreland ORIS=3775	GEN1	Replaced IPM 2012 SO_2 emissions with permit limit for facility supplied by VA DEQ.
	Dominion Yorktown ORISID=3809	1, 2, 3	Unit 3: IPM predicts zero heat input for this 880 MW #6 oil fired unit. Dominion plans to continue to operate Unit 3. Replaced all 2102 IPM results using VADEQ's growth and control estimates.
	Potomac River ORISID=3788	1 - 5	No plans to retire #1 or #2. Facility is subject to a facility wide permit limitation of 3,813 tpy SO. Facility is limited by caps in VA CAIR rule to 1734 tpy NO_x beginning in 2009.
	Dominion Chesapeake ORISID=3803	1 – 4	Facility expects to continue use of South American coal, with 50% less sulfur content. 50% reduction in SO_2 emissions assumed. SCR on #3 and #4 not included in IPM. Assumed 80% NO_x reduction for the SCR retrofit.
	James River Cogeneration and Cogentrix Hopewell ORIS=10377	1, 2	James River Cogeneration Company (51-670-00055) and Cogentrix Hopewell (51-670-ORIS10377) are the same facilities. Zeroed out the emission for 51-670-ORIS10377 and updated emissions for 51-670-00055 per VA DEQ estimates.

Table 1.1-1 – (continued)

State	Plant Name and ID	Unit	Nature of Update/Correction
VA	Dominion Southwest Virginia Project	1	For 2012, replaced the IPM generated Generic Unit located in Richmond county (ORISID=900151) with the planned Dominion facility going into Wise County. Used the potential to emit for the Dominion facility.
	LF&E Westmoreland Hopewell ORIS=10771	GEN1	The facility was mothballed in 2002 and only recently started operating. Therefore, it wasn't in the 2002 inventory. The facility was added as 51-670-ORIS10771 and emissions were updated per VA DEQ estimates.
	Bear Garden CPV Warren		Added these two facilities with combined cycle units totaling about 1200 MW. To adjust the generic EGU inventory predicted by IPM, delete emissions for generic EGU's firing natural gas and that are combined cycle. These units were located in Accomack County (FIPS 001)
WV	Mt. Storm ORISID=3954	1, 2, 3	SO_2 Permit Rate was corrected from 2.7 to 0.15 lb/MMBtu. Used SO_2 Permit Rate of 0.15 lb/MMBtu and IPM predicted total fuel used to calculate SO_2 emissions in 2012.
	North Branch ORISID=7537	1A, 1B	SO_2 Permit Rate was corrected from 2.7 to 0.678 lb/MMBtu. Used SO_2 Permit Rate and IPM predicted total fuel used to calculate SO_2 emissions in 2012
	Monongahela Power – Harrison ORIS=3944	1, 2, 3	The predicted 2012 plant total emissions are 18,000 SO_2 tons and 9,000 NO_x tons. This reflects a doubling of 2002 SO_2 emissions and a 75% reduction of NO_x emissions that are not reflected in installed or planned controls. Review of CAMD data from 2002 through 2007 indicates that the 2002 values are more reflective of our expectations for emissions from this source than the values provided. Please replace the 2012 data with 2002 emissions values for all pollutants.
	Monongahela Power – Rivesville ORISID=3945	7, 8	IPM predicted early retirement for these units. AEP indicated there are no plans for early retirement. For 2012, used 2002 actual emissions as these units are not likely to retire by 2012.
	Morgantown Energy ORIS=10743	1	This source had 2002 SO_2 emissions of 850 tons and 2009 emissions of 777 tons. The 2012 data shows nearly 3,600 SO_2 tons. We can think of no reason for such a large increase. NO_x emissions do not differ that greatly from our expectations. Please replace the 2012 data with 2009 emissions values for all pollutants.

Table 1.1-1 – (continued)

State	Plant Name and ID	Unit	Nature of Update/Correction
WV	Generic Unit ORIS=900137		Set emissions to zero for the coal-fired Generic Unit IPM projected for Monongalia County since it is in the same county as Longview.
	Ohio Power - Kammer ORIS=3947	1, 2, 3	The predicted 2012 plant total emissions are 2,800 SO_2 tons and 1,400 NO_x tons. These values indicate 95% and 90% emission reductions of SO_2 and NO_x respectively from 2002 that are not reflected in installed or planned controls. Review of the AEP Consent Decree showed that Kammer is not required to operate controls until 2018. Review of CAMD data from 2002 through 2007 indicates that the 2002 values are more reflective of our expectations for emissions from this source than the 2012 values provided. Therefore, we could find no reason for the large emissions reductions seen in the 2012 data. Replaced the 2012 data with 2002 emissions values for all pollutants.
	Longview Site ID: 54- 061-0134	1	For 2012 inventory, added Longview which is permitted, under construction, and scheduled to be online in 2010. The unit is a 600 MW pulverized coal-fired unit with baghouse, LNB, SCR, and wet FGD as required controls. Used permitted emission rates for 2018.
	Monongahela Power – Willow Island ORISID=3946	1	IPM predicted early retirement for these Unit 1. AEP indicated there are no plans for early retirement. For 2012, used 2002 emissions as these units are not likely to retire by 2012.
	Pleasants Power Station ORISID=6004	1, 2	IPM applied a scrubber with a 79.9% SO_2 control efficiency; WV indicated that the control efficiency should be 95%.
	Monongahela Power – Albright ORISID=3942	1, 2	IPM predicted early retirement for these units. AEP indicated there are no plans for early retirement. For 2012, used 2002 actual emissions as these units are not likely to retire by 2012.

Table 1.1-2. EGU Point Source SO_2 Emission Comparison for 2002/2009/2012/2018.

State	Actual 2002 B&F	2009 B&F	2012 Initial	2018 B&F
AL	447,828	378,052	255,861	135,851
FL	453,631	291,831	291,952	194,028
GA	514,952	408,679	235,377	68,515
KY	484,057	271,669	250,281	222,102
MS	67,429	76,646	57,154	15,213
NC	477,990	242,286	149,977	120,165
SC	206,399	129,122	101,762	95,377
TN	334,151	255,410	183,255	112,672
VA	241,204	174,777	106,519	98,988
WV	516,084	268,952	213,799	106,199
Total	**3,743,725**	**2,497,423**	**1,845,937**	**1,169,110**

Note: Emission summaries above are based on SCCs 1-01-xxx-xx and 2-01-xxx-xx.

Table 1.1-3. EGU Point Source NO_x Emission Comparison for 2002/2009/2012/2018.

State	Actual 2002 B&F	2009 B&F	2012 Initial	2018 B&F
AL	161,038	82,305	75,643	64,358
FL	257,677	132,535	135,015	87,645
GA	147,517	98,497	86,250	69,856
KY	198,817	97,263	90,151	64,378
MS	43,135	47,276	39,562	21,535
NC	151,853	66,521	66,924	61,110
SC	88,241	48,668	53,030	51,751
TN	157,307	66,405	67,568	31,715
VA	86,886	64,358	57,621	64,344
WV	230,977	85,476	103,184	51,474
Total	**1,523,448**	**789,304**	**774,948**	**568,166**

Note 1: Emission summaries above are based on SCCs 1-01-xxx-xx and 2-01-xxx-xx.

Note 2: After the preparation of the emission files used for ASIP air quality modeling for 2012, three errors in NO_x EGU emissions were discovered: – CP&L Roxboro Unit 3A was incorrectly modeled as 4,046 tpy instead of 1,046 tpy; TVA Kingston Unit 9 was incorrectly modeled as 2,840 tpy instead of 284 tpy; and Owensboro Utilities Elmer Smith Unit 1 duplicate segment 1 was incorrectly modeled as 433 tpy instead of 176 tpy. The corrected emissions were used in the above summary table.

Table 1.1-4. EGU Point Source VOC Emission Comparison for 2002/2009/2012/2018.

State	Actual 2002 B&F	2009 B&F	2012 Initial	2018 B&F
AL	2,295	2,473	2,052	2,952
FL	2,524	2,730	3,121	3,047
GA	1,244	2,314	2,486	2,816
KY	1,487	1,369	1,641	1,426
MS	648	564	550	1,274
NC	988	954	1,066	1,302
SC	470	723	939	931
TN	926	932	992	976
VA	754	788	1,033	980
WV	1,180	1,361	1,393	1,387
Total	**12,516**	**14,208**	**15,274**	**17,091**

Note: Emission summaries above are based on SCCs 1-01-xxx-xx and 2-01-xxx-xx.

Table 1.1-5. EGU Point Source CO Emission Comparison for 2002/2009/2012/2018.

State	Actual 2002 B&F	2009 B&F	2012 Initial	2018 B&F
AL	11,279	14,986	21,122	24,342
FL	57,113	71,072	85,284	85,495
GA	9,712	23,721	26,271	44,269
KY	12,619	15,812	17,098	17,144
MS	5,303	7,116	9,574	17,348
NC	13,885	14,942	13,212	19,870
SC	6,990	11,643	15,271	14,975
TN	7,084	7,214	7,850	7,723
VA	6,892	12,535	18,322	18,850
WV	10,341	11,493	12,716	12,397
Total	**141,218**	**190,535**	**226,719**	**262,413**

Note: Emission summaries above are based on SCCs 1-01-xxx-xx and 2-01-xxx-xx.

Table 1.1-6. EGU Point Source PM_{10}-PRI Emission Comparison for 2002/2009/2012/2018.

State	Actual 2002 B&F	2009 B&F	2012 Initial	2018 B&F
AL	7,646	6,969	7,210	7,822
FL	21,387	20,182	20,638	12,791
GA	11,224	17,891	17,607	20,732
KY	4,701	6,463	6,658	6,694
MS	1,633	5,182	5,322	7,412
NC	22,754	22,152	23,717	35,275
SC	21,400	20,041	21,042	27,640
TN	14,640	15,608	15,785	15,941
VA	3,960	5,606	5,815	12,551
WV	4,573	5,657	5,679	5,784
Total	**113,918**	**125,750**	**129,473**	**152,642**

Note1: Emission summaries above are based on SCCs 1-01-xxx-xx and 2-01-xxx-xx.

Note 2: After the preparation of the emission files used for ASIP air quality modeling for 2012, an error in PM_{10} EGU emissions were discovered for Owensboro Utilities Elmer Smith Unit 1. Emissions were incorrectly modeled as 560 tons instead of 560 lbs. This correction is accounted for in the above summary table.

Table 1.1-7. EGU Point Source $PM_{2.5}$ -PRI Emission Comparison for 2002/2009/2012/2018.

State	Actual 2002 B&F	2009 B&F	2012 Initial	2018 B&F
AL	4,113	3,921	4,518	4,768
FL	15,643	14,790	15,239	9,417
GA	4,939	10,907	10,818	13,881
KY	2,802	4,279	4,404	4,434
MS	1,138	4,996	5,158	7,252
NC	16,498	15,949	17,316	28,137
SC	17,154	16,548	17,548	23,794
TN	12,166	13,092	13,246	13,387
VA	2,606	4,165	4,756	10,773
WV	2,210	2,940	2,995	3,116
Total	**79,269**	**91,587**	**95,998**	**118,959**

Note: Emission summaries above are based on SCCs 1-01-xxx-xx and 2-01-xxx-xx.

Note 2: After the preparation of the emission files used for ASIP air quality modeling for 2012, an error in $PM_{2.5}$ EGU emissions were discovered for Owensboro Utilities Elmer Smith Unit 1. Emissions were incorrectly modeled as 420 tons instead of 420 lbs. This correction is accounted for in the above summary table.

Table 1.1-8. EGU Point Source NH_3 Emission Comparison for 2002/2009/2012/2018.

State	Actual 2002 B&F	2009 B&F	2012 Initial	2018 B&F
AL	317	359	1,438	1,072
FL	234	1,629	3,682	2,976
GA	83	686	1,500	1,677
KY	326	400	760	476
MS	190	334	548	827
NC	54	445	547	663
SC	142	370	710	625
TN	204	227	435	241
VA	127	694	719	606
WV	121	330	638	143
Total	**1,798**	**5,474**	**10,977**	**9,306**

Note: Emission summaries above are based on SCCs 1-01-xxx-xx and 2-01-xxx-xx.

1.2 Non-EGU Emission Projections

The following subsections discuss the following specific aspects of the development of the non-EGU projections. First, we briefly describe the growth factors used to account for economic growth. Second, we document the control programs specified for incorporation in the ASIP 2012 inventory. Third, we summarize the changes requested by S/L agencies that were primarily related to better information on source closures and anticipated controls for specific facilities and emission units resulting from BART, consent orders, or permit limits. Finally, we present summaries of the base year and projected non-EGU emissions by state and pollutant.

1.2.1 Growth assumptions for non-EGU sources

This section summarizes the growth factor data used in developing the 2012 non-EGU ASIP inventory. The same sources of data used for the 2009/2018 inventories were used in developing the growth factors for the 2012 non-EGU inventory:

- State-specific growth rates from the Regional Economic Model, Inc. (REMI) Policy Insight® model, Version 5.5 (being used in the development of the EGAS Version 5.0). The REMI socioeconomic data (output by industry sector, population, farm sector value added, and gasoline and oil expenditures) are available by 4-digit SIC code at the State level. These growth factors are fully documented in the reports entitled *Development of*

Growth Factors for Future Year Modeling Inventories (dated April 30, 2004) and *CAIR Emission Inventory Overview* (dated July 23, 2004).

- Energy consumption data from the DOE's Energy Information Administration's (EIA) *Annual Energy Outlook 2006, with Projections through 2025* (released in February 2006) for use in generating growth factors for non-EGU fuel combustion sources. These data include regional or national fuel-use forecast data that were mapped to specific SCCs for the non-EGU fuel use sectors (e.g., commercial coal, industrial natural gas). Growth factors for the residential natural gas combustion category, for example, are based on residential natural gas consumption forecasts that are reported at the Census division level. These Census divisions represent a group of States (e.g., the South Atlantic division includes eight southeastern States and the District of Columbia). Although one would expect different growth rates in each of these States due to unique demographic and socioeconomic trends, EIA's projects all States within each division using the same growth rate.

- NCDENR supplied recent projections for three key sectors in North Carolina where declining production was anticipated – SIC 22xx Textile Mill Products, 23xx Apparel and Other Fabrics, and 25xx Furniture and Fixtures. NCDENR decided to use a growth factor of 1.0 for these SIC codes for 2009/2012/2018. Although NCDENR has data that shows a steady decline in these industries in NC, NCDENR wanted to maintain the emission levels at 2002 levels so the future emission reduction credits were available in the event that they are needed for nonattainment areas.

- The American Forest and Paper Association (AF&PA) supplied growth projections for the pulp and paper sector, which were applied to SIC 26xx Paper and Allied Products. The AF&PA projection factors are for the U.S. industry and apply to all States equally. The numbers come from the 15-year forecast for world pulp and recovered paper prepared by Resource Information Systems Inc. (RISI). For SIC codes below, we used the above AF&PA growth factors by SIC instead of the factors obtained from EPA's CAIR analysis.

SIC	Sector	AF&PA Growth Factor		
		2002 to 2009	2002 to 2012	2002 to 2018
2611	Pulp Mills	1.067	1.101	1.169
2621	Paper Mills	1.067	1.101	1.169
2631	Paperboard Mills	1.067	1.101	1.169

1.2.2 Control Programs applied to non-EGU sources

The 2012 non-EGU inventory accounts for proposed control programs that are reasonably anticipated to result in post-2002 emission reductions. With one exception, we used the same control programs for 2012 as for the 2009 and 2018 VISTAS B&F non-EGU point inventories. The exception is the anticipated emission reductions from the Industrial Boiler/Process Heater MACT standard. On June 8, 2007, the DC Circuit Court of Appeals vacated the MACT standard. For the 2009/2018 B&F inventories, VISTAS had assumed that reductions equivalent to the MACT standard could be obtained using the 112(j) case-by-case MACT provisions. After careful discussion, the ASIP States concluded that States may not have mechanisms in place to require controls for boilers equivalent to the MACT by 2012. For this reason, no emission reductions due to the boiler MACT (or equivalent case-by-case MACT) were applied for 2012.

The non-EGU control programs accounted for in the 2012 inventory included:

- Atlanta / Northern Kentucky / Birmingham 1-hr SIPs
- NO_x RACT in 1-hr ozone nonattainment area SIPs
- NO_x SIP Call (Phase I- except where States have adopted II already e.g. NC)
- Petroleum Refinery Enforcement Initiative (October 1, 2003 notice; MS & WV)
- VOC 2-, 4-, 7-, and 10-year maximum achievable control technology (MACT Standards)
- Combustion Turbine MACT
- NO_x SIP Call (Phase II – remaining States & IC engines)

The methodologies used to account for the emission reductions associated with these emission control programs are discussed in Section 2.1.2.3 of the B&F Document.

1.2.3 S/L Adjustments to 2012 Projections

Several updates and corrections were requested by S/L agencies and incorporated into the 2012 non-EGU inventories. The updates and corrections included:

- S/L agencies identified significant source shutdowns that have occurred since 2002 and specified that emissions from these sources should not be included in the future year inventories. These sources are identified in Table 1.2-1.
- S/L agencies identified individual unit source shutdowns that have occurred since 2002 and specified that emissions from these emission units should not be included in the future year inventories. S/L agencies identified expansions to existing facilities or new facilities and provided estimates of future year emissions. S/L agencies identified other changes that were primarily related to better information on anticipated BART controls

for specific facilities and emission units. A summary of these changes are provided in Table 1.2-2.

AL DEM requested that the Birmingham SIP Inventory be used in place of the VISTAS B&F 2002 inventory for Jefferson County, Alabama, for use in projecting emissions for 2012. MACTEC used the SMOKE IDA file (ptinv_baps_2002tpy_jeffco_1feb2008.dbf) provided by AL DEM. MACTEC converted the IDA file to NIF tables; ran the tables through EPA QA checker to verify the correct NIF format, and projected emissions from 2002 to 2012 using existing routines developed to project non-EGU sources for VISTAS B&F inventories.

1.2.4 QA/QC of 2012 NonEGU Projections

We prepared several data files for review by the State and local agencies to confirm the emission projections for 2012:

- We maintained a log of requested changes that identified the name of the person/agency requesting the change, the date of the request, the nature of the change, and MACTEC's action to address the change request. This log was circulated among the States to ensure that all change requests were addressed and acted upon.
- We prepared a master spreadsheet that compared facility level emissions for 2009 and 2012 and highlighted were substantial differences occurred for State review.
- We provided NIF files for State and local agency review and comment.

State and local agency reviewed these files, which resulted in several iterations of changes and final confirmation by each State accepting the results of the 2012 nonEGU inventory.

1.2.5 Summary of 2002/2009/2012/2018 nonEGU Point Source Inventories

Tables 1.2-3 through 1.2-9 summarize the B&F 2002/2009/2018 VISTAS non-EGU point source inventories as well as the initial 2012 ASIP non-EGU inventory. Some notable changes in emissions by pollutant include:

- SO_2 emissions generally increase slightly from 2002 to 2018 due to the projected growth in fuel consumption, except in certain State where BART requirements may reduce SO_2 emissions. For WV, SO_2 emissions are lower in 2012 than in 2009 or 2018 because the State identified several source closures for the 2012 inventory that were not identified for either the 2009 or 2018 inventories.
- NO_x emissions generally decrease from 2002 to 2009 due to NO_x SIP Call, RACT or other control requirements, then increase from 2009 to 2018 due to the project growth. For WV, NO_x emissions are lower in 2012 than in 2009 or 2018 because the State

identified several source closures for the 2012 inventory that were not identified for either the 2009 or 2018 inventories.

- VOC emissions generally decrease from 2002 to 2009 due to MACT control requirements and source closures, then generally increase from 2009 to 2018 because of projected growth in economic activity.
- CO emissions generally increase from 2002 to 2018 because of projected growth in economic activity.
- PM_{10} and $PM_{2.5}$ emissions generally decrease from 2002 to 2009 due to source closures and then increase because of projected growth in fuel consumption and economic activity. FL shows a decrease in PM emissions from 2012 to 2018 because no emission reductions from the industrial boiler MACT (or equivalent case-by-case MACT) were applied for 2012 – in 2009/2018, a 40 percent reduction in $PM_{10}/PM_{2.5}$ emissions was applied to account for expected reduction from the control requirements of the boiler MACT.
- NH_3 emissions generally increase from 2002 to 2018 because of projected growth in economic activity and fuel use.

