Revision to the Georgia State Implementation Plan for the Removal of Georgia Rules for Consumer and Commercial Products and for Gasoline Marketing, and for the Revision of the Georgia Rule for NO_x Emissions from Stationary Gas Turbines and Stationary Engines used to Generate Electricity

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Revision to the Georgia State Implementation Plan for the Removal of Georgia Rules for Consumer and Commercial Products and Gasoline Marketing

Executive Summary

This document contains Georgia's request to revise the Georgia State Implementation Plan (SIP) to remove Georgia Rule 391-3-1-.02(2)(aaa), *Consumer and Commercial Products*; and Georgia Rule 391-3-1-.02(2)(bbb), *Gasoline Marketing*; from the Georgia SIP; and Georgia's request to revise the Georgia SIP to amend Georgia Rule 391-3-1-.02(2)(mmm), *NO_x Emissions from Stationary Gas Turbines and Stationary Engines used to Generate Electricity*.

This request to revise the Georgia SIP is based on the requirement that it is consistent with section 110 (l) of the Clean Air Act (CAA or Act).

Revision to the Georgia State Implementation Plan for the Removal of Georgia Rules for Consumer and Commercial Products and Gasoline Marketing

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LIST of ACRONYMS

Acronym	Meaning	Acronym	Meaning
CAA	Clean Air Act	MVEB	Motor Vehicle Emissions Budget
CAAA	Clean Air Act Amendments	NAA	Nonattainment Area
CARB	California Air Resources Board	NAAQS	National Ambient Air Quality Standard
CB-IV	Carbon Bond IV	NOx	Nitrogen Oxides
CFFP	Clean Fuel Fleet Program	NTE	Not-To-Exceed
CMAQ	Community Multi-scale Air Quality	PPB	Parts Per Billion
DNR	Department of Natural Resources	PPT	Parts Per Trillion
DV	Design Value	RACM	Reasonably Achievable Control Measures
EPA	Environmental Protection Agency	RFP	Reasonable Further Progress
EPD	Environmental Protection Division	RVP	Reid Vapor Pressure
ESC	European Stationary Cycle	SIP	State Implementation Plan
FR	Federal Register	TPD	Tons Per Day
FTP	Federal Test Procedure	VISTAS	Visibility Improvement State and Tribal Association of the Southeast
LEV	Low Emission Vehicle		

1.0 Introduction and Background

This document contains the technical support for the Georgia Environmental Protection Division's (EPD's) request to modify the Georgia State Implementation Plan (SIP) by removing the following Georgia rules:

Georgia Rule 391-3-1-.02(2)(aaa), "Consumer and Commercial Products"
Georgia Rule 391-3-1-.02(2)(bbb), "Gasoline Marketing"

This document also contains the analysis for Georgia EPD's request to modify the Georgia SIP by amending Georgia Rule 391-3-1-.02(2)(mmm), "NO_x Emissions from Stationary Gas Turbines and Stationary Engines used to Generate Electricity".

These rules were included in the Georgia State Implementation Plan to reduce emissions contributing to the nonattainment of the ozone NAAQS in the Atlanta metropolitan area. This section will provide for the history of the Atlanta Ozone Nonattainment Area and the regulatory requirement for the removal of these rules.

The analysis contained in this document focus on the impact of the removal and revision of thes rules on ozone and fine particulate matter nonattainment and maintenance areas within the geographic area covered by the rules. These revisions will also not interfere with attainment or maintenance of the sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), or lead (Pb) National Ambient Air Quality Standards (NAAQS). There are no nonattainment or maintenance areas in Georgia for SO_2, NO_2, CO, or Pb. All of the SO_2, NO_2, CO, and Pb monitors in the affected area are currently measuring levels well below the NAAQS and the these revisions will result in little or no increase in emissions of these pollutants or their precursors. Although U.S. EPA has not completed designations for the 2010 SO_2 NAAQS, these revisions will not increase emissions of SO_2 or its precursors to the extent that the SO_2 NAAQS will be violated.

1.1 The Atlanta Nonattainment Area

1990 1-Hour Ozone Standard

Pursuant to the Clean Air Act Amendments of 1990 (CAAA), the Atlanta area was designated as nonattainment for the 1-hour ozone National Ambient Air Quality Standard (NAAQS) by U.S. EPA and was classified as a serious nonattainment area on November 6, 1991. The nonattainment area (NAA) was, at that time, geographically defined as the following **13 Georgia counties**: Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Paulding, and Rockdale.

Because Atlanta failed to attain the 1-hour ozone NAAQS by November 15, 1999, EPA issued a final rulemaking action in the September 26, 2003, Federal Register (68 FR 55469) determining that, by operation of law, the Atlanta area was being reclassified as a "severe" ozone nonattainment area effective January 1, 2004.

In addition to having been required to submit state implementation plan (SIP) revisions meeting requirements for marginal, moderate, and serious ozone nonattainment areas, Georgia was required to submit plans meeting the additional requirements for areas classified as severe. As a result of EPA's implementation of the original federal Clean Air Act of 1970, the Clean Air Act Amendments of 1977, and the Clean Air Act Amendments of 1990, Georgia EPD completed, and EPA approved (67 FR 30574), SIP revisions to address the 1-hour ozone Atlanta NAA.

On February 1, 2005, EPD requested under the CAAA of 1990 that the Atlanta area be redesignated from nonattainment to attainment with respect to the 1-hour ozone NAAQS. This request was based on three years, 2002 through 2004, of ambient monitoring data at all 11 ozone monitors in the Atlanta NAA showing no violation of the 1-hour ozone NAAQS; the implementation of permanent and enforceable reductions in ozone precursor emissions; compliance with all applicable requirements; and the Atlanta Maintenance Plan with projections demonstrating that the 2002 emission levels in this area will not be exceeded through at least the year 2015. EPD also petitioned EPA to make a determination that the Atlanta area was eligible for application of EPA's Clean Data Policy, based on the Atlanta area's attainment of the 1-hour ozone NAAQS. EPA approved the plan and redesignation request effective June 14, 2005 (70 FR 34660).

1997 and 2008 8-Hour Ozone Standards

Georgia EPD submitted its nonattainment area designation recommendations under the 8-hour ozone standard to EPA on July 15, 2003. Georgia recommended the following **20-counties** be designated nonattainment for the 8-hour ozone standard: Barrow, Bartow, Carroll, Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Hall, Henry, Newton, Paulding, Rockdale, Spalding, and Walton. Georgia recommended that Pickens County be excluded from the nonattainment designation even though the county is part of the Atlanta MSA. Georgia based this exclusion, in part, on the fact that the county did not exceed any of the State's criteria for inclusion into a nonattainment area. Other parameters used in the analysis included the county's population and summer day NO_x and VOC emissions. EPA concurred with Georgia's recommendations in a letter dated December 3, 2003.

On April 30, 2004, EPA designated 20 metropolitan Atlanta counties as a "marginal" nonattainment area under the 1997 8-hour ozone standard. The eight-hour ozone nonattainment area encompasses the **13-counties** of the former 1-hour ozone nonattainment area plus seven additional "ring" counties. These **7-counties** included the counties of Barrow, Bartow, Carroll, Hall, Newton, Spalding, and Walton. With an attainment deadline of June15, 2007, marginal areas were required to attain the National Ambient Air Quality Standard (NAAQS) by the 2006 ozone season. On October 16, 2007, the U.S. EPA published a rulemaking proposing its determination that the Atlanta Area did not attain the 8-hour ozone NAAQS by June 15, 2007, the applicable attainment date for marginal nonattainment areas. The proposed finding was based on ambient air quality data from years 2004, 2005, and 2006. The U.S. EPA explained that, consistent with Section 181(b)(2) of the Clean Air Act (CAA), when EPA finalizes its determination that the Atlanta area failed to attain, and that requirement becomes effective, the Atlanta area would be reclassified by operation of law to the next highest classification or “moderate” nonattainment. The "moderate" area attainment date for the Atlanta, Georgia, area would then be "as expeditiously as practicable," but no later than June 15, 2010. The U.S. EPA finalized this finding on March 6, 2008 [73FR 12013-12017].

The State of Georgia prepared and submitted an ozone attainment demonstration plan for the metro Atlanta 8-hour Ozone Nonattainment Area to EPA Region 4 on October 21, 2009. The plan was based on a modeled attainment demonstration performed according to EPA guidance. The modeling resulted in a single monitor in the Atlanta NAA exceeding the 8-hour ozone NAAQS (design value of 86 ppb at the Confederate Avenue monitoring site). However, the weight of evidence analysis demonstrated in Section 6.2 of the October 2009 plan provides strong evidence that the Atlanta 8-Hour Ozone NAA would demonstrate attainment of the ozone NAAQS by 2009. The attainment demonstration with the weight of evidence analysis was shown to be effective since the unmonitored area analysis showed no modeling grid cell greater than 86 ppb.