Other minor inconsistencies between the 2012 inventory and the 2009/2018 inventories result from States providing updated information that was not available when the 2009 and 2018 inventories were developed.

Table 1.2-1. Facility Shutdowns Incorporated in the 2012 Non-EGU Inventory.

Facility ID	County	Facility Name
Alabama		
01-001-0013	Autauga	BEMIS COMPANY, INC.
01-023-0003	Choctaw	PRUET PRODUCTION COMPANY
01-031-0014	Coffee	DORSEY TRAILER INC
01-035-S001	Conecuh	LOUISIANA PACIFIC CORPORATION
01-045-0016	Dale	TRI-GLASS VMC FIBERGLASS PRODUCTS INC
01-049-0011	De Kalb	EARTH GRAINS BAKING CO
01-055-0034	Etowah	ND DIXIE PACIFIC MANUFACTURING CO INC
01-077-0016	Lauderdale	SUPERIOR PROFILES INC
01-081-0007	Lee	WESTPOINT STEVENS
01-081-0030	Lee	SOUTH EASTERN ELECTRIC DEVELOPMENT CORP
01-081-0036	Lee	GEORGIA POWER COMPANY - FRANKLIN
01-083-0011	Limestone	STEELCASE INC
01-083-0023	Limestone	MONESSEN HEARTH SYSTEMS
01-091-0015	Marengo	MCCLAIN OF ALABAMA INC
01-091-S003	Marengo	MILLER & COMPANY
01-093-0018	Marion	COLBY FURNITURE CO
01-097-2019	Mobile	BROOKLEY FURNITURE
01-097-8053	Mobile	OCAL THOMAS & BETTS INCORPORATED
01-099-S006	Monroe	STALLWORTH TIMBER CO
01-113-0016	Russell	FIELDCREST CANNON
01-117-0043	Shelby	COOK PUBLICATIONS INC
01-121-0014	Talladega	AVONDALE MILLS
01-125-0006	Tuscaloosa	EMPIRE COKE CO
01-125-0036	Tuscaloosa	LAWTER INTERNATIONAL
01-125-0040	Tuscaloosa	JVC MAGNETICS AMERICA
01-125-0046	Tuscaloosa	BLACK WARRIOR TRANSMISSION CORPORATION
01-125-S011	Tuscaloosa	INTERNATIONAL PAPER COMPANY
01-133-0010	Winston	BANKHEAD FURNITURE
01-133-0014	Winston	HOUSTON WOOD PRODUCTS
01-133-0021	Winston	HARDEN MANUFACTURING CORPORATION
Florida		
12-057-0570075	Hillsborough	CORONET INDUSTRIES, INC.
12-105-1050050	Polk	U S AGRI-CHEMICALS CORP.
12-105-1050051	Polk	U.S. AGRI-CHEMICALS CORPORATION
Georgia		
13-121-12100401	Fulton	LAFARGE BUILDING MATERIALS
Kentucky		
None Specified		
Mississippi		
28-001-2800100010	Adams	INTERNATIONAL PAPER, NATCHEZ MILL
28-023-2802300031	Clarke	MAGNOLIA RESOURCES INC, PACHUTA HARMONY

Table 1.2-1 (continued).

Facility ID	County	Facility Name
North Carolina		
37-007-3700700045	Anson	HILDRETH SEPTIC TANKS
37-021-724	Buncombe	BASF CORPORATION
37-031-3703100103	Carteret	MOREHEAD CITY TERMINALS
37-049-3704900069	Craven	S & W READY MIX CONCRETE - NEW BERN
37-051-3705100094	Cumberland	PUBLIC WORKS COMMISSION BUTLER-WARNER GE
37-139-3713900082	Pasquotank	ELIZABETH CITY BRICK CO INC
37-191-3719100239	Wayne	S & W READY MIXED CONCRETE CO. - GOLDSBO
South Carolina		
45-003-0080-0001	Aiken	AVONDALE MILLS STEVENS
45-003-0080-0005	Aiken	AVONDALE MILLS SWINT
45-003-0080-0039	Aiken	AVONDALE MILLS WARREN
45-003-0080-0061	Aiken	AVONDALE MILLS GREGG
45-003-0080-0098	Aiken	AVONDALE MILLS HORSE CREEK
45-007-0200-0014	Anderson	SPRINGS INDUSTRIES:WAMSUTTA
45-007-0200-0047	Anderson	CHIQUOLA INDUSTRIAL PROD:CHIQUOLA-CLOSED
45-007-0200-0050	Anderson	VYTECH
45-007-0200-0058	Anderson	ISOLA LAMINATE SYSTEMS PENDLETON-CLOSED
45-007-9900-0377	Anderson	LANE CONSTRUCTION:ANDERSON PLANT2-CLOSED
45-011-0300-0025	Barnwell	EFCO CORP
45-013-0360-0019	Beaufort	CLELAND CONSTRUCTION-CLOSED
45-015-0420-0083	Berkeley	CONCERT ACI INC-CLOSED
45-019-0560-0036	Charleston	CHARLESTON STEEL:BRIGADE STREET-CLOSED
45-019-0560-0041	Charleston	CUMMINS ENGINE:OLD-CLOSED
45-019-0560-0048	Charleston	UNICON:AIRPORT RD
45-019-0560-0270	Charleston	SHEILAS INC
45-019-0560-0305	Charleston	SCE&G:FABER PLACE
45-019-9900-0384	Charleston	CHARLESTON CONCRETE COMPANY
45-021-0600-0036	Cherokee	HAMRICK INDUSTRIES:PLANT 5
45-021-0600-0055	Cherokee	IFCO ICS-SOUTH CAROLINA-CLOSED
45-023-0640-0011	Chester	SPRINGS INDUSTRIES:EUREKA-CLOSED
45-023-0640-0035	Chester	SPRINGS INDUSTRIES:KATHERINE
45-023-0640-0036	Chester	SPRINGS INDUSTRIES:ELLIOTT
45-023-0640-0037	Chester	SPRINGS INDUSTRIES:LEROY
45-025-0660-0033	Chesterfield	TAKATA RESTRAINT SYSTEMS INC
45-035-0900-0044	Dorchester	MIDWEST CONTROL PRODUCTS
45-035-0900-0052	Dorchester	MAXCESS TECHNOLOGIES
45-041-1040-0089	Florence	INTERSTATE BRANDS CORP
45-041-9900-0389	Florence	THE LANE CONSTRUCTION:PLANT #24
45-045-1200-0009	Greenville	US FINISHING-CLOSED
45-045-1200-0016	Greenville	DELTA MILLS:ESTES
45-045-1200-0033	Greenville	SCOTTS SIERRA:TRAVELERS REST
45-045-1200-0100	Greenville	JOHN DEERE GREER-CLOSED
45-045-1200-0104	Greenville	KEMET:MAULDIN

Table 1.2-1 (continued).

Facility ID	County	Facility Name
South Carolina		
45-045-1200-0196	Greenville	DAN RIVER:WHITE HORSE-CLOSED
45-045-1200-0277	Greenville	EXCALIBUR TOOL:POINSETT
45-045-1200-0317	Greenville	GATEWAY MFG:PLANT #2 - GREENVILLE
45-045-1200-0346	Greenville	AMERICAN WOODWORKS GREENVILLE
45-047-1240-0026	Greenwood	GREENWOOD MILLS: DURST-CLOSED
45-047-1240-0034	Greenwood	KEMET:GREENWOOD-CLOSED
45-047-1240-0050	Greenwood	FUJI PHOTO FILM:M PLANT
45-047-1240-0060	Greenwood	TRIGEN-BIOPOWER INC
45-049-1280-0021	Hampton	SAFETY DISPOSAL SYSTEM OF SC INC
45-049-9900-0257	Hampton	HAMPTON CONCRETE-CLOSED
45-051-1340-0013	Horry	TEREX PPM CRANES-CLOSED
45-051-1340-0073	Horry	WACCAMAW WHEEL WILLIAMS-CLOSED
45-051-1340-0084	Horry	SOUTHEAST FINISHING HIGHWAY 65 PLANT
45-051-9900-0310	Horry	APAC CAROLINA:PLANT 695 WINYAH CONCRETE
45-055-1380-0040	Kershaw	STANDARD CORPORATION ZYPOLE PLANT-CLOSED
45-055-1380-0052	Kershaw	HOWDEN BUFFALO-CLOSED
45-057-1460-0041	Lancaster	PRESSLEY FARM & GRADING-CLOSED
45-061-1540-0030	Lee	KING COMPANY-CLOSED
45-063-1560-0054	Lexington	BC COMPONENTS-CLOSED
45-063-1560-0102	Lexington	KLINE IRON&STEEL:CAYCE
45-063-1560-0116	Lexington	SMI JOIST:CAYCE
45-063-1560-0117	Lexington	SEA HUNT BOAT
45-063-1560-0134	Lexington	LEADER BOATS-CLOSED
45-067-1660-0006	Marion	INTERNATIONAL PAPER:SELLERS-WPC
45-069-1680-0008	Marlboro	DELTA MILLS:DELTA #2
45-073-1820-0052	Oconee	AEC SENECA-CLOSED
45-075-1860-0001	Orangeburg	VELCOREX INC
45-077-1880-0018	Pickens	ALICE MANUFACTURING ARIAL-CLOSED
45-077-1880-0043	Pickens	MAYFAIR MILLS:GLENWOOD-CLOSED
45-079-1900-0038	Richland	KLINE IRON&STEEL:COLUMBIA-CLOSED
45-083-2060-0017	Spartanburg	INMAN MILLS:RIVERDALE-CLOSED
45-083-2060-0026	Spartanburg	AMERICAN FAST PRINT-CLOSED
45-083-2060-0079	Spartanburg	TNS MILLS:SPARTANBURG-CLOSED
45-083-2060-0094	Spartanburg	CROWN CENTRAL PETROLEUM-CLOSED
45-083-2060-0094	Spartanburg	CROWN CENTRAL PETROLEUM-CLOSED
45-083-2060-0182	Spartanburg	INTELICOAT TECHNOLOGIES-CLOSED
45-085-2140-0009	Sumter	KORN INDUSTRIES SUMTER CABINET
45-085-2140-0010	Sumter	VAUGHAN BASSETT FURNITURE
45-089-2320-0021	Williamsburg	ABBOTT LABORATORIES-CLOSED
45-091-2440-0010	York	CELANESE ACETATE ROCK HILL
45-091-2440-0044	York	CLARIANT LSM (AMERICA):ROCK HILL-CLOSED
45-091-2440-0080	York	TRICO
45-091-2440-0095	York	ADPLEX RHODES

Table 1.2-1 (continued).

Facility ID	County	Facility Name
Tennessee		
47-009-0130	Blount	APAC-TN, INC./HARRISON CONSTRUCTION DIVI
47-009-0136	Blount	SKIER'S CHOICE, INC.
47-011-0004	Bradley	CLEVELAND CHAIR COMPANY
47-011-0012	Bradley	ALLIED SIGNAL, INC.
47-011-0154	Bradley	WESTVACO CONSUMER PACKAGING DIVISION
47-037-4703700100	Davidson	IRVING MATERIALS INC.
47-047-0061	Fayette	STABILIT AMERICA, INC.
47-047-0062	Fayette	GLASTEEL INDUSTRIAL LAMINATES, INC. (GIL
47-053-0012	Gibson	FOAMEX INTERNATIONAL, INC.
47-053-0093	Gibson	EMERSON MOTOR COMPANY - COPELAND ELECTRI
47-053-0143	Gibson	A.O. SMITH CORPORATION
47-053-0162	Gibson	ALLSTEEL, INCORPORATED
47-059-0008	Greene	FIVE RIVER MANUFACTURING
47-059-0116	Greene	GREENEVILLE CASTING, INC.
47-063-0095	Hamblen	ARMSTRONG CABINET PRODUCTS
47-063-0113	Hamblen	FOAMEX L.P. - PLANT #1
47-063-0151	Hamblen	SHELBY WILLIAMS
47-063-0197	Hamblen	LIBERTY FIBERS CORPORATION
47-065-3321	Hamilton	U. S. Pipe - Valve Plant
47-065-3500	Hamilton	Velsicol Chemical Corporation
47-067-0009	Hancock	MORRILL MOTORS, INC.
47-069-0063	Hardeman	MOLTAN COMPANY
47-071-0005	Hardin	SAVANNAH - HARDIN COUNTY LANDFILL
47-073-1029	Hawkins	HOLSTON ARMY AMMUNITION PLANT (HSAAP)
47-075-0068	Haywood	BROWNSVILLE POWER, LLC
47-079-0009	Henry	MARK I MOLDED PLASTICS
47-079-0013	Henry	AMERICAN COLLOID COMPANY
47-091-0029	Johnson	FILM PROCESSING CORPORATION
47-097-0003	Lauderdale	A.O. SMITH ELECTRICAL PRODUCTS COMPANY
47-101-0006	Lewis	ESTON CORP
47-107-0011	McMinn	A.O. SMITH - ATHENS PRODUCTS
47-107-0142	McMinn	ADVANCED SPA DESIGN
47-113-0185	Madison	BRUCE HARDWOOD FLOORING
47-113-0245	Madison	SONOCO PRODUCTS COMPANY
47-117-0003	Marshall	INTERNATIONAL COMFORT PRODUCTS CORPORATI
47-123-0101	Monroe	MATSUSHITA REFRIGERATION COMPANY
47-149-0148	Rutherford	MARINE GROUP, LLC
47-155-0001	Sevier	DAN RIVER INCORPORATED
47-157-00020	Shelby	GREAT DANE TRAILERS
47-157-00524	Shelby	MEMPHIS HARDWOOD FLOORING CO.
47-163-0188	Sullivan	FIBERGRATE COMPOSITE STRUCTURES, INC.
47-179-0052	Washington	VAUGHAN FURNITURE COMPANY - EMPIRE DIVIS
47-179-0248	Washington	NICKELSON PLASTICS, INC.
47-189-0103	Wilson	JOHN DEAL COMPANY

Table 1.2-1 (continued).

Facility ID	County	Facility Name
Virginia		
51-013-00212	Arlington	BERGMANNS INC
51-027-00046	Buchanan	ISLAND CREEK COAL COMPANY/VIRGINIA POCAH
51-027-00047	Buchanan	ISLAND CREEK COAL CO-VIRGINIA POCAHONTAS
51-047-00008	Culpeper	KELLER MANUFACTURING CO INC
51-089-00012	Henry	BASSETT CHAIR CO
51-089-00073	Henry	MARTINSVILLE THERMAL, LLC - FRITH DRIVE
51-117-00051	Mecklenburg	MECKLENBURG COGENERATION FACILITY
51-137-00001	Orange	GENERAL SHALE PRODUCTS LLC-PLANT 37
51-141-00022	Patrick	VAUGHAN FURNITURE CO INC-T GEORGE VAUGHA
51-155-00038	Pulaski	ETHAN ALLEN
51-165-00073	Rockingham	ETHAN ALLEN INC - BRIDGEWATER DIVISION
51-550-00161	Chesapeake	COMMONWEALTH ATLANTIC LIMITED PARTNERSHI
51-590-00002	Danville	DAN RIVER INCORPORATED SCHOOLFIELD
51-710-00219	Norfolk	AMERICAN WASTE INDUSTRIES, INCORPORATED
51-760-00093	Richmond City	FERGUSSON, J W AND SONS, INC.
51-820-00066	Waynesboro	VIRGINIA METALCRAFTERS INC
West Virginia		
54-009-0015	Brooke	UNITED STATES CAN COMPANY
54-011-0054	Cabell	TRANSFAB INC.
54-033-0025	Harrison	CLARKSBURG CASKET COMPANY
54-039-0002	Kanawha	FMC CORPORATION - STEAM PLANT
54-039-0052	Kanawha	FMC CORPORATION - SPRING HILL PLANT
54-039-0208	Kanawha	WV GROUP DBA REPUBLIC CONTAINER
54-069-0007	Ohio	WESCOAT, INC.
54-073-0006	Pleasants	CABOT CORPORATION-OHIO RIVER PLANT
54-073-0022	Pleasants	PLEASANTS ENERGY LLC
54-079-0001	Putnam	FLEXSYS - NITRO PLANT
54-107-0012	Wood	AMES TRUE TEMPER - PLANT #1
54-107-0016	Wood	AMES/TRUE TEMPER-PLANT #2

Table 1.2-2. Other S/L Agency Changes Incorporated in 2012 Non-EGU Inventory.

State	Description of Changes
FL	For 2009/2012/2018, incorporated emission changes due to BART controls at Georgia Pacific (Site ID: 12-107-1070005) Unit 15.
NC	There are three Transcontinental Natural Gas Pipeline facilities in NC that are subject to the NO_x SIP call. We took 2004 emissions and grew them to 2009/2012/2018 and capped those units that are subject to the NO_x SIP Call Rule. These facility IDs are 37-057-3705700300, 37-097-3709700225, and 37-157-3715700131
	NCDENR applied NO_x RACT to a two facilities located in the Charlotte nonattainment area. NCDENR provided 2009 & 2018 emissions for Philip Morris USA (37-025-3702500048) and Norandal USA (37-159-3715900057). 2012 emissions were grown from 2009 using growth factors.
SC	Specified that the Bowater Inc. facility (45-091-2440-0005) in York County conducted an expansion in 2003/2004 and plans a future expansion. SC provided updated emissions for 2009 and 2018 for this facility. 2012 emissions were grown from 2009 using growth factors.
TN	Updated 2009/2012/2018 emissions for Eastman Chemical (47-163-0003) based on final (Feb. 2005) BART rule.
	Updated 2009/2012/2018 emission inventory for the Bowater facility (47-107-0012) based on the facility's updated 2002 emission inventory.
	The 2002 NEI correctly reports the actual emissions for CEMEX (47-093-0008) after the NO_x SIP call. There is no reason to suspect that that rate would change in 2008, 2009, or 2018. Emissions for 2009/2012/2018 were set equal to 2002 emissions.
	There are no plans for NO_x controls for two units at Columbia Gulf Transmission (47-111-0004) under the NO_x SIP Call Phase II rule. No reductions were applied.
	Identified three emission units that have permanently closed. Emissions from these units were set to zero for all pollutants. 47-009-0130-002 (APAC – TN, Inc.-Harrison Construction – Asphalt plant), 47-009-0130-003 (APAC – TN, Inc.-Harrison Construction – Asphalt crusher), and 47-139-0004-001 (Intertrade - Number 6 acid plant)
	A portion of 47-163-0003-020101 (Eastman, B-83-1 Stoker Boilers). This source previously consisted of 14 boilers (Boilers 11-24). Boilers 11-17 have been removed from service. Emissions for 2009/2012/2018 were reduced by 26.64%, based on the portion of the heat input capacity that is being removed from service.
	Coal-fired boilers at DOE Y-12 plant will be replaced with natural gas-fired units by 2012. Allowable SO_2 emissions will be 39 tons/year and allowable NO_x emissions will be 81 tons/year.
VA	VADEQ provided NO_x emission estimates for NO_x Phase II gas transmission sources at three Transco facilities (51-011-00011, 51-137-00027, 51-143-00120) which were used to replace the default NO_x Phase II control assumptions for these facilities.
	VADEQ provided updated 2009/2018 NO_x and SO_2 emissions based on new controls required by a November 2005 permit modification and netting exercise at the University of Virginia. The entire power plant facility is limited to 213 tons of NO_x and 107 tons of SO_2 per year. The permit also allowed the installation of 3 new boilers, also under the 213 tons of NO_x /year cap. 2012 emissions were grown from 2009 using growth factors.
	VADEQ indicated that Rock-Tenn received a permit dated 9/13/2003 which required the shutdown of units 1 and 2 by 2/27/2004.

Table 1.2-2 (continued).

State	Description of Changes
VA	Changed SO_2 emissions in 2009 and 2018 for thirteen facilities to reflect updated information from VADEQ regarding projected SO_2 controls. 2012 emissions were grown from 2009 using growth factors.
	The Southside VA Training Center, 730-0001, are shutdowns for three boilers at the site. For those unit numbers, all emissions of criteria and non-criteria pollutants may be deleted from the 2012 inventory.
WV	Weirton Steel (54-029-00001) and Wheeling Pittsburgh Steel (54-009-00002) have undergone significant, permanent process changes since 2002. WV DEP staff have consulted with facility staff and determined that calendar year 2004 emissions represent a better basis for future year emissions estimates. Therefore, WVDEP compiled emissions data from the 2004 inventory for these sources and applied the most current VISTAS growth factors to estimate emissions in 2009 and 2018. 2012 emissions were grown from 2009 using growth factors.

Table 1.2-3. Non-EGU Point Source SO_2 Emission Comparison for 2002/2009/2012/2018.

State	Actual 2002 B&F	2009 B&F	2012 Initial	2018 B&F
AL	96,481	101,246	102,299	103,303
FL	65,090	62,651	66,043	71,810
GA	53,778	53,987	57,176	59,349
KY	34,029	36,418	38,167	40,682
MS	35,960	25,564	27,372	25,674
NC	44,123	42,536	44,050	46,314
SC	53,518	47,193	49,569	52,410
TN	79,604	64,964	66,295	56,682
VA	63,903	58,039	56,247	57,790
WV	54,070	55,598	46,100	61,702
Total	**580,556**	**548,196**	**553,319**	**575,716**

Note: Emission summaries above include all SCCs except 1-01-xxx-xx and 2-01-xxx-xx.

Table 1.2-4. Non-EGU Point Source NO_x Emission Comparison for 2002/2009/2012/2018.

State	Actual 2002 B&F	2009 B&F	2012 Initial	2018 B&F
AL	83,310	69,409	71,142	77,960
FL	45,156	47,125	48,785	52,959
GA	49,251	50,353	52,197	55,824
KY	38,392	37,758	39,115	41,034
MS	61,526	56,398	57,379	61,252
NC	44,929	34,768	35,846	37,802
SC	42,153	39,368	40,857	43,331
TN	64,344	57,514	59,254	62,519
VA	60,415	51,001	52,297	55,734
WV	46,612	38,023	37,797	43,280
Total	**536,088**	**481,715**	**494,669**	**531,695**

Note: Emission summaries above include all SCCs except 1-01-xxx-xx and 2-01-xxx-xx.

Table 1.2-5. Non-EGU Point Source VOC Emission Comparison for 2002/2009/2012/2018.

State	Actual 2002 B&F	2009 B&F	2012 Initial	2018 B&F
AL	47,037	46,644	46,326	54,290
FL	38,471	36,882	38,865	42,813
GA	33,709	34,116	36,179	40,282
KY	44,834	47,785	50,475	55,861
MS	43,204	37,747	40,306	45,335
NC	61,182	61,925	64,922	70,875
SC	38,458	34,403	36,904	41,987
TN	84,328	73,498	79,826	92,456
VA	43,152	43,725	46,115	53,186
WV	14,595	13,043	13,221	15,582
Total	**448,970**	**429,768**	**453,139**	**512,667**

Note: Emission summaries above include all SCCs except 1-01-xxx-xx and 2-01-xxx-xx.

Table 1.2-6. Non-EGU Point Source CO Emission Comparison for 2002/2009/2012/2018.

State	Actual 2002 B&F	2009 B&F	2012 Initial	2018 B&F
AL	174,271	180,369	186,326	201,663
FL	81,933	87,661	91,042	97,438
GA	130,850	147,427	154,356	167,904
KY	109,936	122,024	127,831	139,437
MS	54,568	57,749	60,809	65,884
NC	50,576	53,744	56,571	62,197
SC	56,315	59,934	62,606	68,415
TN	115,264	119,216	126,415	140,556
VA	63,796	68,326	70,860	76,846
WV	89,879	93,839	93,459	111,302
Total	**927,388**	**990,289**	**1,030,274**	**1,131,642**

Note: Emission summaries above include all SCCs except 1-01-xxx-xx and 2-01-xxx-xx.

Table 1.2-7. Non-EGU Point Source NH_3 Emission Comparison for 2002/2009/2012/2018.

State	Actual 2002 B&F	2009 B&F	2012 Initial	2018 B&F
AL	1,883	2,132	2,298	2,464
FL	1,423	1,544	1,645	1,829
GA	3,613	3,963	4,242	4,797
KY	674	760	808	901
MS	1,169	668	701	764
NC	1,180	1,285	1,345	1,466
SC	1,411	1,578	1,645	1,779
TN	1,613	1,840	1,965	2,213
VA	3,104	3,045	3,227	3,604
WV	332	314	334	378
Total	**16,402**	**17,129**	**18,210**	**20,195**

Note: Emission summaries above include all SCCs except 1-01-xxx-xx and 2-01-xxx-xx.

Table 1.2-8. Non-EGU Point Source PM_{10}-PRI Emission Comparison for 2002/2009/2012/2018.

State	Actual 2002 B&F	2009 B&F	2012 Initial	2018 B&F
AL	25,240	25,421	18,162	29,889
FL	35,857	39,947	46,845	46,492
GA	21,610	23,103	25,557	27,273
KY	16,626	17,174	18,269	20,153
MS	19,472	19,244	18,854	22,837
NC	13,838	13,910	15,591	15,737
SC	14,142	12,959	14,254	14,674
TN	35,174	34,581	37,552	41,999
VA	13,252	13,046	14,036	15,111
WV	17,503	11,882	11,947	14,202
Total	**212,714**	**211,267**	**221,067**	**248,367**

Note: Emission summaries above include all SCCs except 1-01-xxx-xx and 2-01-xxx-xx.

Table 1.2-9. Non-EGU Point Source PM25-PRI Emission Comparison for 2002/2009/2012/2018.

State	Actual 2002 B&F	2009 B&F	2012 Initial	2018 B&F
AL	19,178	19,230	12,148	22,584
FL	30,504	34,019	40,226	39,486
GA	17,462	18,982	20,733	22,416
KY	11,372	11,686	12,435	13,739
MS	9,906	9,199	8,772	10,719
NC	10,500	10,458	11,588	11,825
SC	10,245	9,048	9,967	10,699
TN	27,807	27,367	29,833	33,293
VA	10,165	9,988	10,838	11,605
WV	13,313	7,638	7,578	9,124
Total	**160,452**	**157,615**	**164,119**	**185,490**

Note: Emission summaries above include all SCCs except 1-01-xxx-xx and 2-01-xxx-xx.

2.0 2012 Projection Inventory for Nonroad Sources

The starting point for the development of the 2012 nonroad source emission inventory was the 2009 and 2018 VISTAS Best & Final (B&F) inventory. For nonroad sources the B&F inventory was the same as the Base G2 inventory. These inventories has been extensively reviewed, updated, and approved by the VISTAS States. Complete documentation of the these inventories is contained in *Documentation of the Base G2 and Best & Final 2002 Base Year, 2009 and 2018 Emission Inventories for VISTAS* (B&F Document), March 14, 2008, prepared by MACTEC Engineering and Consulting, Inc.

Subsequent to the development of the Base G2 projection inventories for 2009 and 2018, corresponding projection inventories for 2012 were developed. Inventories for both NONROAD model sources and aircraft, locomotives, and commercial marine vessels were developed for all ASIP (VISTAS)-area counties. The methods used to develop the 2012 inventories were identical to those described above for the 2009/2018 VISTAS nonroad inventories. Furthermore, the inputs and assumptions used to develop the 2009/2018 inventories were also used without change for the development of the 2012 inventories unless specific changes were either dictated by the change in the forecast period or were requested by ASIP-area planners. All such changes are documented below.

For NONROAD model sources in all ASIP area counties, NONROAD model inputs for the 2012 projections were constructed from the final 2009 VISTAS Base G2 NONROAD model input files for each county as described in the B&F Document. Prior to executing the NONROAD model, the 2009 input files were modified as follows:

- The model evaluation year was changed to 2012 in all model input files.
- The sulfur content of land diesel and marine diesel fuel were updated to 31 and 123 ppm respectively, based on fuel sulfur recommendations provided by the EPA (see “Diesel Fuel Sulfur Inputs for the Draft NONROAD2004 Model used in the 2004 Nonroad Diesel Engine Final Rule,” EPA, April 27, 2004). This was the same reference source as used for the 2009 and 2018 fuel S content. Gasoline sulfur content was maintained at 30 ppm for the 2012 inventories as no changes are expected in the national control program between 2009 and 2018. Similarly, all other fuel parameters (oxygen content and RVP) were maintained at their 2009 Base G2 inventory values as neither national, state, or local control program changes are expected.

  The evolution of fuel sulfur content assumptions across projection inventory years is summarized as follows:

Fuel S (ppm)	2002	2009	2012	2018
Land-Diesel	2500	348	31	11
Marine-Diesel	2638	408	123	56
Gasoline	varies*	30	30	30

** see Table 1.3-2 of the B&F Document*

In response to the Renewable Fuels Standard established under the federal Energy Policy Act of 2005, some consideration was given to revising the assumed oxygen content of gasoline for the 2012 NONROAD model projection inventory. Using data presented in the March 2008 version of the Energy Information Administration's 2008 Annual Energy Outlook (Department of Energy, Energy Information Administration report DOE/EIA-0383(2008), March 2008 (Revised) release), the following average ethanol content estimates for gasoline were developed:

Ethanol Content (wt. pct.)	2005	2009	2012	2018
	1.0	2.5	3.2	3.4

Furthermore, the Annual Energy Outlook forecasts that all gasoline sold in the U.S. will contain the legally permissible maximum level of ethanol of 3.5 weight percent sometime between 2019 and 2020. The Annual Energy Outlook does not include historic estimates for 2002.

Because all previous (2002, 2009, and 2018) VISTAS area NONROAD model inventories were developed under an assumption of zero ethanol content, it was ultimately decided to maintain the same zero percent ethanol assumption for the 2012 ASIP projection inventories. However, it is important to recognize that according to EPA technical documentation (*Exhaust Emission Effects of Fuel Sulfur and Oxygen on Gasoline Nonroad Engines*, EPA420-R-05-016, December 2005), the NONROAD model would respond to increasing gasoline ethanol contents by reducing exhaust HC and CO estimates for four-stroke gasoline engines by about 4.5 and 6.2 percent per weight percent ethanol respectively and increasing NO_x emissions for the same engines by about 11.5 percent per weight percent ethanol. Emissions for two-stroke gasoline engines would decline by about 0.6 and 6.5 percent per weight percent ethanol for exhaust HC and CO respectively, while NO_x emissions would increase by about 18.6 percent per weight percent ethanol.

Projections for 2012 were developed by running the resulting input files through the NONROAD2005 model. Table 2.0-1 summarizes the resulting emission projections.

Aircraft, locomotive, and commercial marine vessel projections for 2012 in all ASIP area counties were developed using the same methodology used to develop the Base G2 2009 and 2018 VISTAS-area projections for these same sources, as described in the B&F Document. Growth and control factors were re-estimated for 2012 using data from the EPA's Clean Air

Interstate Rule (CAIR) Technical Support Document as described in Section 2.3.4.2 of the B&F Document. The only exceptions are for aircraft in Boone County, Kentucky and aircraft in Forsyth, Guilford, Mecklenburg, and Wake counties in North Carolina, where growth factors provided by state planners were used in place of the CAIR data.

Kentucky planners did not provide an explicit aircraft growth factor for 2012, but rather factors for 2009 and 2018. A corresponding factor for 2012 was derived through linear interpolation of the 2009 and 2018 factors. As was the case for the Base G2 2009 and 2018 VISTAS projection inventories, the state-provided factors for Kentucky are used for all aircraft.

Table 2.0-1. 2012 Emissions Projections for NONROAD Model Sources (tons)

State	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	Non-Refueling VOC	Refueling VOC
AL	453,492	20,691.2	2,361.6	2,238.6	70.2	42,236.0	1,626.4
FL	2,133,611	90,768.9	9,740.0	9,255.7	303.4	180,099.9	8,280.0
GA	899,617	41,002.7	4,530.0	4,309.3	131.3	57,732.1	3,252.8
KY	347,570	22,466.0	2,358.7	2,250.0	67.8	31,379.8	1,203.4
MS	251,030	15,768.2	1,727.3	1,641.8	49.9	30,133.9	949.8
NC	899,019	42,984.5	4,589.9	4,367.4	138.5	63,232.8	3,411.0
SC	447,416	20,997.5	2,240.0	2,129.2	69.8	36,199.3	1,743.6
TN	550,214	28,511.5	3,052.7	2,904.3	91.3	46,055.7	2,067.7
VA	732,105	31,848.9	3,537.0	3,361.6	102.8	47,123.0	2,869.5
WV	153,912	5,892.2	825.8	779.2	20.0	15,414.7	586.4
Total	6,867,985	320,931.5	34,963.0	33,236.9	1,044.9	549,607.1	25,990.6

North Carolina provided updated growth factors to be used explicitly for 2012 emissions estimation. These latest 2012 factors are not entirely consistent with the corresponding factors used for the Base G2 2009 and 2018 VISTAS projection inventories for North Carolina and this should be considered in any comparison of North Carolina aircraft emissions projections. Moreover, while the state-provided growth factors for the Base G2 2009 and 2018 VISTAS projection inventories were applied only to commercial and air taxi aircraft, North Carolina planners requested that the 2012 growth factors be applied to all aircraft types in the affected counties. The actual aircraft growth factors used in the various projection inventories are as follows:

	2009	2012	2018
Boone Co., KY	1.31	1.48	1.81
Forsyth Co., NC	0.71	0.992	0.84
Guilford Co., NC	0.97	1.066	0.89

Mecklenburg Co., NC	1.15	1.236	1.01
Wake Co., NC	0.88	1.369	0.81

Finally, the impacts of the EPA's Tier 4 (T4) diesel fuel sulfur rule on SO_2 and PM emissions from locomotives and commercial marine vessels were re-estimated for 2012 using data from the EPA's technical support document for the final T4 rule (*Final Regulatory Analysis: Control of Emissions from Non-road Diesel Engines*, EPA420-R-04-007, May 2004), using the same procedure described above in Section 2.3.4.2 of the B&F Document. Under the approach, T4 control factors for 2012 were developed as indicated in Table 2.0-2 (which also shows the corresponding control factors for 2009 and 2018). The resulting growth and control factors were applied to the final 2002 emission estimates for aircraft, locomotives, and commercial marine vessels in all VISTAS-area counties to derive 2012 emissions projections for these sources. Table 2.0-3 presents a summary of the resulting emission estimates.

Table 2.0-2. Estimated Emission Reduction Impacts for 2012 based on T4 Rule

	2009	2012	2018
CMV SO_2 = Non-T4 SO_2 ×	0.1632	0.0490	0.0225
Locomotive SO_2 = Non-T4 SO_2 ×	0.1632	0.0490	0.0225
CMV PM = Non-T4 PM ×	0.9004	0.8819	0.8685
Locomotive PM = Non-T4 PM ×	0.8187	0.7879	0.7610

Table 2.0-3. 2012 Emissions Projections for Aircraft, Locomotives, and Commercial Marine Vessels (tons per year)

Source	State	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	VOC
Aircraft (2275)	AL	6,552	225	315	124	22	324
	FL	30,898	10,926	2,979	2,919	983	4,482
	GA	8,069	6,602	1,814	1,777	554	542
	KY	7,676	1,240	336	329	119	533
	MS	1,838	172	54	53	16	113
	NC	7,601	1,972	534	523	188	775
	SC	7,744	578	462	453	103	1,023
	TN	8,350	3,237	862	845	281	1,095
	VA	13,684	4,398	2,173	2,130	320	3,293
	WV	1,369	96	30	30	9	78
	Total	**93,781**	**29,446**	**9,558**	**9,183**	**2,596**	**12,258**
Commercial Marine (2280)	AL	1,316	8,746	869	799	2,689	782
	FL	6,385	42,505	1,831	1,685	5,875	1,493
	GA	1,123	7,482	315	290	955	260
	KY	7,292	47,084	2,159	1,986	8,238	1,683
	MS	6,240	40,668	1,819	1,674	6,471	1,443
	NC	649	4,317	183	168	576	150
	SC	1,161	7,666	325	299	996	269
	TN	4,000	25,810	1,168	1,075	4,540	923
	VA	1,072	2,614	310	285	19	517
	WV	1,686	10,853	452	416	27	389
	Total	**30,924**	**197,744**	**9,431**	**8,676**	**30,386**	**7,908**
Military Marine (2283)	VA	121	294	23	21	1	51
	Total	**121**	**294**	**23**	**21**	**1**	**51**
Locomotives (2285)	AL	3,745	22,566	421	379	73	1,257
	FL	1,071	8,449	176	158	31	372
	GA	2,818	23,397	473	425	82	980
	KY	2,306	18,648	388	349	67	799
	MS	2,451	19,721	411	370	72	828
	NC	1,743	13,987	292	263	51	602
	SC	1,235	9,909	207	186	36	426
	TN	2,795	23,195	451	406	73	959
	VA	1,258	10,814	1,088	979	184	457
	WV	1,394	11,729	234	211	41	477
	Total	**20,816**	**162,414**	**4,140**	**3,726**	**710**	**7,156**
Grand Total		**145,642**	**389,898**	**23,153**	**21,606**	**33,693**	**27,374**

3.0 2012 Area Source Projections

Area sources were projected using techniques developed for the Visibility Improvement State and Tribal Association of the Southeast (VISTAS) regional haze emission inventory projections. The methods used for VISTAS are documented in the B&F Document. For the ASIP area source projections MACTEC used the same methods developed for VISTAS coupled with interpolated growth and control factors. The interpolated growth and control factors for 2012 were based on the values used for the 2009 and 2018 Base G2 projection inventories prepared for VISTAS. In all cases, except for those resulting from specific review by State and local air pollution agencies (detailed below), the interpolation of growth and control factors was strictly based on a linear interpolation of the existing 2009 and 2018 VISTAS growth or control factors.

The interpolated growth factors developed using the final consolidated list developed for VISTAS for 2009 and 2018 and represent a consolidation of both Clean Air Interstate Rule (CAIR) and Economic Growth Analysis System (EGAS) version 5 growth factors coupled with agricultural livestock growth factors calculated from projected emissions developed by U.S. EPA. The controls instituted represent controls used for CAIR along with other controls added by the State and local agencies during the inventory review process for VISTAS Base F and Base G inventories. For area sources these controls represent “on the books” controls. In addition, in several northern Virginia counties the controls represent those imposed by rules adopted by the Ozone Transport Commission (OTC).

In addition to the interpolated growth and control factors, MACTEC received information from two States (VA and NC) relative to modifications to either growth or control factors. Details on these comments and the changes resulting from them are detailed below by State.

3.1 VA Changes

VA DEQ representatives provided comments back to MACTEC related to a list of current controls applied to 2009 and 2018. These comments largely addressed the control levels that would be utilized for a 2012 inventory for the counties in northern VA that are part of the OTC. For the majority of these counties and the area sources that they applied to, the controls were utilized as recommended by VA DEQ. In one instance however, VA questioned the value of a control applied to the 2009 and 2018 inventory for consumer solvent sources. In the original 2009/2018 VISTAS inventory, a control value of 25% was applied to all counties in the VISTAS (ASIP) region to cover the controls implemented by the national consumer solvent control program. However further evaluation coupled with discussion with E.H. Pechan staff (who developed the original CAIR control values) indicated that the values for this source should be only 20% as that more correctly represented the national control program. Thus for 2012, the control was applied as 20% for counties subject only to the national control program for consumer solvents. For some counties in VA, an additional control was applied due to the OTC rule affecting this source category. The controls applied for the OTC counties for this category are shown in Table 3.1-1 below.