On June 9, 2010, Georgia EPD submitted a request for a one-year extension of the attainment date in accordance with 40 CFR 51.907. The Atlanta nonattainment area qualified for an extension because it had met the condition specified in 69 FR 23968 in which an area is eligible for the first of the 1-year extensions if, for the attainment year, the area's fourth highest daily 8-hour average is 0.084ppm or less. On November 30, 2010, EPA published a final rule extending the attainment date for the Atlanta nonattainment area to June 15, 2011 [75FR 73969-73972].

On June 23, 2011, EPA promulgated its determination [76 FR 36873] that the metro Atlanta nonattainment area had attained the 1997 8-Hour Ozone NAAQS. This final rule became effective on July 25, 2011. This determination was based upon quality-assured and certified ambient air monitoring data for the 2008-2010 period, which showed design values ranging from 0.068 ppm to 0.080 ppm. With the clean data determination, EPA suspended the requirements for the nonattainment area to submit an attainment demonstration, a reasonable further progress (RFP) plan, and contingency measures. Because of this, EPD's attainment demonstration was subsequently withdrawn on April 4, 2012. These requirements are suspended as long as the area continues to attain the standard. On December 15, 2011, EPA proposed its determination [76 FR 77950] that the metro Atlanta nonattainment area attained the 1997 8-hour ozone NAAQS by its applicable attainment date of June 15, 2011.

Although the Atlanta area attained the 1997 8-hour ozone standard on June 15, 2011, in order to formally be redesignated attainment, Georgia EPD was required to submit a maintenance plan. On April 4, 2012 Georgia EPD submitted a maintenance plan under the CAAA of 1990 requesting that the Atlanta area be redesignated from nonattainment to attainment based on ambient monitoring data from 2008-2010. It included provisions showing no violation of the 1997 8-hour ozone NAAQS, the implementation of permanent and enforceable reductions in ozone precursor emissions, compliance with all applicable requirements; and the Atlanta Maintenance Plan with projections demonstrating that 2008 emissions levels in this area will not be exceeded through at least the year 2024. EPD also petitioned EPA to make a determination that the Atlanta area was eligible for application of EPA's Clean Data Policy, based on the Atlanta area's attainment of the 1997 8-hour ozone NAAQS. EPA approved the plan and redesignation request and promulgated a proposed rule on February 4, 2013 (78 FR 7705), that was published in the federal register as a final rule on December 2, 2013 (78 FR 72040).

On May 21, 2012, EPA published a final rule in the federal register designating a new **15-county** Atlanta area marginal nonattainment for the 2008 8-hour Ozone National Ambient Air Quality Standard. The 15-county area includes the counties of Bartow, Cherokee, Clayton, Cobb, Coweta, Dekalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Newton, Paulding, and Rockdale.

1997 $PM_{2.5}$ Standards

Georgia EPD submitted its nonattainment area designation recommendations under the annual $PM_{2.5}$ standard to EPA on February 13, 2004, and modified those recommendations on June 29, 2004. Georgia recommended the following 20-counties be designated nonattainment for the annual $PM_{2.5}$ ozone standard: Barrow, Bartow, Carroll, Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Hall, Henry, Newton, Paulding, Rockdale, Spalding, and Walton. In addition, EPD recommended that a portion of Heard County be included as part of the nonattainment area. EPA responded to Georgia's recommendations in a letter dated June 29, 2004, with a proposed nonattainment area that included EPD's recommendation plus Heard and Putnam Counties.

On January 5, 2005, EPA designated 20 metropolitan Atlanta counties plus portions of Heard and Putnam Counties as nonattainment area under the 1997 annual $PM_{2.5}$ standard.

The State of Georgia prepared and submitted an attainment demonstration plan for the metro Atlanta annual $PM_{2.5}$ Nonattainment Area to EPA Region 4 on July 6, 2010. The plan was based on a modeled attainment demonstration performed according to EPA guidance. The modeling resulted attainment of the annual $PM_{2.5}$ NAAQS by 2012.

On December 8, 2011, EPA promulgated its determination [76 FR 76620] that the metro Atlanta nonattainment area had attained the 1997 annual $PM_{2.5}$ NAAQS. This determination was based upon quality-assured and certified ambient air monitoring data for the 2007-2009 period. With the clean data determination, EPA suspended the requirements for the nonattainment area to submit an attainment demonstration, RACM, RFP plans, contingency measures and other planning SIPs related to attainment of the 1997 annual $PM_{2.5}$ NAAQS. The attainment demonstration was subsequently withdrawn. These requirements are suspended as long as the area continues to attain the standard. This final rule became effective on January 9, 2012.