Table 3.1-1. 2012 Control Efficiency (CE), Rule Effectiveness (RE), Rule Penetration (RP) and Control Device ID for VA Counties with OTC Controls

State, County FIPs	SCC	Pollutant	SCC Description	CE	RE	RP	Device ID
51013, 51059, 51107, 51153, 51177, 51179, 51510, 51600, 51610, 51630, 51683, 51685	2401002000	VOC	Solvent Utilization, Surface Coating, Architectural Coatings - Solvent-based, Total: All Solvent Types	31	100	100	102
51013, 51059, 51107, 51153, 51177, 51179, 51510, 51600, 51610, 51630, 51683, 51685	2401003000	VOC	Solvent Utilization, Surface Coating, Architectural Coatings - Water-based, Total: All Solvent Types	31	100	100	102
51013, 51059, 51107, 51153, 51177, 51179, 51510, 51600, 51610, 51630, 51683, 51685	2401005000	VOC	Solvent Utilization, Surface Coating, Auto Refinishing: SIC 7532, Total: All Solvent Types	38	100	100	102
51013, 51059, 51107, 51153, 51177, 51179, 51510, 51600, 51610, 51630, 51683, 51685	2401008000	VOC	Solvent Utilization, Surface Coating, Traffic Markings, Total: All Solvent Types	31	100	100	102
51013, 51059, 51107, 51153, 51177, 51179, 51510, 51600, 51610, 51630, 51683, 51685	2401100000	VOC	Solvent Utilization, Surface Coating, Industrial Maintenance Coatings, Total: All Solvent Types	31	100	100	102
51013, 51059, 51107, 51153, 51177, 51179, 51510, 51600, 51610, 51630, 51683, 51685	2401200000	VOC	Solvent Utilization, Surface Coating, Other Special Purpose Coatings, Total: All Solvent Types	31	100	100	102

State, County FIPs	SCC	Pollutant	SCC Description	CE	RE	RP	Device ID
51013, 51059, 51107, 51153, 51177, 51179, 51510, 51600, 51610, 51630, 51683, 51685	2415300000	VOC	Solvent Utilization, Degreasing, All Industries: Cold Cleaning, Total: All Solvent Types	66	100	100	046
51013, 51059, 51107, 51153, 51177, 51179, 51510, 51600, 51610, 51630, 51683, 51685	2415330000	VOC	Solvent Utilization, Degreasing, Electronic and Other Elec. (SIC 36): Cold Cleaning, Total: All Solvent Types	66	100	100	046
51013, 51059, 51107, 51153, 51177, 51179, 51510, 51600, 51610, 51630, 51683, 51685	2415345000	VOC	Solvent Utilization, Degreasing, Miscellaneous Manufacturing (SIC 39): Cold Cleaning, Total: All Solvent Types	66	100	100	046
51013, 51059, 51107, 51153, 51177, 51179, 51510, 51600, 51610, 51630, 51683, 51685	2415360000	VOC	Solvent Utilization, Degreasing, Auto Repair Services (SIC 75): Cold Cleaning, Total: All Solvent Types	66	100	100	046
51013, 51059, 51107, 51153, 51510, 51600, 51610, 51683, 51685	2465900000	VOC	Solvent Utilization, Miscellaneous Non-industrial: Consumer, Miscellaneous Products: NEC, Total: All Solvent Types	32.73	100	100	102
51177, 51179, 51630	2465900000	VOC	Solvent Utilization, Miscellaneous Non-industrial: Consumer, Miscellaneous Products: NEC, Total: All Solvent Types	31.36	100	100	102
51013, 51059, 51107, 51153, 51510, 51600, 51610, 51683, 51685	2501060300	VOC	Portable Fuel Containers	61.5			099
51179	2501060300	VOC	Portable Fuel Containers	60			099
51177, 51630	2501060300	VOC	Portable Fuel Containers	37.5			099

State, County FIPs	SCC	Pollutant	SCC Description	CE	RE	RP	Device ID
51013, 51059, 51107, 51153, 51510, 51600, 51610, 51683, 51685	2440020000	VOC	Industrial Adhesives and Sealants	64.4	100	100	102
51177, 51630	2501060051	VOC	Storage and Transport, Petroleum and Petroleum Product Storage, Gasoline Service Stations, Stage 1: Submerged Filling	95.89727	91	80	093

3.2 NC Changes

In preparing the Base G inventory for VISTAS for NC, NC had prepared estimates of emissions for a number of area sources. These estimates were to directly replace the projected emissions developed using the standard projection technique used for all other States. However, the sources covered in 2009 and 2018 for the data provided by NC for the Base G updates did not represent a one-to-one correspondence (e.g., there were some sources in 2009 that were not included in 2018 and vice versa). Thus a straight-line interpolation would not work for all sources. MACTEC discussed this situation with NC staff and a determination was made to develop and apply emissions estimated using a straight-line interpolation for those sources that were common between 2009 and 2018. For any remaining sources, their emissions were developed using the standard projection technique developed for VISTAS and applied here using interpolated growth and control factors as described above. Thus there is a slight disconnect between the methods used to prepare the 2009, 2012 and 2018 emission projections for NC.

3.3 Area Source Results

Tables 3.3-1 through 3.3-8 show the results by pollutant, State and year for the ASIP 2012 area source inventory. The values in each table also include the 2002 VISTAS Base Year inventory value, along with the B&F values for 2009 and 2018. During the review process for SIP submittals, Jefferson County, KY air quality personnel identified that there were missing area source SO_2 sources. In evaluating the cause of the missing sources, MACTEC discovered that the sources were removed during the CERR update process. MACTEC had received a CERR submittal from Jefferson County (via U.S. EPA) that included records for sources with pollutants that were not ozone related pollutants. The methodology used by MACTEC to govern whether or not a CERR data set represented a complete replacement set was to look for non-ozone pollutants. If they were present then the dataset was regarded as complete and a complete replacement was performed substituting the CERR data for the previous data. However in this case, the pollutants were not complete. MACTEC corrected those records after the preparation of the B&F inventories for 2009 and 2018. The updated dataset was used as the starting point for the 2012 inventory projection. That resulted in increased SO_2 emissions relative to 2009 and 2018 levels and modest increases in some additional pollutants. The additional pollutants were also affected because all pollutant records associated with the missing SO_2 source categories were replaced when the corrected Jefferson County, KY file was developed post-B&F. This resulted in moderate increases in NO_x, $PM_{2.5}$ and VOC in 2012 (relative to 2009/2018) in KY.

Table 3.3-1. Comparison of the 2012 ASIP CO Emissions with 2002, 2009 and 2018 VISTAS B&F Inventory Values

State	Pollutant	2002	2009	2012	2018
AL	CO	83,958	66,654	64,302	59,626
FL	CO	71,079	57,011	55,942	53,903
GA	CO	107,889	93,918	93,763	93,567
KY	CO	66,752	57,887	65,598	54,865
MS	CO	37,905	27,184	25,484	22,099
NC	CO	345,278	301,123	297,671	290,765
SC	CO	113,714	90,390	87,929	83,167
TN	CO	89,246	73,563	71,702	68,005
VA	CO	155,873	128,132	125,917	121,690
WV	CO	39,546	31,640	30,668	28,773
Total		**1,111,240**	**927,502**	**918,976**	**876,460**

Table 3.3-2. Comparison of the 2012 ASIP NH_3 Emissions with 2002, 2009 and 2018 VISTAS B&F Inventory Values

State	Pollutant	2002	2009	2012	2018
AL	NH_3	58,318	64,268	66,814	71,915
FL	NH_3	37,446	38,616	39,221	40,432
GA	NH_3	80,913	89,212	92,768	99,885
KY	NH_3	51,135	53,005	53,826	55,211
MS	NH_3	58,721	63,708	65,775	69,910
NC	NH_3	161,859	170,313	173,830	180,865
SC	NH_3	28,166	30,555	31,535	33,496
TN	NH_3	34,322	35,176	35,515	36,193
VA	NH_3	43,905	46,639	47,818	50,175
WV	NH_3	9,963	10,625	10,918	11,504
Total		**564,748**	**602,117**	**618,020**	**649,586**

Table 3.3-3. Comparison of the 2012 ASIP NO_x Emissions with 2002, 2009 and 2018 VISTAS B&F Inventory Values

State	Pollutant	2002	2009	2012	2018
AL	NO_x	23,444	23,930	24,295	25,028
FL	NO_x	28,872	28,187	29,027	30,708
GA	NO_x	36,105	37,689	38,887	41,282
KY	NO_x	39,507	42,088	63,539	44,346
MS	NO_x	4,200	4,249	4,327	4,483
NC	NO_x	36,512	39,913	41,215	43,820
SC	NO_x	19,332	19,360	19,771	20,592
TN	NO_x	17,831	18,485	18,850	19,579
VA	NO_x	51,418	52,618	53,799	56,158
WV	NO_x	12,687	13,439	13,902	14,828
Total		**269,908**	**279,958**	**307,612**	**300,824**

Table 3.3-4. Comparison of the 2012 ASIP PM_{10} Emissions with 2002, 2009 and 2018 VISTAS B&F Inventory Values

State	Pollutant	2002	2009	2012	2018
AL	PM_{10}-PRI	393,426	412,815	422,807	444,996
FL	PM_{10}-PRI	443,346	503,230	527,162	578,516
GA	PM_{10}-PRI	695,320	776,305	809,564	880,070
KY	PM_{10}-PRI	233,559	242,177	255,887	256,052
MS	PM_{10}-PRI	343,377	356,324	361,527	375,495
NC	PM_{10}-PRI	280,350	292,412	300,020	315,259
SC	PM_{10}-PRI	260,858	278,299	286,202	304,251
TN	PM_{10}-PRI	211,913	225,409	230,965	245,368
VA	PM_{10}-PRI	237,577	252,488	258,629	275,351
WV	PM_{10}-PRI	115,346	115,089	116,717	121,549
Total		**3,215,072**	**3,454,548**	**3,569,480**	**3,796,907**

Table 3.3-5. Comparison of the 2012 ASIP $PM_{2.5}$ Emissions with 2002, 2009 and 2018 VISTAS B&F Inventory Values

State	Pollutant	2002	2009	2012	2018
AL	PM25-PRI	56,630	58,668	59,138	62,284
FL	PM25-PRI	58,878	64,589	66,047	72,454
GA	PM25-PRI	103,726	111,924	114,491	123,610
KY	PM25-PRI	45,453	46,243	48,819	47,645
MS	PM25-PRI	50,401	51,661	50,994	53,222
NC	PM25-PRI	64,029	69,432	70,008	71,234
SC	PM25-PRI	40,291	41,613	41,767	44,319
TN	PM25-PRI	42,103	43,627	43,338	46,054
VA	PM25-PRI	43,989	44,514	43,762	46,697
WV	PM25-PRI	21,049	20,664	20,414	21,490
Total		**526,549**	**552,935**	**558,778**	**589,009**

Table 3.3-6. Comparison of the 2012 ASIP SO_2 Emissions with 2002, 2009 and 2018 VISTAS B&F Inventory Values

State	Pollutant	2002	2009	2012	2018
AL	SO_2	52,253	48,228	48,907	50,264
FL	SO_2	40,491	36,699	37,238	38,317
GA	SO_2	57,555	57,692	58,368	59,724
KY	SO_2	41,805	43,087	58,204	44,186
MS	SO_2	771	753	751	746
NC	SO_2	5,392	5,730	5,841	6,062
SC	SO_2	12,900	13,051	13,186	13,457
TN	SO_2	29,897	30,555	31,015	31,935
VA	SO_2	105,890	105,984	107,116	109,380
WV	SO_2	11,667	12,284	12,473	12,849
Total		**358,621**	**354,063**	**373,099**	**366,920**

Table 3.3-7. Comparison of the 2012 ASIP VOC Emissions with 2002, 2009 and 2018 VISTAS B&F Inventory Values

State	Pollutant	2002	2009	2012	2018
AL	VOC	182,674	143,454	144,985	153,577
FL	VOC	404,302	420,172	444,276	489,975
GA	VOC	299,127	271,644	286,523	318,531
KY	VOC	95,375	94,042	112,381	103,490
MS	VOC	131,808	124,977	125,044	140,134
NC	VOC	237,545	187,355	179,248	189,120
SC	VOC	161,000	146,107	151,149	161,228
TN	VOC	146,283	146,826	151,612	172,529
VA	VOC	172,989	145,675	143,031	149,262
WV	VOC	60,443	55,288	54,287	60,747
Total		**1,891,546**	**1,735,540**	**1,792,536**	**1,938,593**

4.0 2012 Onroad Mobile Sources

Our continued approach for assembling data to simulate the 2012 calendar year was to use as much existing data from the existing Best and Final 2002, 2009, and 2018 base year and projections as possible and to supplement these data with information provided by the States. The resulting initial 2012 input data for the MOBILE6 module were delivered to the States for review prior to emissions modeling.

To ensure consistency across evaluation years, the 2012 base case inventory was developed using methodologies comparable to those employed in developing the 2009 and 2018 on-road portion of the ASIP inventories. All modifications to the 2012 inventory methods were developed in consultation with the ASIP State workgroup. Generally, modifications were only made to properly account for actual changes expected in the intervening period (i.e., between 2009 and 2018) reflecting the reduction in NO_x and SO_2 as anticipated with cleaner fuels and cleaner engines.

4.1 Development of on-road mobile source input files

As noted in documentation of the 2002, 2009 and 2018 inventory preparation (D*ocumentation of the Base G2 and Best & Final 2002 Base Year, 2009 and 2018 Emission Inventories for VISTAS* (B&F Document), March 14, 2008), MACTEC prepared versions of the 2009 and 2018 base case mobile inventory input data files.

Because no preliminary 2012 inventory was developed, Alpine Geophysics, LLC (Alpine) developed the 2012 initial input files for on-road mobile sources using methods similar to those employed for the 2009 and 2018 inventories coupled with changes and revisions provided by the States. Therefore, as was the case for 2009 and 2018, Alpine obtained from the States input data revisions, methodological revisions, and local control program specifications (to the extent that they differed from 2009/2018). These files were used in the MOBILE6 module of the SMOKE emissions processor to develop resulting emission estimates for this source category

4.1.1 Preparation of revised 2012 input data files

The methodology used to develop the 2012 on-road input files was based on forecasting the previously developed revised 2002 base year input files and is identical to that previously described for the revised 2009/2018 methodology except as follows:

1. The evaluation year was updated to 2012.
2. Diesel fuel sulfur content was revised from 500 ppm to 11 ppm. The 11 ppm value was identified from the EPA report entitled "Technical Guidance on the Use of MOBILE6.2 for Emission Inventory Preparation" (EPA 420-R-04-013, August 2004),

which stipulated diesel sulfur values from June, 2010 - May 2015 to be modeled as 11 ppm.

3. Diesel sales fractions were updated identically as to 2009.
4. VMT mix fractions were updated to 2012 using an identical method to that described for 2009/2018.
5. All other input data were retained at 2009 values, except as otherwise instructed by individual States (see below). This includes all control program descriptions (I/M, ATP, Stage II, etc.), all other fuel qualities (RVP, oxy content, etc.), all other vehicle descriptive data (registration age distributions, etc.), and all scenario descriptive data.

In addition to the updates described above that were applied to all ASIP-region inputs, the following additional State-specific updates were performed.

Alabama:

Alabama provided changes in RVP for all counties. The RVP was set at no lower than 9.0 psi for ozone season Statewide and for Jefferson and Shelby, no lower than 7.8 psi.

Virginia:

Virginia replaced I/M parameter files to incorporate a 4-year grace period for emission testing. "VAIM09.IM" was used for Arlington, Fairfax, Prince William, and Alexandria. "VAIM09LS.IM" was used for Loudoun and Stafford counties. Modifications to the county cross reference files were made to include Falls Church and Fairfax City in Fairfax county and Manassas and Manassas Park in Prince William county input file associations. Virginia modified the MOBILE6 OXYGENATED FUELS command using 0% and 3.5% respectively for Ether and Ethanol Oxygen Content and 0% and 100% respectively for Ether and Ethanol Market Share to incorporate the effects of the Energy Policy Act (2005).

4.1.2 VMT Data

The basic methodology used to generate the 2012 VMT for use in estimating on-road mobile source emissions was a linear interpolation of the 2009 and 2018 VMT at the county-SCC level of detail.

The following States provided some types of forecast data for 2012 VMT. The information presented below identifies these submittals as used in the 2012 simulations.

Kentucky:

Revised 2012 VMT and VMT mix data were provided by the DEP/DAQ of Kentucky and from the Louisville APCD (Bullitt, Jefferson and Oldham counties).

North Carolina:

North Carolina provided revised VMT estimates for Perquimans Co. to reflect updated 2009 levels during 2012 interpolation calculation.

South Carolina:

South Carolina provided statewide county and roadway type-specific VMT data for 2012.

Virginia:

Virginia provided county and roadway type-specific annual VMT for 2012 and these data were used directly in the MOBILE6/SMOKE runs consistent with data previously provided for 2009/2018.

West Virginia:

West Virginia identified a double counting of VMT in Ohio County, WV for the 2018 calendar year which artificially increased the 2012 interpolation using these data. The 2018 VMT were corrected per West Virginia's direction and 2012 VMT estimated from the resulting VMT levels.

4.2 Processing of On-Road Mobile Source Emissions

The MOBILE6 module of SMOKE was used to develop the base year on-road mobile source emissions estimates for CO, NH_3 NO_x, PM and VOC emissions. The MOBILE6 parameters, vehicle fleet descriptions, and VMT estimates were combined with gridded, episode-specific temperature data to calculate the gridded, temporalized emission estimates. Of note, whereas the on-network emissions estimates are spatially allocated based on link location and subsequently summed to the grid cell level, the off-network emissions estimates are spatially allocated based on a combination of the FHWA version 2.0 highway networks and population. For the ASIP 36/12 km modeling, no link based data was used. The MOBILE6 emissions factors are based on episode-specific temperatures predicted by the meteorological model. Further, the MOBILE6 emissions factors model accounts for the following:

- Hourly and daily minimum/maximum temperatures;
- Facility speeds;
- Locale-specific inspection/maintenance (I/M) control programs, if any;
- Adjustments for running losses;
- Splitting of evaporative and exhaust emissions into separate source categories;
- VMT, fleet turnover, and changes in fuel composition and Reid vapor pressure (RVP).

The primary input to MOBILE6 is the MOBILE shell file. The MOBILE shell contains the various options (e.g. type of inspection and maintenance program in effect, type of oxygenated fuel program in effect, alternative vehicle mix profiles, RVP of in-use fuel, operating mode) that direct the calculation of the MOBILE6 emissions factors.

For the production of the MOBILE6 emission factors SMOKE was run using the hourly episode-specific meteorological data for temperature and humidity. SMOKE produces emissions factors for state and county groups that are selected for regional similarities and consistent MOBILE6 option requirements (i.e. I/M programs, RVP, fuel programs). The hourly average temperature and humidity are calculated from the hourly temperatures in each grid cell in the state/county groups.

SMOKE was run using the daily average speed option for all states except North Carolina. The daily average speed was provided based on state, county, and roadway type. North Carolina provided hourly average speeds, also based on state, county and roadway type.

Producing 365 day-specific input files for all source categories places a burden on available computing facilities, data management systems, and would have adversely affected the modeling schedule. Selecting representative model days for processing on-road source categories reduces the processing and file handling requirements to a more manageable level and in most cases does not compromise the accuracy of the emissions files.

Other current or recent projects undertaken by EPA and other RPOs have used a selection approach for all of the source categories (except biogenics) that use a representative weekday/Saturday/Sunday either for each month or each season to model all of the emissions files. In an attempt to better represent the level of temporal and spatial detail available for each source category, we have developed and implemented a more detailed strategy.

Motor vehicle emissions are influenced by meteorological variability, but the processing requirements for daily motor vehicle emissions were determined to be prohibitive under the current schedule. Rather than utilizing averaged meteorological data or pre-calculated motor vehicle emissions, a single week per month was selected for modeling. This week was selected from mid-month, to try to best represent the average temperature ranges for the month, and also adjusted to exclude holidays that would require atypical processing. The area source modeling dates were also selected from these ranges to simplify data handling procedures.

On-Road Mobile Sources Represented by the Following Weeks

January 13-19

February 10-16

March 10-16

April14-20

May 12-18

June 9-15

July 14-20

August 11-17

September 15-21

October 13-19

November 10-16

December 15-21

4.3 On-road Emission Summaries

The following tables provide annual emission summaries for the ASIP States using the input files described here and in other ASIP inventory preparation documentation and the methods and models described above for on-road emissions generation.

Table 4.3-1. On-road Mobile Source SO_2 Emission Comparison.

State	Annual On-road Emissions (Tons/Year)			
	2002	**2009**	**2012**	**2018**
AL	6,900	810	648	720
FL	20,915	2,612	2,214	2,533
GA	12,184	1,585	1,291	1,457
KY	6,308	759	554	763
MS	4,614	537	399	440
NC	12,420	1,503	1,268	1,481
SC	5,972	721	570	643
TN	9,226	1,076	847	948
VA	8,294	1,079	934	1,043
WV	2,464	279	226	253
TOTAL	**89,296**	**10,962**	**8,950**	**10,281**

Table 4.3-2. On-road Mobile Source NO_x Emission Comparison.

State	Annual On-road Emissions (Tons/Year)			
	2002	2009	2012	2018
AL	158,212	101,831	79,323	47,298
FL	465,640	315,840	241,360	150,180
GA	307,732	209,349	168,100	102,179
KY	156,417	101,182	77,031	52,263
MS	111,914	70,743	53,746	30,619
NC	327,329	201,609	156,730	87,791
SC	140,489	92,499	72,068	43,490
TN	238,577	151,912	118,850	69,385
VA	222,374	134,232	105,930	63,342
WV	58,999	35,635	28,137	17,247
TOTAL	**2,187,683**	**1,414,834**	**1,101,275**	**663,796**

Table 4.3-3. On-road Mobile Source VOC Emission Comparison.

State	Annual On-road Emissions (Tons/Year)			
	2002	2009	2012	2018
AL	127,295	76,990	65,142	49,175
FL	527,209	340,947	280,960	222,303
GA	283,421	195,125	161,520	109,763
KY	103,503	73,942	47,584	47,066
MS	87,672	52,107	41,664	31,616
NC	263,766	168,676	138,836	101,099
SC	116,163	72,603	59,741	46,301
TN	179,807	115,181	93,985	67,324
VA	159,790	96,770	78,761	61,964
WV	42,174	24,843	20,287	16,121
TOTAL	**1,890,798**	**1,217,185**	**988,480**	**752,732**

Table 4.3-4. On-road Mobile Source CO Emission Comparison.

State	Annual On-road Emissions (Tons/Year)			
	2002	2009	2012	2018
AL	1,321,528	915,647	746,150	676,210
FL	4,550,447	3,352,509	2,714,700	2,554,160
GA	2,735,968	1,983,803	1,635,800	1,476,981
KY	1,230,148	963,762	707,250	807,536
MS	864,290	609,972	487,540	445,493
NC	2,873,992	1,991,708	1,544,500	1,362,214
SC	1,241,359	889,957	717,230	663,493
TN	1,917,842	1,338,016	1,086,400	976,634
VA	2,163,259	1,453,946	1,139,600	1,075,104
WV	533,471	365,549	296,200	274,804
TOTAL	**19,432,305**	**13,864,869**	**11,075,370**	**10,312,627**

Table 4.3-5. On-road Mobile Source NH_3 Emission Comparison.

State	Annual On-road Emissions (Tons/Year)			
	2002	2009	2012	2018
AL	5,588	6,364	6,687	7,298
FL	18,114	21,781	23,280	26,163
GA	10,546	12,687	13,423	14,873
KY	5,055	5,796	5,695	7,811
MS	3,585	4,035	4,216	4,566
NC	9,702	11,825	12,617	14,065
SC	4,694	5,523	5,849	6,473
TN	6,625	7,782	8,186	9,021
VA	7,852	9,086	9,629	10,624
WV	1,908	2,148	2,250	2,497
TOTAL	**73,670**	**87,027**	**91,832**	**103,394**

Table 4.3-6. On-road Mobile Source PM_{10} Emission Comparison.

State	Annual On-road Emissions (Tons/Year)			
	2002	2009	2012	2018
AL	3,903	3,171	2,802	2,410
FL	11,275	9,911	9,061	8,268
GA	7,246	6,072	5,417	4,844
KY	3,723	2,976	2,466	2,580
MS	2,859	2,275	1,970	1,624
NC	6,579	5,572	4,926	4,392
SC	3,452	2,862	2,529	2,184
TN	5,371	4,206	3,654	3,092
VA	4,549	3,747	3,429	3,212
WV	1,381	1,068	937	819
TOTAL	**50,338**	**41,861**	**37,190**	**33,426**

Table 4.3-7. On-road Mobile Source $PM_{2.5}$ Emission Comparison.

State	Annual On-road Emissions (Tons/Year)			
	2002	2009	2012	2018
AL	2,799	2,032	1,646	1,192
FL	7,868	6,173	5,188	4,038
GA	5,168	3,840	3,127	2,380
KY	2,697	1,920	1,459	1,272
MS	2,112	1,508	1,196	819
NC	4,623	3,493	2,807	2,123
SC	2,501	1,855	1,502	1,087
TN	3,949	2,751	2,186	1,544
VA	3,102	2,241	1,877	1,543
WV	995	684	549	405
TOTAL	**35,813**	**26,498**	**21,535**	**16,403**

APPENDIX A:

COMPARISON OF EGU CONTROLS FOR COAL AND OIL/GAS UNITS BASED ON IPM MODELING AND STATE-PROVIDED INFORMATION FOR THE 2012 INVENTORY

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
01	033	01033	TVA COLBERT	47	1	0010	010	Coal Steam	None	None	None	None
01	033	01033	TVA COLBERT	47	2	0010	011	Coal Steam	None	None	None	None
01	033	01033	TVA COLBERT	47	3	0010	012	Coal Steam	None	None	None	None
01	033	01033	TVA COLBERT	47	4	0010	013	Coal Steam	None	None	None	None
01	033	01033	TVA COLBERT	47	5	0010	014	Coal Steam	SCR	SCR	Scrubber	Scrubber
01	055	01055	ALABAMA POWER COMPANY GADSDEN	7	1	0002	002	Coal Steam	None	None	None	None
01	055	01055	ALABAMA POWER COMPANY GADSDEN	7	2	0002	003	Coal Steam	None	None	None	None
01	063	01063	ALABAMA POWER COMPANY GREENE COUNTY	10	1	0001	002	Coal Steam	SCR	SCR	None	Scrubber
01	063	01063	ALABAMA POWER COMPANY GREENE COUNTY	10	2	0001	003	Coal Steam	SCR	SCR	None	Scrubber
01	071	01071	TVA - WIDOWS CREEK	50	1	0008	002	Coal Steam	SCR	SCR	None	None
01	071	01071	TVA - WIDOWS CREEK	50	2	0008	003	Coal Steam	SCR	SCR	None	None
01	071	01071	TVA - WIDOWS CREEK	50	3	0008	004	Coal Steam	SCR	SCR	None	None
01	071	01071	TVA - WIDOWS CREEK	50	4	0008	005	Coal Steam	SCR	SCR	None	None
01	071	01071	TVA - WIDOWS CREEK	50	5	0008	006	Coal Steam	SCR	SCR	None	None
01	071	01071	TVA - WIDOWS CREEK	50	6	0008	007	Coal Steam	SCR	SCR	None	None

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
01	071	01071	TVA - WIDOWS CREEK	50	7	0008	008	Coal Steam	SCR	SCR	Scrubber	Scrubber
01	071	01071	TVA - WIDOWS CREEK	50	8	0008	009	Coal Steam	SCR	SCR	Scrubber	Scrubber
01	073	01073	ALABAMA POWER COMPANY (MILLER POWER PLANT)	6002	4	010730011	001	Coal Steam	SCRAll Year	SCRSummer	Scrubber	None
01	073	01073	ALABAMA POWER COMPANY (MILLER POWER PLANT)	6002	3	010730011	002	Coal Steam	SCR All Year	SCR Summer	Scrubber	None
01	073	01073	ALABAMA POWER COMPANY (MILLER POWER PLANT)	6002	2	010730011	004	Coal Steam	SCR All Year	SCR Summer	Scrubber	None
01	073	01073	ALABAMA POWER COMPANY (MILLER POWER PLANT)	6002	1	010730011	005	Coal Steam	SCR All Year	SCR Summer	Scrubber	None
01	097	01097	ALABAMA POWER COMPANY BARRY	3	1	1001	002	Coal Steam	SNCR	None	None	None
01	097	01097	ALABAMA POWER COMPANY BARRY	3	2	1001	003	Coal Steam	SNCR	None	None	None
01	097	01097	ALABAMA POWER COMPANY BARRY	3	3	1001	004	Coal Steam	SNCR	None	None	None
01	097	01097	ALABAMA POWER COMPANY BARRY	3	4	1001	005	Coal Steam	SNCR	None	None	None
01	097	01097	ALABAMA POWER COMPANY BARRY	3	5	1001	006	Coal Steam	SCR	None	Scrubber	None
01	117	01117	ALABAMA POWER COMPANY E C GASTON	26	1	0005	002	Coal Steam	None	SCR	None	Scrubber
01	117	01117	ALABAMA POWER COMPANY E C GASTON	26	2	0005	003	Coal Steam	None	SCR	None	Scrubber
01	117	01117	ALABAMA POWER COMPANY E C GASTON	26	3	0005	004	Coal Steam	None	SCR	None	Scrubber
01	117	01117	ALABAMA POWER COMPANY E C GASTON	26	4	0005	005	Coal Steam	None	SCR	None	Scrubber

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
01	117	01117	ALABAMA POWER COMPANY E C GASTON	26	5	0005	006	Coal Steam	SCR	SCR	Scrubber	Scrubber
01	127	01127	ALABAMA POWER COMPANY GORGAS	8	6	0001	004	Coal Steam	None	None	None	None
01	127	01127	ALABAMA POWER COMPANY GORGAS	8	7	0001	005	Coal Steam	None	None	None	None
01	127	01127	ALABAMA POWER COMPANY GORGAS	8	8	0001	006	Coal Steam	None	None	Scrubber	None
01	127	01127	ALABAMA POWER COMPANYGORGAS	8	9	0001	007	Coal Steam	None	None	Scrubber	None
01	127	01127	ALABAMA POWER COMPANY GORGAS	8	10	0001	008	Coal Steam	SCR	SCR	Scrubber	Scrubber
01	129	01129	ALABAMA ELECTRIC COOP CHARLES R LOWMAN	56	1	0001	002	Coal Steam	None	None	Scrubber	None
01	129	01129	ALABAMA ELECTRIC COOP CHARLES R LOWMAN	56	2	0001	003	Coal Steam	SCR	SCR	Scrubber	Scrubber
01	129	01129	ALABAMA ELECTRIC COOP CHARLES R LOWMAN	56	3	0001	004	Coal Steam	SCR	SCR	Scrubber	Scrubber
12	001	12001	GAINESVILLE REGIONAL UTILITIES JOHN R KELLY	664	JRK6			O/G Steam	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement
12	001	12001	GAINESVILLE REGIONAL UTILITIES JOHN R KELLY	664	JRK7			O/G Steam	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement
12	001	12001	GAINESVILLE REGIONAL UTILITIES JOHN R KELLY	664	JRK8	0010005	7		O/G Early Retirement	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement
12	001	12001	CITY OF GAINESVILLE, GRU DEERHAVEN	663	B1	0010006	3	O/G Steam	No Operation	No Operation	No Operation	No Operation
12	001	12001	CITY OF GAINESVILLE, GRU DEERHAVEN	663	B2	0010006	5	Coal Steam	None	None	None	None
12	005	12005	GULF POWER COMPANY LANSING SMITH PLANT	643	1	0050014	1	Coal Steam	None	None	None	None

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
12	005	12005	GULF POWER COMPANY LANSING SMITH PLANT	643	2	0050014	2	Coal Steam	None	None	None	None
12	009	12009	FLORIDA POWER & LIGHT (PCC) CAPE CANAVERAL	609	PCC1	0090006	1	O/G Steam	None	None	None	None
12	009	12009	FLORIDA POWER & LIGHT (PCC) CAPE CANAVERAL	609	PCC2	0090006	2	O/G Steam	None	None	None	None
12	011	12011	FLORIDA POWER & LIGHT (PPE) PORT EVERGLADES	617	PPE1	0110036	1	O/G Steam	None	No Operation	None	No Operation
12	011	12011	FLORIDA POWER & LIGHT (PPE) PORT EVERGLADES	617	PPE2	0110036	2	O/G Steam	None	No Operation	None	No Operation
12	011	12011	FLORIDA POWER & LIGHT (PPE) PORT EVERGLADES	617	PPE3	0110036	3	O/G Steam	None	No Operation	None	No Operation
12	011	12011	FLORIDA POWER & LIGHT (PPE) PORT EVERGLADES	617	PPE4	0110036	4	O/G Steam	None	No Operation	None	No Operation
12	017	12017	PROGRESS ENERGY FLORIDA CRYSTAL RIVER	628	1	0170004	1	Coal Steam	None	None	None	None
12	017	12017	PROGRESS ENERGY FLORIDA CRYSTAL RIVER	628	2	0170004	2	Coal Steam	None	None	None	None
12	017	12017	PROGRESS ENERGY FLORIDA CRYSTAL RIVER	628	5	0170004	3	Coal Steam	None	None	None	None
12	017	12017	PROGRESS ENERGY FLORIDA CRYSTAL RIVER	628	4	0170004	4	Coal Steam	SCR	SCR	Scrubber	Scrubber
12	031	12031	SAINT JOHNS RIVER	207	1	0310045-A	16		SCR	SCR	Scrubber	Scrubber
12	031	12031	SAINT JOHNS RIVER	207	2	0310045-A	17		SCR	SCR	Scrubber	Scrubber
12	031	12031	NORTHSIDE	667	2A	0310045-B	26	O/G Steam	None	No Operation	None	No Operation
12	031	12031	NORTHSIDE	667	1A	0310045-B	27	O/G Steam	None	No Operation	None	No Operation

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
12	031	12031	NORTHSIDE	667	3	0310045-B	3	O/G Steam	None	No Operation	None	No Operation
12	031	12031	CEDAR BAY COGENERATION INC.	10672	GEN1	0310337	1	Coal Steam	None	SNCR	Scrubber	Scrubber
12	033	12033	GULF POWER COMPANY CRIST ELECTRIC GENERATION	641	2	0330045	2	O/G Steam	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement
12	033	12033	GULF POWER COMPANY CRIST ELECTRIC GENERATION	641	3	0330045	3	O/G Steam	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement
12	033	12033	GULF POWER COMPANY CRIST ELECTRIC GENERATION	641	4	0330045	4	Coal Steam	None	None	Scrubber	None
12	033	12033	GULF POWER COMPANY CRIST ELECTRIC GENERATION	641	5	0330045	5	Coal Steam	None	None	Scrubber	None
12	033	12033	GULF POWER COMPANY CRIST ELECTRIC GENERATION	641	6	0330045	6	Coal Steam	SNCR	SNCR	Scrubber	None
12	033	12033	GULF POWER COMPANY CRIST ELECTRIC GENERATION	641	7	0330045	7	Coal Steam	SCR	SCR	Scrubber	Scrubber
12	053	12053	Central Power and Lime Incorporated	10333	GEN1	0530021	18	Coal Steam	None	None	Scrubber	Scrubber
12	057	12057	TAMPA ELECTRIC COMPANY BIG BEND STATION	645	BB01	0570039	1	Coal Steam	SCR	SCR	Scrubber	Scrubber
12	057	12057	TAMPA ELECTRIC COMPANY BIG BEND STATION	645	BB02	0570039	2	Coal Steam	SCR	SCR	Scrubber	Scrubber
12	057	12057	TAMPA ELECTRIC COMPANY BIG BEND STATION	645	BB03	0570039	3	Coal Steam	SCR	SCR	Scrubber	Scrubber
12	057	12057	TAMPA ELECTRIC COMPANY BIG BEND STATION	645	BB04	0570039	4	Coal Steam	SCR	SCR	Scrubber	Scrubber
12	057	12057	TAMPA ELECTRIC COMPANY F.J. GANNON STATION	646	GB01	0570040	1		No Operation	No Operation	No Operation	No Operation
12	057	12057	TAMPA ELECTRIC COMPANY F.J. GANNON STATION	646	GB02	0570040	2		No Operation	No Operation	No Operation	No Operation

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
12	057	12057	TAMPA ELECTRIC COMPANY F.J. GANNON STATION	646	GB03	0570040	3		No Operation	No Operation	No Operation	No Operation
12	057	12057	TAMPA ELECTRIC COMPANY F.J. GANNON STATION	646	GB04	0570040	4		No Operation	No Operation	No Operation	No Operation
12	057	12057	TAMPA ELECTRIC COMPANY F.J. GANNON STATION	646	GB05	0570040	5		No Operation	No Operation	No Operation	No Operation
12	057	12057	TAMPA ELECTRIC COMPANY F.J. GANNON STATION	646	GB06	0570040	6		No Operation	No Operation	No Operation	No Operation
12	061	12061	CITY OF VERO BEACH	693		0610029	1	O/G Steam	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement
12	061	12061	CITY OF VERO BEACH	693	3	0610029	3	O/G Steam	No Operation	No Operation	No Operation	No Operation
12	061	12061	CITY OF VERO BEACH	693	4	0610029	4	O/G Steam	No Operation	No Operation	No Operation	No Operation
12	063	12063	GULF POWER COMPANY SCHOLZ	642	1	0630014	1	Coal Steam	None	None	None	None
12	063	12063	GULF POWER COMPANY SCHOLZ	642	2	0630014	2	Coal Steam	None	None	None	None
12	073	12073	CITY OF TALLAHASSEE ARVAH B.HOPKINS	688	1	0730003	1	O/G Steam	No Operation	No Operation	No Operation	No Operation
12	073	12073	CITY OF TALLAHASSEE ARVAH B.HOPKINS	688	2	0730003	4	O/G Steam	No Operation	No Operation	No Operation	No Operation
12	081	12081	FLORIDA POWER & LIGHT (PMT) MANATEE POWER	6042	PMT1	0810010	1	O/G Steam	None	No Operation	None	No Operation
12	081	12081	FLORIDA POWER & LIGHT (PMT) MANATEE POWER	6042	PMT2	0810010	2	O/G Steam	None	No Operation	None	No Operation
12	085	12085	FLORIDA POWER & LIGHT (PMR) FPL / MARTIN	6043	PMR1	0850001	1	O/G Steam	None	No Operation	None	No Operation
12	085	12085	FLORIDA POWER & LIGHT (PMR) FPL / MARTIN	6043	PMR2	0850001	2	O/G Steam	None	No Operation	None	No Operation