On August 30, 2012, EPD requested under CAAA of 1990 that the Atlanta area be redesignated from nonattainment to attainment with respect to the 1997 annual $PM_{2.5}$ NAAQS based on ambient monitoring data from 2008-2010. This includes provisions showing no violation of the 1997 annual $PM_{2.5}$ NAAQS, the implementation of permanent and enforceable reductions in $PM_{2.5}$ emissions and $PM_{2.5}$ precursor emissions, compliance with all applicable requirements; and the Atlanta Maintenance Plan with projections demonstrating that 2008 emissions levels in this area will not be exceeded through at least the year 2024. EPD also petitioned EPA to make a determination that the Atlanta area was eligible for application of EPA's Clean Data Policy, based on the Atlanta area's attainment of the 1997 annual $PM_{2.5}$ NAAQS.

1.2 Clean Air Act Provisions

EPA can only propose approval of a SIP revision seeking to discontinue an existing SIP-approved program if the SIP revision is consistent with the provisions of 110(l). This section, therefore, consists of a detailed description of those requirements.

1.3 Section 110(l) Requirement

Section 110(l) of the CAA, governs EPA's ability to approve all SIP revisions. Specifically, section 110(l) states:

Each revision to an implementation plan submitted by a State under this chapter shall be adopted by such State after reasonable notice and public hearing. The Administrator shall not approve a revision of a plan if the revision would interfere with any applicable requirement concerning attainment and reasonable further progress (as defined in section 171 of this title), or any other applicable requirement of this chapter.

This SIP revision will demonstrate that the removal of the Georgia Rules described in Section 1.4 will not interfere with attainment, reasonable further progress or any other requirement of the Clean Air Act.

1.4 Removal Request

With the submission of this plan revision, Georgia EPD is requesting the removal of Georgia Rule 391-3-1-.02(2)(aaa), "Consumer and Commercial Products" and Georgia Rule 391-3-1-.02(2)(bbb), "Gasoline Marketing" from Georgia's SIP; and the amendment of Georgia Rule 391-3-1-.02(2)(mmm), "NO_x Emissions from Stationary Gas Turbines and Stationary Engines used to Generate Electricity" in Georgia's SIP. This document was prepared using the requirements of 110(l), which demonstrate this revision will not interfere with attainment and reasonable further progress, as a basis for the removal of these rules.

In the 2008 8-hour proposed ozone rule [78 FR 34184] on June 6, 2013, EPA stated for marginal areas that, "When Congress amended the CAA in 1990, it anticipated that nonattainment areas with ozone concentrations close to the level of the NAAQS would likely come into attainment within 3 years after designation without any additional local planning." Therefore as a part of the sensitivity demonstration, Georgia EPD has conducted a sensitivity study conducted using part of the **S**outh**E**astern **M**odeling, **A**nalysis, and **P**lanning (SEMAP) project and information from a Georgia Tech analysis of the sensitivity of ozone concentrations in the Eastern U.S. to reductions in emissions of both NO_x and VOCs.

Also, since VOC is not a significant precursor for particulate matter[1], there is no possibility that removal of the Georgia Rule (aaa) will impact the ambient air quality standard for the $PM_{2.5}$ NAAQS in the Atlanta area or interfere with attainment of the standard.

Additional evidence that the removal of these rules will not interfere with the requirements of 110(l) can be found in Section 6 of this document. The State of Georgia is a NO_x limited area and Section 6 describes the sensitivity of ozone formation in the Atlanta area to reductions of NO_x and VOC emissions.

[1] See 40 CFR 51.1002(c)(3)

2.0 Georgia Rule 391-3-1-.02(aaa), Consumer and Commercial Products

Windshield wiper fluid contains the volatile organic compound (VOC), methyl alcohol which evaporates easily at room temperature from windshield wiper fluid when refilling the fluid storage tank and when used to clean automobile windshields.

Georgia Rule 391-3-1-.02(2)(aaa), "Consumer and Commercial Products" or Georgia Rule (aaa) limits the type of windshield washer fluid that can be sold in the original 1-hour ozone 13-county Atlanta nonattainment area. The rule does not allow for the sale of windshield washer fluid containing more than 8 percent VOCs by weight. Concentrated formulas and fluid designed to work in temperatures below 20 degrees Fahrenheit contain more than 8 percent VOC and retailers are prohibited from selling them. This rule was implemented prior to the determination that Atlanta is a NO_x limited area and was never expanded to the surrounding counties.

Determining compliance with this rule is a time consuming and resource intensive process. It involves an unannounced visit of any retail establishment that could possibly sell windshield washer fluid, finding the fluid on the shelves, and noting the product name, manufacturer, and the VOC content of the product. Because the Atlanta area is NO_x limited with very little benefit from reducing VOC emissions, removal of Georgia Rule (aaa) will have negligible effect on air quality. Therefore, the cost of enforcing this regulation is significantly out of proportion to the benefit achieved.