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
12	085	12085	INDIANTOWN COGENERATION, L.P.	50976	GEN1	0850102	1	Coal Steam	SCR	SCR	Scrubber	Scrubber
12	086	12086	FLORIDA POWER & LIGHT (PCU) CUTLER POWER	610	PCU5	0250001	3	O/G Steam	No Operation	No Operation	No Operation	No Operation
12	086	12086	FLORIDA POWER & LIGHT (PCU) CUTLER POWER	610	PCU6	0250001	4	O/G Steam	No Operation	No Operation	No Operation	No Operation
12	086	12086	FLORIDA POWER & LIGHT (PTF) TURKEY POINT	621	PTP1	0250003	1	O/G Steam	None	No Operation	None	No Operation
12	086	12086	FLORIDA POWER & LIGHT (PTF) TURKEY POINT	621	PTP2	0250003	2	O/G Steam	None	No Operation	None	No Operation
12	095	12095	ORLANDO UTILITIES COMMISSION STANTON ENERGY	564	1	0950137	1	Coal Steam	SCR	SCR	Scrubber	Scrubber
12	095	12095	ORLANDO UTILITIES COMMISSION STANTON ENERGY	564	2	0950137	2	Coal Steam	SCR	SCR	Scrubber	Scrubber
12	099	12099	FLORIDA POWER & LIGHT (PRV) RIVIERA POWE	619	PRV3	0990042	3	O/G Steam	None	None	None	None
12	099	12099	FLORIDA POWER & LIGHT (PRV) RIVIERA POWE	619	PRV4	0990042	4	O/G Steam	None	None	None	None
12	099	12099	CITY OF LAKE WORTH UTILITIES TOM G. SMITH	673	S-1	0990045	7	O/G Steam	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement
12	099	12099	CITY OF LAKE WORTH UTILITIES TOM G. SMITH	673	S-3	0990045	9	O/G Steam	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement
12	101	12101	PROGRESS ENERGY FLORIDA ANCLOTE	8048	1	1010017	1	O/G Steam	None	No Operation	None	No Operation
12	101	12101	PROGRESS ENERGY FLORIDA ANCLOTE	8048	2	1010017	2	O/G Steam	None	No Operation	None	No Operation
12	103	12103	PROGRESS ENERGY FLORIDA BARTOW	634	1	1030011	1	O/G Steam	None	None	None	None
12	103	12103	PROGRESS ENERGY FLORIDA BARTOW	634	2	1030011	2	O/G Steam	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
12	103	12103	PROGRESS ENERGY FLORIDA BARTOW	634	3	1030011	3	O/G Steam	None	None	None	None
12	105	12105	LAKELAND ELECTRIC CHARLES LARSEN	675	7	1050003	4	O/G Steam	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement
12	105	12105	LAKELAND ELECTRIC C.D. MCINTOSH, JR.	676	3	1050004	1	Coal Steam	None	Combined Cycle	None	Combined Cycle
12	105	12105	LAKELAND ELECTRIC C.D. MCINTOSH, JR.	676	3	1050004	5	Coal Steam	None	Combined Cycle	None	Combined Cycle
12	105	12105	LAKELAND ELECTRIC C.D. MCINTOSH, JR.	676	3	1050004	6	Coal Steam	SCR	SCR	Scrubber	Scrubber
12	107	12107	SEMINOLE ELECTRIC COOPERATIVE, INC.	136	1	1070025	1	Coal Steam	SCR	SCR	Scrubber	Scrubber
12	107	12107	SEMINOLE ELECTRIC COOPERATIVE, INC.	136	2	1070025	2	Coal Steam	SCR	SCR	Scrubber	Scrubber
12	111	12111	FT PIERCE UTILITIES AUTHORITY FT PIERCE	658	7	1110003	7	O/G Steam	No Operation	No Operation	No Operation	No Operation
12	111	12111	FT PIERCE UTILITIES AUTHORITY FT PIERCE	658	8	1110003	8	O/G Steam	No Operation	No Operation	No Operation	No Operation
12	121	12121	PROGRESS ENERGY FLORIDA SUWANNEE RIVER	638	1	1210003	1	O/G Steam	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement
12	121	12121	PROGRESS ENERGY FLORIDA SUWANNEE RIVER	638	2	1210003	2	O/G Steam	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement
12	121	12121	PROGRESS ENERGY FLORIDA SUWANNEE RIVER	638	3	1210003	3	O/G Steam	None	None	None	None
12	127	12127	FLORIDA POWER & LIGHT (PSN) SANFORD POWER	620	PSN3	1270009	1	O/G Steam	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement
12	127	12127	FLORIDA POWER & LIGHT (PSN) SANFORD POWER	620	PSN4	1270009	2		No Operation	No Operation	No Operation	No Operation
12	129	12129	TALLAHASSEE CITY PURDOM GENERATING STATION	689	7	1290001	7	O/G Steam	No Operation	No Operation	No Operation	No Operation

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
13	015	13015	GEORGIA POWER COMPANY, BOWEN STEAM-ELECT	703	1BLR	01500011	SG01	Coal Steam	SCR	SCR	Scrubber 95%	Scrubber
13	015	13015	GEORGIA POWER COMPANY, BOWEN STEAM-ELECT	703	2BLR	01500011	SG02	Coal Steam	SCR	SCR	Scrubber 95%	Scrubber
13	015	13015	GEORGIA POWER COMPANY, BOWEN STEAM-ELECT	703	3BLR	01500011	SG03	Coal Steam	SCR	SCR	Scrubber 95%	Scrubber
13	015	13015	GEORGIA POWER COMPANY, BOWEN STEAM-ELECT	703	4BLR	01500011	SG04	Coal Steam	SCR	SCR	Scrubber 95%	Scrubber
13	021	13021	ARKWRIGHT	699	1	0002	1		No Operation	No Operation	No Operation	No Operation
13	021	13021	ARKWRIGHT	699	2	0002	2		No Operation	No Operation	No Operation	No Operation
13	021	13021	ARKWRIGHT	699	3	0002	3		No Operation	No Operation	No Operation	No Operation
13	021	13021	ARKWRIGHT	699	4	0002	4		No Operation	No Operation	No Operation	No Operation
13	051	13051	SAVANNAH ELECTRIC: KRAFT STEAM	733	1	05100006	SG01	Coal Steam	None	None	None	None
13	051	13051	SAVANNAH ELECTRIC: KRAFT STEAM	733	2	05100006	SG02	Coal Steam	None	None	None	None
13	051	13051	SAVANNAH ELECTRIC: KRAFT STEAM	733	3	05100006	SG03	Coal Steam	None	None	None	None
13	051	13051	SAVANNAH ELECTRIC: KRAFT STEAM	733	4	05100006	SG04	O/G Steam	No Operation	No Operation	No Operation	No Operation
13	051	13051	RIVERSIDE	734	11	05100018	11	O/G Steam	None	No Operation	None	No Operation
13	051	13051	RIVERSIDE	734	12	05100018	12	O/G Steam	None	No Operation	None	No Operation
13	051	13051	RIVERSIDE	734	4	05100018	4	O/G Steam	None	None	None	None

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
13	051	13051	RIVERSIDE	734	5	05100018	5	O/G Steam	None	No Operation	None	No Operation
13	051	13051	RIVERSIDE	734	6	05100018	6	O/G Steam	None	No Operation	None	No Operation
13	067	13067	GEORGIA POWER COMPANY, MCDONOUGH STEAM	710	MB1	06700003	SGM1	Coal Steam	Gas Turbine	None	Gas Turbine	Scrubber
13	067	13067	GEORGIA POWER COMPANY, MCDONOUGH STEAM	710	MB2	06700003	SGM2	Coal Steam	Gas Turbine	None	Gas Turbine	Scrubber
13	077	13077	GEORGIA POWER COMPANY, YATES STEAM-ELECTRIC	728	Y1BR	07700001	SG01	Coal Steam	None	None	Scrubber	Scrubber
13	077	13077	GEORGIA POWER COMPANY, YATES STEAM-ELECTRIC	728	Y2BR	07700001	SG02	Coal Steam	None	None	None	None
13	077	13077	GEORGIA POWER COMPANY, YATES STEAM-ELECTRIC	728	Y3BR	07700001	SG03	Coal Steam	None	None	None	None
13	077	13077	GEORGIA POWER COMPANY, YATES STEAM-ELECTRIC	728	Y4BR	07700001	SG04	Coal Steam	None	None	None	Scrubber
13	077	13077	GEORGIA POWER COMPANY, YATES STEAM-ELECTRIC	728	Y5BR	07700001	SG05	Coal Steam	None	None	None	Scrubber
13	077	13077	GEORGIA POWER COMPANY, YATES STEAM-ELECTRIC	728	Y6BR	07700001	SG06	Coal Steam	None	None	None	Scrubber
13	077	13077	GEORGIA POWER COMPANY, YATES STEAM-ELECTRIC	728	Y7BR	07700001	SG07	Coal Steam	None	None	None	Scrubber
13	095	13095	GEORGIA POWER COMPANY, MITCHELL STEAM-ELECTRIC	727		09500002	SG01		No Operation	No Operation	No Operation	No Operation
13	095	13095	GEORGIA POWER COMPANY, MITCHELL STEAM-ELECTRIC	727		09500002	SG02		No Operation	No Operation	No Operation	No Operation
13	095	13095	GEORGIA POWER COMPANY, MITCHELL STEAM-ELECTRIC	727	3	09500002	SG03	Coal Steam	None	None	None	None
13	103	13103	SAVANNAH ELECTRIC: MCINTOSH STEAM - ELECTRIC	6124	1	10300003	SG01	Coal Steam	None	None	None	None

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
13	115	13115	GEORGIA POWER COMPANY, HAMMOND STEAM-ELECTRIC	708	1	11500003	SG01	Coal Steam	None	None	Scrubber95%	Scrubber
13	115	13115	GEORGIA POWER COMPANY, HAMMOND STEAM-ELECTRIC	708	2	11500003	SG02	Coal Steam	None	None	Scrubber 95%	Scrubber
13	115	13115	GEORGIA POWER COMPANY, HAMMOND STEAM-ELECTRIC	708	3	11500003	SG03	Coal Steam	None	None	Scrubber 95%	Scrubber
13	115	13115	GEORGIA POWER COMPANY, HAMMOND STEAM-ELECTRIC	708	4	11500003	SG04	Coal Steam	SCR	SCR	Scrubber 95%	Scrubber
13	127	13127	GEORGIA POWER COMPANY, MCMANUS STEAM-ELECTRIC	715	1	12700004	SG01	O/G Steam	No Operation	No Operation	No Operation	No Operation
13	127	13127	GEORGIA POWER COMPANY, MCMANUS STEAM-ELECTRIC	715	2	12700004	SG02	O/G Steam	No Operation	No Operation	No Operation	No Operation
13	149	13149	GEORGIA POWER COMPANY, WANSLEY STEAM-ELECTRIC	6052	1	14900001	SG01	Coal Steam	SCR	SCR	Scrubber 95%	Scrubber
13	149	13149	GEORGIA POWER COMPANY, WANSLEY STEAM-ELECTRIC	6052	2	14900001	SG02	Coal Steam	SCR	SCR	Scrubber 95%	Scrubber
13	207	13207	GEORGIA POWER COMPANY, SCHERER STEAM-ELECTRIC	6257	1	20700008	SG01	Coal Steam	None	None	None	None
13	207	13207	GEORGIA POWER COMPANY, SCHERER STEAM-ELECTRIC	6257	2	20700008	SG02	Coal Steam	None	None	None	None
13	207	13207	GEORGIA POWER COMPANY, SCHERER STEAM-ELECTRIC	6257	3	20700008	SG03	Coal Steam	None	None	Scrubber 95%	None
13	207	13207	GEORGIA POWER COMPANY, SCHERER STEAM-ELECTRIC	6257	4	20700008	SG04	Coal Steam	None	None	None	None
13	237	13237	GEORGIA POWER COMPANY, HARLLEE BRANCH	709	1	23700008	SG01	Coal Steam	None	None	None	Scrubber
13	237	13237	GEORGIA POWER COMPANY, HARLLEE BRANCH	709	2	23700008	SG02	Coal Steam	None	None	None	Scrubber
13	237	13237	GEORGIA POWER COMPANY, HARLLEE BRANCH	709	3	23700008	SG03	Coal Steam	SCR 82.5%	None	None	Scrubber

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
13	237	13237	GEORGIA POWER COMPANY, HARLLEE BRANCH	709	4	23700008	SG04	Coal Steam	None	None	None	Scrubber
13	297	13297	GENERIC UNIT	900113	GSC13	ORIS900113	GSC13	Coal Steam	No Operation	None	No Operation	None
21	015	21015	CINCINNATI GAS & ELECTRIC EAST BEND STAT	6018	2	2101500029	002	Coal Steam	SCR	SCR	Scrubber	Scrubber
21	041	21041	KENTUCKY UTILITIES CO GHENT GENERATING STATION	1356	1	2104100010	001	Coal Steam	SCR	None	Scrubber	Scrubber
21	041	21041	KENTUCKY UTILITIES CO GHENT GENERATING STATION	1356	2	2104100010	002	Coal Steam	None	None	Scrubber	None
21	041	21041	KENTUCKY UTILITIES CO GHENT GENERATING STATION	1356	3	2104100010	003	Coal Steam	SCR	None	Scrubber	Scrubber
21	041	21041	KENTUCKY UTILITIES CO GHENT GENERATING STATION	1356	4	2104100010	004	Coal Steam	SCR	None	Scrubber	Scrubber
21	049	21049	EAST KY POWER COOP WILLIAM C DALE PLANT	1385	1	2104900003	001	Coal Steam	None	None	None	None
21	049	21049	EAST KY POWER COOP WILLIAM C DALE PLANT	1385	2	2104900003	002	Coal Steam	None	None	None	None
21	049	21049	EAST KY POWER COOP WILLIAM C DALE PLANT	1385	3	2104900003	003	Coal Steam	None	None	None	None
21	049	21049	EAST KY POWER COOP WILLIAM C DALE PLANT	1385	4	2104900003	004	Coal Steam	None	None	None	None
21	059	21059	OWENSBORO MUNICIPAL UTIL ELMER SMITH STATION	1374	1	2105900027	001	Coal Steam	SCR	SCR	Scrubber	Scrubber
21	059	21059	OWENSBORO MUNICIPAL UTIL ELMER SMITH STATION	1374	2	2105900027	002	Coal Steam	None	None	Scrubber	Scrubber
21	091	21091	WESTERN KY ENERGY CORP COLEMAN STATION	1381	C1	2109100003	001	Coal Steam	None	None	Scrubber	None
21	091	21091	WESTERN KY ENERGY CORP COLEMAN STATION	1381	C2	2109100003	002	Coal Steam	None	None	Scrubber	None

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
21	091	21091	WESTERN KY ENERGY CORP COLEMAN STATION	1381	C3	2109100003	003	Coal Steam	None	None	Scrubber	None
21	091	21091	GENERIC UNIT	900121	GSC21	ORIS900121	GSC21	Coal Steam	SCR	SCR	Scrubber	Scrubber
21	101	21101	HENDERSON MUN POW & LIGHT	1372	6	2110100012	002	Coal Steam	None	None	None	None
21	101	21101	HENDERSON MUN POW & LIGHT	1372	5	2110100012	5	Coal Steam	None	None	None	None
21	111	21111	LOU GAS & ELEC, CANE RUN	1363	4	0126	04	Coal Steam	SCR	SCR	Scrubber	Scrubber
21	111	21111	LOU GAS & ELEC, CANE RUN	1363	5	0126	05	Coal Steam	SCR	SCR	Scrubber	Scrubber
21	111	21111	LOU GAS & ELEC, CANE RUN	1363	6	0126	06	Coal Steam	SCR	SCR	Scrubber	Scrubber
21	111	21111	LOU GAS & ELEC, MILL CREEK	1364	1	0127	01	Coal Steam	None	None	Scrubber	Scrubber
21	111	21111	LOU GAS & ELEC, MILL CREEK	1364	2	0127	02	Coal Steam	None	None	Scrubber	Scrubber
21	111	21111	LOU GAS & ELEC, MILL CREEK	1364	3	0127	03	Coal Steam	SCR	SCR	Scrubber	Scrubber
21	111	21111	LOU GAS & ELEC, MILL CREEK	1364	4	0127	04	Coal Steam	SCR	SCR	Scrubber	Scrubber
21	127	21127	KENTUCKY POWER CO BIG SANDY PLANT	1353	BSU1	2112700003	001	Coal Steam	SCR	SCR	None	Scrubber
21	127	21127	KENTUCKY POWER CO BIG SANDY PLANT	1353	BSU2	2112700003	002	Coal Steam	SCR	SCR	None	Scrubber
21	145	21145	TVA-ENVIRONMENTAL AFFAIRS SHAWNEE PLANT	1379	1	2114500006	001	Coal Steam	None	None	None	None
21	145	21145	TVA-ENVIRONMENTAL AFFAIRS SHAWNEE PLANT	1379	2	2114500006	002	Coal Steam	None	None	None	None

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
21	145	21145	TVA-ENVIRONMENTAL AFFAIRS SHAWNEE PLANT	1379	3	2114500006	003	Coal Steam	None	None	None	None
21	145	21145	TVA-ENVIRONMENTAL AFFAIRS SHAWNEE PLANT	1379	4	2114500006	004	Coal Steam	None	None	None	None
21	145	21145	TVA-ENVIRONMENTAL AFFAIRS SHAWNEE PLANT	1379	5	2114500006	005	Coal Steam	None	None	None	None
21	145	21145	TVA-ENVIRONMENTAL AFFAIRS SHAWNEE PLANT	1379	6	2114500006	006	Coal Steam	None	None	None	None
21	145	21145	TVA-ENVIRONMENTAL AFFAIRS SHAWNEE PLANT	1379	7	2114500006	007	Coal Steam	None	None	None	None
21	145	21145	TVA-ENVIRONMENTAL AFFAIRS SHAWNEE PLANT	1379	8	2114500006	008	Coal Steam	None	None	None	None
21	145	21145	TVA-ENVIRONMENTAL AFFAIRS SHAWNEE PLANT	1379	9	2114500006	009	Coal Steam	None	None	None	None
21	145	21145	TVA-ENVIRONMENTAL AFFAIRS SHAWNEE PLANT	1379	10	2114500006	016	Coal Steam	None	None	None	None
21	161	21161	EAST KY POWER COOP SPURLOCK ST. MAYSVILLE	6041	1	2116100009	001	Coal Steam	SCR	SCR	Scrubber	Scrubber
21	161	21161	EAST KY POWER COOP SPURLOCK ST. MAYSVILLE	6041	2	2116100009	002	Coal Steam	SCR	SCR	Scrubber	Scrubber
21	167	21167	KENTUCKY UTILITIES CO BROWN FACILITY	1355	1	2116700001	001	Coal Steam	None	None	Scrubber	None
21	167	21167	KENTUCKY UTILITIES CO BROWN FACILITY	1355	2	2116700001	002	Coal Steam	None	None	Scrubber	None
21	167	21167	KENTUCKY UTILITIES CO BROWN FACILITY	1355	3	2116700001	003	Coal Steam	None	None	Scrubber	None
21	177	21177	KENTUCKY UTILITIES CO GREEN RIVER STATION	1357	4	2117700001	003	Coal Steam	None	None	None	None
21	177	21177	KENTUCKY UTILITIES CO GREEN RIVER STATION	1357	5	2117700001	004	Coal Steam	None	None	None	None

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
21	177	21177	TVA PARADISE STEAM PLANT	1378	1	2117700006	001	Coal Steam	SCR	SCR	Scrubber	Scrubber
21	177	21177	TVA PARADISE STEAM PLANT	1378	2	2117700006	002	Coal Steam	SCR	SCR	Scrubber	Scrubber
21	177	21177	TVA PARADISE STEAM PLANT	1378	3	2117700006	003	Coal Steam	SCR	SCR	Scrubber	Scrubber
21	183	21183	WESTERN KY ENERGY CORP WILSON STATION	6823	W1	2118300069	001	Coal Steam	SCR	SCR	Scrubber	Scrubber
21	199	21199	EAST KY POWER COOP JOHN SHERMAN COOPER	1384	1	2119900005	001	Coal Steam	None	None	None	None
21	199	21199	EAST KY POWER COOP JOHN SHERMAN COOPER	1384	2	2119900005	002	Coal Steam	SCR	SCR	Scrubber	Scrubber
21	223	21223	LOUISVILLE GAS & ELECTRIC TRIMBLE CO GEN	6071	1	2122300002	001	Coal Steam	SCR	SCR	Scrubber	Scrubber
21	233	21233	HENDERSON STATION 2	1382	H1	2123300001-A	002	Coal Steam	SCR	SCR	Scrubber	Scrubber
21	233	21233	HENDERSON STATION 2	1382	H2	2123300001-A	003	Coal Steam	SCR	None	Scrubber	Scrubber
21	233	21233	WESTERN KY ENERGY CORP REID	1383	R1	2123300001-B	001	Coal Steam	None	None	None	None
21	233	21233	WESTERN KY ENERGY CORP GREEN STATION	6639	G1	2123300052	001	Coal Steam	None	None	Scrubber	Scrubber
21	233	21233	WESTERN KY ENERGY CORP GREEN STATION	6639	G2	2123300052	002	Coal Steam	None	None	Scrubber	Scrubber
21	239	21239	KENTUCKY UTILITIES TYRONE FACILITY	1361	5	2123900001	005	Coal Steam	None	None	None	None
28	011	28011	ENTERGY MISSISSIPPI INC, DELTA PLANT	2051	1	2801100031	001	O/G Steam	None	O/G Early Retirement	None	O/G Early Retirement
28	011	28011	ENTERGY MISSISSIPPI INC, DELTA PLANT	2051		2801100031	002		None	O/G Early Retirement	None	O/G Early Retirement

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
28	011	28011	ENTERGY MISSISSIPPI INC, DELTA PLANT	2051	2	2801100031	003	O/G Steam	None	O/G Early Retirement	None	O/G Early Retirement
28	011	28011	ENTERGY MISSISSIPPI INC, DELTA PLANT	2051		2801100031	004		None	O/G Early Retirement	None	O/G Early Retirement
28	019	28019	CHOCTAW GENERATION LLP, RED HILLS GENERATING	55076	AA001	2801900011	001A	Coal Steam	SCR	SCR	Scrubber	Scrubber
28	035	28035	MISSISSIPPI POWER COMPANY, PLANT EATON	2046		2803500038	001	O/G Steam	No Operation	No Operation	No Operation	No Operation
28	035	28035	MISSISSIPPI POWER COMPANY, PLANT EATON	2046		2803500038	002	O/G Steam	No Operation	No Operation	No Operation	No Operation
28	035	28035	MISSISSIPPI POWER COMPANY, PLANT EATON	2046		2803500038	003	O/G Steam	No Operation	No Operation	No Operation	No Operation
28	047	28047	MISSISSIPPI POWER COMPANY, PLANT JACK WATSON	2049	1	2804700055	001	O/G Steam	No Operation	No Operation	No Operation	No Operation
28	047	28047	MISSISSIPPI POWER COMPANY, PLANT JACK WATSON	2049	2	2804700055	002	O/G Steam	No Operation	No Operation	No Operation	No Operation
28	047	28047	MISSISSIPPI POWER COMPANY, PLANT JACK WATSON	2049	3	2804700055	003	O/G Steam	No Operation	No Operation	No Operation	No Operation
28	047	28047	MISSISSIPPI POWER COMPANY, PLANT JACK WATSON	2049	4	2804700055	004	Coal Steam	None	SCR	None	None
28	047	28047	MISSISSIPPI POWER COMPANY, PLANT JACK WATSON	2049	5	2804700055	005	Coal Steam	None	SCR	None	None
28	049	28049	ENTERGY MISSISSIPPI INC, REX BROWN PLANT	2053	4	2804900112	001	O/G Steam	None	O/G Early Retirement	None	O/G Early Retirement
28	049	28049	ENTERGY MISSISSIPPI INC, REX BROWN PLANT	2053	3	2804900112	002	O/G Steam	None	O/G Early Retirement	None	O/G Early Retirement
28	059	28059	MISSISSIPPI POWER COMPANY, PLANT DANIEL	6073	1	2805900090	001	Coal Steam	None	SCR	None	None
28	059	28059	MISSISSIPPI POWER COMPANY,	6073	2	2805900090	002	Coal Steam	None	SCR	None	None

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
			PLANT DANIEL									
28	067	28067	MOSELLE SOUTH MISSISSIPPI ELECTRIC POWER ASSOCIATION	2070	1	2806700035	001	O/G Steam	No Operation	No Operation	No Operation	No Operation
28	067	28067	MOSELLE SOUTH MISSISSIPPI ELECTRIC POWER ASSOCIATION	2070	2	2806700035	002	O/G Steam	No Operation	No Operation	No Operation	No Operation
28	067	28067	MOSELLE SOUTH MISSISSIPPI ELECTRIC POWER ASSOCIATION	2070	3	2806700035	003	O/G Steam	No Operation	No Operation	No Operation	No Operation
28	073	28073	RD MORROW SOUTH MISSISSIPPI ELECTRIC POWER ASSOCIATION	6061	1	2807300021	001	Coal Steam	None	SCR	Scrubber	Scrubber
28	073	28073	RD MORROW SOUTH MISSISSIPPI ELECTRIC POWER ASSOCIATION	6061	2	2807300021	002	Coal Steam	None	SCR	Scrubber	Scrubber
28	075	28075	MISSISSIPPI POWER COMPANY, PLANT SWEATT	2048	1	2807500032	001	O/G Steam	No Operation	No Operation	No Operation	No Operation
28	075	28075	MISSISSIPPI POWER COMPANY, PLANT SWEATT	2048	2	2807500032	002	O/G Steam	No Operation	No Operation	No Operation	No Operation
28	083	28083	GREENWOOD UTILITIES, HENDERSON STATION	2062	H1	2808300048	001	O/G Steam	None	None	None	No Operation
28	083	28083	GREENWOOD UTILITIES, HENDERSON STATION	2062	H3	2808300048	003	O/G Steam	None	None	None	No Operation
28	149	28149	ENTERGY MISSISSIPPI INC, BAXTER WILSON	2050	1	2814900027	001	O/G Steam	None	O/G Early Retirement	None	O/G Early Retirement
28	149	28149	ENTERGY MISSISSIPPI INC, BAXTER WILSON	2050	2	2814900027	002	O/G Steam	None	O/G Early Retirement	None	O/G Early Retirement
28	151	28151	ENTERGY MISSISSIPPI INC, GERALD ANDRUS	8054	1	2815100048	001	O/G Steam	None	No Operation	None	No Operation
28	163	28163	YAZOO CITY PUBLIC SERVICE COMMISSION	2067	3	2816300005	001	O/G Steam	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement	O/G Early Retirement
37	017	37017	ELIZABETHTOWN POWER, LLC	10380	UNIT1	3701700043	G-17A	Coal Steam	None	None	None	None

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
37	017	37017	ELIZABETHTOWN POWER, LLC	10380	UNIT2	3701700043	G-17B		None	None	None	None
37	019	37019	COGENTRIX OF NORTH CAROLINA INC - SOUTHPORT	10378	GEN1	3701900067	G-29	Coal Steam	None	None	None	None
37	019	37019	COGENTRIX OF NORTH CAROLINA INC - SOUTHPORT	10378	GEN2	3701900067	G-30	Coal Steam	None	None	None	None
37	021	37021	CAROLINA POWER & LIGHT ASHEVILLE STEAM	2706	1	628	1	Coal Steam	SCR	SCR	Scrubber	Scrubber
37	021	37021	CAROLINA POWER & LIGHT ASHEVILLE STEAM	2706	2	628	2	Coal Steam	SCR	SCR	Scrubber	Scrubber
37	025	37025	KANNAPOLIS ENERGY PARTNERS LLC			3702500113	G-2	Coal Steam	None	None	None	None
37	025	37025	KANNAPOLIS ENERGY PARTNERS LLC			3702500113	G-3	Coal Steam	None	None	None	None
37	035	37035	DUKE ENERGY CORPORATION MARSHALL STEAM	2727	3	3703500073	G-1	Coal Steam	SNCR	SCR	Scrubber	Scrubber
37	035	37035	DUKE ENERGY CORPORATION MARSHALL STEAM	2727	4	3703500073	G-2	Coal Steam	SNCR	SCR	Scrubber	Scrubber
37	035	37035	DUKE ENERGY CORPORATION MARSHALL STEAM	2727	1	3703500073	G-4	Coal Steam	SNCR	SCR	Scrubber	Scrubber
37	035	37035	DUKE ENERGY CORPORATION MARSHALL STEAM	2727	2	3703500073	G-5	Coal Steam	SNCR	SCR	Scrubber	Scrubber
37	037	37037	PROGRESS ENERGY CAROLINAS CAPE FEAR	2708	5	3703700063	G-1	Coal Steam	SNCR	SNCR	None	Scrubber
37	037	37037	PROGRESS ENERGY CAROLINAS CAPE FEAR	2708	6	3703700063	G-2	Coal Steam	SNCR	SNCR	None	Scrubber
37	045	37045	GENERIC UNIT	900137	GSC37	ORIS900137	GSC37	Coal Steam	No Operation	No Operation	No Operation	No Operation
37	055	37055	GENERIC UNIT	900237	GSC37	ORIS900237	GSC37	Coal Steam	No Operation	No Operation	No Operation	No Operation

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
37	055	37055	GENERIC UNIT	900337	GSC37	ORIS900337	GSC37	Coal Steam	No Operation	No Operation	No Operation	No Operation
37	061	37061	GENERIC UNIT	900437	GSC37	ORIS900437	GSC37	Coal Steam	No Operation	No Operation	No Operation	No Operation
37	083	37083	GENERIC UNIT	900537	GSC37	ORIS900537	GSC37	Coal Steam	No Operation	No Operation	No Operation	No Operation
37	083	37083	GENERIC UNIT	900637	GSC37	ORIS900637	GSC37	Coal Steam	No Operation	No Operation	No Operation	No Operation
37	071	37071	DUKE ENERGY CORPORATION ALLEN STEAM	2718	1	3707100039	G-14	Coal Steam	SNCR	SNCR	Scrubber	Scrubber
37	071	37071	DUKE ENERGY CORPORATION ALLEN STEAM	2718	2	3707100039	G-15	Coal Steam	SNCR	SNCR	Scrubber	Scrubber
37	071	37071	DUKE ENERGY CORPORATION ALLEN STEAM	2718	3	3707100039	G-16	Coal Steam	SNCR	SCR	Scrubber	Scrubber
37	071	37071	DUKE ENERGY CORPORATION ALLEN STEAM	2718	4	3707100039	G-17	Coal Steam	SNCR	SCR	Scrubber	Scrubber
37	071	37071	DUKE ENERGY CORPORATION ALLEN STEAM	2718	5	3707100039	G-18	Coal Steam	SNCR	SCR	Scrubber	Scrubber
37	071	37071	DUKE ENERGY CORPORATION RIVERBEND STEAM	2732	7	3707100040	G-17	Coal Steam	SNCR	SNCR	None	None
37	071	37071	DUKE ENERGY CORPORATION RIVERBEND STEAM	2732	8	3707100040	G-18	Coal Steam	SNCR	SNCR	None	None
37	071	37071	DUKE ENERGY CORPORATION RIVERBEND STEAM	2732	9	3707100040	G-19	Coal Steam	SNCR	SNCR	None	None
37	071	37071	DUKE ENERGY CORPORATION RIVERBEND STEAM	2732	10	3707100040	G-20	Coal Steam	SNCR	SNCR	None	None
37	083	37083	ROANOKE VALLEY ENERGY FACILITY			3708300174	G-27	Coal Steam	None	None	None	None
37	083	37083	ROANOKE VALLEY ENERGY FACILITY			3708300174	G-7	Coal Steam	None	None	None	None

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
37	129	37129	L V SUTTON STEAM ELECTRIC PLANT	2713	1	3712900036	G-187	Coal Steam	None	SNCR	None	None
37	129	37129	L V SUTTON STEAM ELECTRIC PLANT	2713	2	3712900036	G-188	Coal Steam	None	SCR	None	None
37	129	37129	L V SUTTON STEAM ELECTRIC PLANT	2713	3	3712900036	G-189	Coal Steam	None	SCR	None	Scrubber
37	145	37145	CP&L - ROXBORO STEAM ELECTRIC PLANT	2712	1	3714500029	G-29	Coal Steam	SCR	SCR	Scrubber	Scrubber
37	145	37145	CP&L - ROXBORO STEAM ELECTRIC PLANT	2712	2	3714500029	G-30	Coal Steam	SCR	SCR	Scrubber	Scrubber
37	145	37145	CP&L - ROXBORO STEAM ELECTRIC PLANT	2712	3A	3714500029	G-35A	Coal Steam	SCR	SCR	Scrubber	Scrubber
37	145	37145	CP&L - ROXBORO STEAM ELECTRIC PLANT	2712	3B	3714500029	G-35B	Coal Steam	SCR	SCR	Scrubber	Scrubber
37	145	37145	CP&L - ROXBORO STEAM ELECTRIC PLANT	2712	4A	3714500029	G-36A	Coal Steam	SCR	SCR	Scrubber	Scrubber
37	145	37145	CP&L - ROXBORO STEAM ELECTRIC PLANT	2712	4B	3714500029	G-36B	Coal Steam	SCR	SCR	Scrubber	Scrubber
37	145	37145	CP&L - MAYO FACILITY	6250	1A	3714500045	G-46A	Coal Steam	SCR	SCR	Scrubber	Scrubber
37	145	37145	CP&L - MAYO FACILITY	6250	1B	3714500045	G-46B	Coal Steam	SCR	SCR	Scrubber	Scrubber
37	155	37155	PROGRESS ENERGY CAROLINAS, INC., W.H. WEATHERSPOON	2716	1	3715500147	G-24	Coal Steam	None	SNCR	None	None
37	155	37155	PROGRESS ENERGY CAROLINAS, INC., W.H. WEATHERSPOON	2716	2	3715500147	G-25	Coal Steam	None	SNCR	None	None
37	155	37155	PROGRESS ENERGY CAROLINAS, INC., W.H. WEATHERSPOON	2716	3	3715500147	G-26	Coal Steam	None	SNCR	None	None
37	155	37155	LUMBERTON POWER, LLC	10382	UNIT1	3715500166	G-17A	Coal Steam	None	None	None	None

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
37	155	37155	LUMBERTON POWER, LLC	10382	UNIT2	3715500166	G-17B		None	None	None	None
37	157	37157	DUKE ENERGY CORP DAN RIVER STEAM	2723	3	3715700015	G-21	Coal Steam	None	SNCR	None	None
37	157	37157	DUKE ENERGY CORP DAN RIVER STEAM	2723	1	3715700015	G-22	Coal Steam	None	SNCR	None	None
37	157	37157	DUKE ENERGY CORPDAN RIVER STEAM	2723	2	3715700015	G-23	Coal Steam	None	SNCR	None	None
37	159	37159	DUKE ENERGY CORPORATION BUCK STEAM	2720	5	3715900004	G-1	Coal Steam	No Operation	SNCR	No Operation	None
37	159	37159	DUKE ENERGY CORPORATION BUCK STEAM	2720	6	3715900004	G-2	Coal Steam	No Operation	SNCR	No Operation	None
37	159	37159	DUKE ENERGY CORPORATION BUCK STEAM	2720	7	3715900004	G-3	Coal Steam	No Operation	SNCR	No Operation	None
37	159	37159	DUKE ENERGY CORPORATION BUCK STEAM	2720	8	3715900004	G-4	Coal Steam	SNCR	SNCR	None	None
37	159	37159	DUKE ENERGY CORPORATION BUCK STEAM	2720	9	3715900004	G-5	Coal Steam	SNCR	SNCR	None	None
37	161	37161	DUKE ENERGY CORPORATION CLIFFSIDE STEAM	2721	1	3716100028	G-82	Coal Steam	No Operation	SNCR	No Operation	None
37	161	37161	DUKE ENERGY CORPORATION CLIFFSIDE STEAM	2721	2	3716100028	G-83	Coal Steam	No Operation	SNCR	No Operation	None
37	161	37161	DUKE ENERGY CORPORATION CLIFFSIDE STEAM	2721	3	3716100028	G-84	Coal Steam	No Operation	SNCR	No Operation	None
37	161	37161	DUKE ENERGY CORPORATION CLIFFSIDE STEAM	2721	4	3716100028	G-85	Coal Steam	No Operation	SNCR	No Operation	None
37	161	37161	DUKE ENERGY CORPORATION CLIFFSIDE STEAM	2721	5	3716100028	G-86	Coal Steam	SCR	SCR	Scrubber	Scrubber

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
37	161	37161	DUKE ENERGY CORPORATION CLIFFSIDE STEAM	2721	6	3716100028	G-87	Coal Steam	SCR	No Operation	Scrubber	No Operation
37	161	37161	DUKE ENERGY CORPORATION CLIFFSIDE STEAM	2721	7	3716100028	G-88		No Operation	No Operation	No Operation	No Operation
37	169	37169	DUKE ENERGY CORP BELEWS CREEK STEAM	8042	1	3716900004	G-17	Coal Steam	SCR	SCR	Scrubber	Scrubber
37	169	37169	DUKE ENERGY CORP BELEWS CREEK STEAM	8042	2	3716900004	G-18	Coal Steam	SCR	SCR	Scrubber	Scrubber
37	191	37191	PROGRESS ENERGY F LEE PLANT	2709	1	3719100017	G-2	Coal Steam	None	SNCR	None	None
37	191	37191	PROGRESS ENERGY F LEE PLANT	2709	2	3719100017	G-3	Coal Steam	None	SNCR	None	None
37	191	37191	PROGRESS ENERGYF LEE PLANT	2709	3	3719100017	G-4	Coal Steam	None	SCR	None	Scrubber
45	003	45003	SCE&G:URQUHART	3295	URQ3	0080-0011	003	Coal Steam	None	None	None	None
45	003	45003	SCE&G:SRS AREA D			0080-0044	001	Coal Steam	None	None	None	None
45	003	45003	SCE&G:SRS AREA D			0080-0044	002		0	0	0	0
45	003	45003	SCE&G:SRS AREA D			0080-0044	003		0	0	0	0
45	003	45003	SCE&G:SRS AREA D			0080-0044	004		0	0	0	0
45	007	45007	DUKE ENERGY:LEE	3264	1	0200-0004	001	Coal Steam	None	None	None	None
45	007	45007	DUKE ENERGY:LEE	3264	2	0200-0004	002	Coal Steam	None	None	None	None
45	007	45007	DUKE ENERGY:LEE	3264	3	0200-0004	003	Coal Steam	None	None	None	None

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
45	015	45015	SANTEE COOPER JEFFERIES	3319	1	0420-0003	001	O/G Steam	None	No Operation	None	No Operation
45	015	45015	SANTEE COOPER JEFFERIES	3319	2	0420-0003	002	O/G Steam	None	No Operation	None	No Operation
45	015	45015	SANTEE COOPER JEFFERIES	3319	3	0420-0003	003	Coal Steam	None	SCR	None	None
45	015	45015	SANTEE COOPER JEFFERIES	3319	4	0420-0003	004	Coal Steam	None	None	None	None
45	015	45015	SCE&G:WILLIAMS	3298	WIL1	0420-0006	001	Coal Steam	SCR	SCR	Scrubber	Scrubber
45	015	45015	SANTEE COOPER CROSS	130	1	0420-0030	001	Coal Steam	SCR	SCR	Scrubber Upgrade	Scrubber
45	015	45015	SANTEE COOPER CROSS	130	2	0420-0030	002	Coal Steam	SCR	SCR	Scrubber Upgrade	Scrubber
45	015	45015	SANTEE COOPER CROSS	130	3	0420-0030	3	Coal Steam	SCR	SCR	Scrubber	Scrubber
45	015	45015	SANTEE COOPER CROSS	130	4	0420-0030	4	Coal Steam	SCR	No Operation	Scrubber	No Operation
45	029	45029	SCE&G:CANADYS	3280	CAN1	0740-0002	001	Coal Steam	None	None	None	None
45	029	45029	SCE&G:CANADYS	3280	CAN2	0740-0002	002	Coal Steam	None	None	None	None
45	029	45029	SCE&G:CANADYS	3280	CAN3	0740-0002	003	Coal Steam	None	None	Scrubber	None
45	031	45031	PROGRESS ENERGY ROBINSON STATION	3251	1	0820-0002	001	Coal Steam	None	None	None	None
45	043	45043	SANTEE COOPER WINYAH	6249	1	1140-0005	001	Coal Steam	SCR	SCR	Scrubber	Scrubber
45	043	45043	SANTEE COOPER WINYAH	6249	2	1140-0005	002	Coal Steam	SCR	SCR	Scrubber	Scrubber

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
45	043	45043	SANTEE COOPER WINYAH	6249	3	1140-0005	003	Coal Steam	SCR	SCR	Scrubber Upgrade	Scrubber
45	043	45043	SANTEE COOPER WINYAH	6249	4	1140-0005	004	Coal Steam	SCR	SCR	Scrubber Upgrade	Scrubber
45	051	45051	SANTEE COOPER GRAINGER	3317	1	1340-0003	001	Coal Steam	None	None	None	None
45	051	45051	SANTEE COOPER GRAINGER	3317	2	1340-0003	002	Coal Steam	None	None	None	None
45	063	45063	SCE&G:MCMEEKIN	3287	MCM1	1560-0003	001	Coal Steam	None	None	None	None
45	063	45063	SCE&G:MCMEEKIN	3287	MCM2	1560-0003	002	Coal Steam	None	None	None	None
45	075	45075	SCE&G:COPE	7210	COP1	1860-0044	001	Coal Steam	None	None	Scrubber	Scrubber
45	079	45079	SCE&G:WATEREE	3297	WAT1	1900-0013	001	Coal Steam	SCR	SCR	Scrubber	None
45	079	45079	SCE&G:WATEREE	3297	WAT2	1900-0013	002	Coal Steam	SCR	SCR	Scrubber	Scrubber
45	029	45029	GENERIC UNIT	900145	GSC45	ORIS900145	GSC45	Coal Steam	No Operation	No Operation	No Operation	No Operation
45	031	45031	GENERIC UNIT	900245	GSC45	ORIS900245	GSC45	Coal Steam	No Operation	No Operation	No Operation	No Operation
45	031	45031	GENERIC UNIT	900345	GSC45	ORIS900345	GSC45	Coal Steam	No Operation	No Operation	No Operation	No Operation
45	039	45039	GENERIC UNIT	900445	GSC45	ORIS900445	GSC45	Coal Steam	No Operation	No Operation	No Operation	No Operation
45	043	45043	GENERIC UNIT	900545	GSC45	ORIS900545	GSC45	Coal Steam	No Operation	No Operation	No Operation	No Operation
47	001	47001	TVA BULL RUN FOSSIL PLANT	3396	1	0009	001	Coal Steam	SCR	SCR	Scrubber	Scrubber

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
47	073	47073	TVA JOHN SEVIER FOSSIL PLANT	3405	1	0007	001	Coal Steam	None	None	None	None
47	073	47073	TVA JOHN SEVIER FOSSIL PLANT	3405	2	0007	002	Coal Steam	None	None	None	None
47	073	47073	TVA JOHN SEVIER FOSSIL PLANT	3405	3	0007	003	Coal Steam	None	None	None	None
47	073	47073	TVA JOHN SEVIER FOSSIL PLANT	3405	4	0007	004	Coal Steam	None	None	None	None
47	085	47085	TVA JOHNSONVILLE FOSSIL PLANT	3406	1	0011	001	Coal Steam	None	SCR	None	None
47	085	47085	TVA JOHNSONVILLE FOSSIL PLANT	3406	2	0011	002	Coal Steam	None	SCR	None	None
47	085	47085	TVA JOHNSONVILLE FOSSIL PLANT	3406	3	0011	003	Coal Steam	None	SCR	None	None
47	085	47085	TVA JOHNSONVILLE FOSSIL PLANT	3406	4	0011	004	Coal Steam	None	SCR	None	None
47	085	47085	TVA JOHNSONVILLE FOSSIL PLANT	3406	5	0011	005	Coal Steam	None	SCR	None	None
47	085	47085	TVA JOHNSONVILLE FOSSIL PLANT	3406	6	0011	006	Coal Steam	None	SCR	None	None
47	085	47085	TVA JOHNSONVILLE FOSSIL PLANT	3406	7	0011	007	Coal Steam	None	SCR	None	None
47	085	47085	TVA JOHNSONVILLE FOSSIL PLANT	3406	8	0011	008	Coal Steam	None	SCR	None	None
47	085	47085	TVA JOHNSONVILLE FOSSIL PLANT	3406	9	0011	009	Coal Steam	None	SCR	None	None
47	085	47085	TVA JOHNSONVILLE FOSSIL PLANT	3406	10	0011	010	Coal Steam	None	SCR	None	None
47	145	47145	TVA KINGSTON FOSSIL PLANT	3407	1	0013	001	Coal Steam	SCR	SCR	Scrubber	None

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
47	145	47145	TVA KINGSTON FOSSIL PLANT	3407	2	0013	002	Coal Steam	SCR	SCR	Scrubber	None
47	145	47145	TVA KINGSTON FOSSIL PLANT	3407	3	0013	003	Coal Steam	SCR	SCR	Scrubber	None
47	145	47145	TVA KINGSTON FOSSIL PLANT	3407	4	0013	004	Coal Steam	SCR	SCR	Scrubber	None
47	145	47145	TVA KINGSTON FOSSIL PLANT	3407	5	0013	005	Coal Steam	SCR	SCR	Scrubber	None
47	145	47145	TVA KINGSTON FOSSIL PLANT	3407	6	0013	006	Coal Steam	SCR	SCR	Scrubber	None
47	145	47145	TVA KINGSTON FOSSIL PLANT	3407	7	0013	007	Coal Steam	SCR	SCR	Scrubber	None
47	145	47145	TVA KINGSTON FOSSIL PLANT	3407	8	0013	008	Coal Steam	SCR	SCR	Scrubber	None
47	145	47145	TVA KINGSTON FOSSIL PLANT	3407	9	0013	009	Coal Steam	SCR	None	Scrubber	None
47	157	47157	ALLEN FOSSIL PLANT	3393	1	00528	Boilr1	Coal Steam	SCR	SCR	None	None
47	157	47157	ALLEN FOSSIL PLANT	3393	2	00528	Boilr2	Coal Steam	SCR	SCR	None	None
47	157	47157	ALLEN FOSSIL PLANT	3393	3	00528	Boilr3	Coal Steam	SCR	SCR	None	None
47	161	47161	TVA CUMBERLAND FOSSIL PLANT	3399	1	0011	001	Coal Steam	SCR	SCR	Scrubber	Scrubber
47	161	47161	TVA CUMBERLAND FOSSIL PLANT	3399	2	0011	002	Coal Steam	SCR	SCR	Scrubber	Scrubber
47	165	47165	TVA GALLATIN FOSSIL PLANT	3403	1	0025	001	Coal Steam	None	None	None	None
47	165	47165	TVA GALLATIN FOSSIL PLANT	3403	2	0025	002	Coal Steam	None	None	None	None

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
47	165	47165	TVA GALLATIN FOSSIL PLANT	3403	3	0025	003	Coal Steam	None	None	None	None
47	165	47165	TVA GALLATIN FOSSIL PLANT	3403	4	0025	004	Coal Steam	None	None	None	None
51	031	51031	DOMINION - ALTAVISTA POWER STATION	10773	1	00156	1	Coal Steam	SNCR	SNCR	Scrubber	Scrubber
51	031	51031	DOMINION - ALTAVISTA POWER STATION	10773	2	00156	2					
51	041	51041	DOMINION - CHESTERFIELD POWER STATION	3797	3	00002	3	Coal Steam	None	None	Scrubber	Scrubber
51	041	51041	DOMINION - CHESTERFIELD POWER STATION	3797	4	00002	4	Coal Steam	SCR	None	Scrubber	Scrubber
51	041	51041	DOMINION - CHESTERFIELD POWER STATION	3797	5	00002	6	Coal Steam	SCR	SCR	Scrubber	Scrubber
51	041	51041	DOMINION - CHESTERFIELD POWER STATION	3797	6	00002	8	Coal Steam	SCR	SCR	Scrubber	Scrubber
51	065	51065	DOMINION - BREMO POWER STATION	3796	3	00001	1	Coal Steam	None	None	None	None
51	065	51065	DOMINION - BREMO POWER STATION	3796	4	00001	2	Coal Steam	SNCR	SNCR	None	None
51	071	51071	AMERICAN ELECTRIC POWER GLEN LYN	3776	51	00002	1	Coal Steam	None	None	None	None
51	071	51071	AMERICAN ELECTRIC POWER GLEN LYN	3776	52	00002	2	Coal Steam	None	None	None	None
51	071	51071	AMERICAN ELECTRIC POWER GLEN LYN	3776	6	00002	3	Coal Steam	None	None	None	None
51	083	51083	DOMINION - CLOVER POWER STATION	7213	1	00046	1	Coal Steam	SNCR	SNCR	Scrubber	Scrubber
51	083	51083	DOMINION - CLOVER POWER STATION	7213	2	00046	2	Coal Steam	SNCR	SNCR	Scrubber	Scrubber

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
51	099	51099	BIRCHWOOD POWER PARTNERS, L.P.	54304	1	00012	1	Coal Steam	SCR	SCR	Scrubber	Scrubber
51	117	51117	Mecklenburg Cogeneration Facility	52007	GEN1	00051	1	Coal Steam	None	None	Scrubber	Scrubber
51	117	51117	Mecklenburg Cogeneration Facility	52007	GEN2	00051	2	Coal Steam	None	None	Scrubber	Scrubber
51	153	51153	DOMINION - POSSUM POINT	3804	3	00002	3	Coal Steam	None	Combined Cycle	None	Combined Cycle
51	153	51153	DOMINION - POSSUM POINT	3804	4	00002	4	Coal Steam	None	Combined Cycle	None	Combined Cycle
51	153	51153	DOMINION - POSSUM POINT	3804	5	00002	5	O/G Steam	None	No Operation	None	No Operation
51	153	51153	DOMINION - POSSUM POINT	3804	6	00002		Combined Cycle	Combined Cycle	Combined Cycle	Combined Cycle	Combined Cycle
51	167	51167	AMERICAN ELECTRIC POWER CLINCH RIVER PLANT	3775	1	00003	1	Coal Steam	None	None	None	None
51	167	51167	AMERICAN ELECTRIC POWER CLINCH RIVER PLANT	3775	2	00003	2	Coal Steam	None	None	None	None
51	167	51167	AMERICAN ELECTRIC POWER CLINCH RIVER PLANT	3775	3	00003	3	Coal Steam	None	None	None	None
51	175	51175	LG&E Westmoreland Southampton	10774	GEN1	00051	1	Coal Steam	None	None	Scrubber	Scrubber
51	199	51199	DOMINION - YORKTOWN POWER STATION	3809	3	00001	3	O/G Steam	SNCR	No Operation	None	No Operation
51	199	51199	DOMINION - YORKTOWN POWER STATION	3809	2	00001	5	Coal Steam	SNCR	SNCR	None	None
51	199	51199	DOMINION - YORKTOWN POWER STATION	3809	1	00001	6	Coal Steam	SNCR	SNCR	None	None
51	510	51510	POTOMAC RIVER GENERATING STATION	3788	1	00003	1	Coal Steam	SNCR	Coal Early Retirement	None	Coal Early Retirement

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
51	510	51510	POTOMAC RIVER GENERATING STATION	3788	2	00003	2	Coal Steam	SNCR	Coal Early Retirement	None	Coal Early Retirement
51	510	51510	POTOMAC RIVER GENERATING STATION	3788	3	00003	3	Coal Steam	SNCR	None	None	None
51	510	51510	POTOMAC RIVER GENERATING STATION	3788	4	00003	4	Coal Steam	SNCR	None	None	None
51	510	51510	POTOMAC RIVER GENERATING STATION	3788	5	00003	5	Coal Steam	SNCR	None	None	None
51	550	51550	DOMINION - CHESAPEAKE	3803	1	00026	1	Coal Steam	SNCR	SNCR	Low S Coal	None
51	550	51550	DOMINION - CHESAPEAKE	3803	2	00026	2	Coal Steam	SNCR	SNCR	Low S Coal	None
51	550	51550	DOMINION - CHESAPEAKE	3803	3	00026	3	Coal Steam	SCR	None	Low S Coal	None
51	550	51550	DOMINION - CHESAPEAKE	3803	4	00026	4	Coal Steam	SCR	None	Low S Coal	None
51	670	51670	James River Cogen / Cogentrix Hopewell	10377	GEN1	00055/ ORIS10377	1	Coal Steam	None	None	Scrubber	None
51	670	51670	James River Cogen / Cogentrix Hopewell	10377	GEN2	00055/ ORIS10377	2	Coal Steam	None	None	Scrubber	None
51	670	51670	LG&E Westmoreland Hopewell	10771	GEN1	ORIS10771	1	Coal Steam	SNCR	SNCR	Scrubber	Scrubber
51	740	51740	Cogentrix Portsmouth	10071	GEN1	00081 / ORIS10071	1 to 3	Coal Steam	None	None	Scrubber	None
51	740	51740	Cogentrix Portsmouth	10071	GEN2	00081 / ORIS10071	4 to 6	Coal Steam	None	None	Scrubber	None
51	760	51740	Cogentrix of Richmond Incorporated	54081	GEN1	00399 / ORIS54081	1	Coal Steam	None	None	Scrubber	Scrubber
51	760	51760	Cogentrix of Richmond Incorporated	54081	GEN2	00399 / ORIS54081	2	Coal Steam	None	None	Scrubber	Scrubber

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
51	760	51760	Cogentrix of Richmond Incorporated	54081	GEN3	00399 / ORIS54081	3	Coal Steam	None	None	Scrubber	Scrubber
51	760	51760	Cogentrix of Richmond Incorporated	54081	GEN4	00399 / ORIS54081	4	Coal Steam	None	None	Scrubber	Scrubber
51	159	51159	GENERIC UNIT	900151	GSC51	ORIS900151	GSC51	Coal Steam	No Operation	No Operation	No Operation	No Operation
51	167	51167	GENERIC UNIT	900251	GSC51	ORIS900251	GSC51	Coal Steam	No Operation	No Operation	No Operation	No Operation
51	195	51195	GENERIC UNIT	900251	GSC51	ORIS900251	GSC51	Coal Steam	SCR	No Operation	Scrubber	No Operation
51	175	51175	GENERIC UNIT	900351	GSC51	ORIS900351	GSC51	Coal Steam	No Operation	No Operation	No Operation	No Operation
51	175	51175	GENERIC UNIT	900451	GSC51	ORIS900451	GSC51	Coal Steam	No Operation	No Operation	No Operation	No Operation
51	181	51181	GENERIC UNIT	900551	GSC51	ORIS900551	GSC51	Coal Steam	No Operation	No Operation	No Operation	No Operation
54	023	54023	MOUNT STORM POWER PLANT	3954	1	0003	001	Coal Steam	SCR	SCR	Scrubber	Scrubber
54	023	54023	MOUNT STORM POWER PLANT	3954	2	0003	002	Coal Steam	SCR	SCR	Scrubber	Scrubber
54	023	54023	MOUNT STORM POWER PLANT	3954	3	0003	003	Coal Steam	SCR	SCR	Scrubber	Scrubber
54	023	54023	NORTH BRANCH POWER STATION	7537	1A	0014	001	Coal Steam	None	None	None	None
54	023	54023	NORTH BRANCH POWER STATION	7537	1B	0014	002	Coal Steam	None	None	None	None
54	025	54025	WESTERN GREENBRIER			00066	GEN1	Coal Steam	No Operation	No Operation	No Operation	No Operation
54	033	54033	MONONGAHELA POWER CO HARRISON	3944	1	0015	001	Coal Steam	SCR	SCR	Scrubber	Scrubber

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
54	033	54033	MONONGAHELA POWER CO HARRISON	3944	2	0015	002	Coal Steam	SCR	SCR	Scrubber	Scrubber
54	033	54033	MONONGAHELA POWER CO HARRISON	3944	3	0015	003	Coal Steam	SCR	SCR	Scrubber	Scrubber
54	039	54039	APPALACHIAN POWER KANAWHA RIVER PLANT	3936	1	0006	001	Coal Steam	None	None	None	None
54	039	54039	APPALACHIAN POWER KANAWHA RIVER PLANT	3936	2	0006	002	Coal Steam	None	None	None	None
54	049	54049	MONONGAHELA POWER CO. RIVESVILLE POWER	3945	7	0009	001	Coal Steam	None	Coal Early Retirement	None	Coal Early Retirement
54	049	54049	MONONGAHELA POWER CO.RIVESVILLE POWER	3945	8	0009	002	Coal Steam	None	Coal Early Retirement	None	Coal Early Retirement
54	049	54049	AMERICAN BITUMINOUS POWER GRANT TOWN PLT	10151		0026	001		0	0	Scrubber	Scrubber
54	049	54049	GRANT TOWN POWER PLANT	10151	GEN1	ORIS10151	GEN1	Coal Steam	SNCR	None	Scrubber	Scrubber
54	051	54051	OHIO POWER MITCHELL PLANT	3948	1	0005	001	Coal Steam	SCR	SCR	Scrubber	Scrubber
54	051	54051	OHIO POWER MITCHELL PLANT	3948	2	0005	002	Coal Steam	SCR	SCR	Scrubber	Scrubber
54	051	54051	OHIO POWER KAMMER PLANT	3947	1	0006	001	Coal Steam	None	SCR	None	Scrubber
54	051	54051	OHIO POWER KAMMER PLANT	3947	2	0006	002	Coal Steam	None	SCR	None	Scrubber
54	051	54051	OHIO POWER KAMMER PLANT	3947	3	0006	003	Coal Steam	None	SCR	None	Scrubber
54	053	54053	APPALACHIAN POWER CO. PHILIP SPORN PLANT	3938	11	0001	001	Coal Steam	None	None	None	None
54	053	54053	APPALACHIAN POWER CO. PHILIP SPORN PLANT	3938	21	0001	002	Coal Steam	None	None	None	None

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

FIPS		FIPS	Facility Name	ORIS ID	BLR ID	SITE ID	UNIT ID	Plant Type	VISTAS NO_x 2012 Controls	IPM NO_x 2012 Controls	VISTAS SO_2 2012 Controls	IPM SO_2 2012 Controls
54	053	54053	APPALACHIAN POWER CO. PHILIP SPORN PLANT	3938	31	0001	003	Coal Steam	None	None	None	None
54	053	54053	APPALACHIAN POWER CO. PHILIP SPORN PLANT	3938	41	0001	004	Coal Steam	None	None	None	None
54	053	54053	APPALACHIAN POWER CO. PHILIP SPORN PLANT	3938	51	0001	005	Coal Steam	None	None	None	None
54	053	54053	APPALACHIAN POWER MOUNTAINEER PLANT	6264	1	0009		Coal Steam	SCR	SCR	Scrubber	Scrubber
54	061	54061	MONONGAHELA POWER CO. FORT MARTIN POWER	3943	1	0001	001	Coal Steam	SNCR	SNCR	Scrubber	Scrubber
54	061	54061	MONONGAHELA POWER CO. FORT MARTIN POWER	3943	2	0001	002	Coal Steam	SNCR	SNCR	Scrubber	Scrubber
54	061	54061	MORGANTOWN ENERGY ASSOCIATES			0027	043					
54	061	54061	MORGANTOWN ENERGY FACILITY	10743	GEN1	ORIS10743	GEN1	Coal Steam	None	None	None	None
54	061	54061	LONGVIEW			00134	GEN1	Coal Steam	SCR	No Operation	Scrubber	No Operation
54	061	54061	GENERIC UNIT	900154	GSC54	ORIS900154	GSC54	Coal Steam	No Operation	SCR	No Operation	Scrubber
54	073	54073	MONONGAHELA POWER CO. WILLOW ISLAND	3946	1	0004	001	Coal Steam	None	Coal Early Retirement	None	Coal Early Retirement
54	073	54073	MONONGAHELA POWER CO. WILLOW ISLAND	3946	2	0004	002	Coal Steam	None	SCR	None	Scrubber
54	073	54073	MONONGAHELA POWER CO PLEASANTS POWER STATION	6004	1	0005	001	Coal Steam	SCR	SCR	Scrubber Upgrade	Scrubber
54	073	54073	MONONGAHELA POWER CO PLEASANTS POWER STATION	6004	2	0005	002	Coal Steam	SCR	SCR	Scrubber Upgrade	Scrubber
54	077	54077	MONONGAHELA POWER CO ALBRIGHT	3942	1	0001	001	Coal Steam	None	Coal Early Retirement	None	Coal Early Retirement

Appendix A - Comparison of 2012 EGU Controls for Coal and Oil/Gas Steam Plants (with CAIR Controls)

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54	077	54077	MONONGAHELA POWER CO ALBRIGHT	3942	2	0001	002	Coal Steam	None	Coal Early Retirement	None	Coal Early Retirement
54	077	54077	MONONGAHELA POWER CO ALBRIGHT	3942	3	0001	003	Coal Steam	None	None	None	None
54	079	54079	APPALACHIAN POWER JOHN E AMOS PLANT	3935	1	0006	001	Coal Steam	SCR	SCR	Scrubber	Scrubber
54	079	54079	APPALACHIAN POWER JOHN E AMOS PLANT	3935	2	0006	002	Coal Steam	SCR	SCR	Scrubber	Scrubber
54	079	54079	APPALACHIAN POWER JOHN E AMOS PLANT	3935	3	0006	003	Coal Steam	SCR	SCR	Scrubber	Scrubber