2.1 Calculations and Emissions

On a national level EPA generally considers windshield washer fluid to have a 35 percent VOC content. In the Southeast, windshield washer fluid typically has a VOC content of between 8 and 10 percent during the summertime, and 30 percent during the winter months. However, Georgia Rule (aaa) limits the VOC content of windshield washer fluid to 8 percent year round. Additional information on assumptions concerning the VOC content of windshield washer fluid can be found in Appendix A.

2.1.1 VOC Emission Differences

By comparing calculated VOC emissions that are based on a typical VOC content for windshield washer fluid in the Southeast and VOC emissions for windshield washer fluid with the same VOC content as required by Georgia Rule (aaa), the VOC difference in the Atlanta area can be used to evaluate how the removal of the rule will impact ozone monitors in the area. Table 2-1 shows a VOC difference of 0.17 tons/day. This value was calculated using 2010 census data and an EPA per-person usage factor to get the emissions difference for the area. For the purposes of these calculations summertime is considered ozone season or 244 days during the months of March 1 through October 31. More details and information on these calculations can be found in Appendix A.

Table 2-1. VOC Emission Difference Due to Georgia Rule (aaa)

County	Population from 2010 Census Data	Summer VOC Emissions based on Typical Southeastern VOC Content of Windshield Washer Fluid (tons)	Georgia Summer VOC Emissions with Rule In Place (tons)	Summer VOC Emissions Difference Due to Georgia Rule (aaa) (tons)	Daily VOC Emissions Difference Due to Georgia Rule (aaa) (tons per day)
Cherokee	214,346	10.01338774	8.010710189	2.002677547	0.008207695
Clayton	259,424	12.11925158	9.695401267	2.423850317	0.009933813
Cobb	688,078	32.14425185	25.71540148	6.42885037	0.026347747
Coweta	127,317	5.947740972	4.758192778	1.189548194	0.004875198
Dekalb	691,893	32.32247339	25.85797871	6.464494678	0.026493831
Douglas	132,403	6.185338548	4.948270838	1.23706771	0.00506995
Fayette	106,567	4.978383972	3.982707178	0.995676794	0.004080643
Forsyth	175,511	8.199171876	6.559337501	1.639834375	0.006720633
Fulton	920,581	43.005862	34.4046896	8.601172399	0.035250707
Gwinnett	805,321	37.62137584	30.09710067	7.524275167	0.030837193
Henry	203,922	9.526420152	7.621136122	1.90528403	0.007808541
Paulding	142,324	6.648807984	5.319046387	1.329761597	0.005449843
Rockdale	85,215	3.98090394	3.184723152	0.796180788	0.003263036
Total 13-County Area	**4,552,902**	**212.6933698**	**170.1547**	**42.53867397**	**0.17**

Note: Please see Appendix A for more details on the population data and the VOC content of the washer fluid.

An emissions difference due to Georgia Rule (aaa) of 0.17 tons per day has extremely small non-measurable impact on ozone monitors in the metro area. In order to impact a monitor by even 1 part per billion, the emission difference must be equivalent to at least 15-25 tons per day of VOC emissions. Further information on the sensitivity study used in this evaluation and the emission offset for the removal of Rule (aaa) can be found in Sections 5 and 6 of this document.

3.0 Georgia Rule 391-3-1-.02(bbb), Gasoline Marketing

Operating motor vehicles that burn gasoline releases sulfur dioxide, NO_x, and VOCs into the air. Georgia Rule 391-3-1-.02(2)(bbb), "Gasoline Marketing" or Georgia Rule (bbb) was created to ensure the distribution of low sulfur and seasonal low Reid Vapor Pressure (RVP) gasoline into the metro Atlanta ozone nonattainment area and an area of influence outside of the Atlanta NAA. This cleaner-burning gasoline helps reduce emissions of ozone precursors, nitrogen oxides (NO_x), and volatile organic compounds (VOCs), from motor vehicles. The Gasoline Marketing Program's fuel control area encompasses 45 counties (area of influence) in and around metro Atlanta. The **45-county** area of influence includes the following counties: Banks, Barrow, Bartow, Butts, Carroll, Chattooga, Cherokee, Clarke, Clayton, Cobb, Coweta, Dawson, Dekalb, Douglas, Fayette, Floyd, Forsyth, Fulton, Gordon, Gwinnett, Hall, Haralson, Heard, Henry, Jackson, Jasper, Jones, Lamar, Lumpkin, Madison, Meriwether, Monroe, Morgan, Newton, Oconee, Paulding, Pickens, Pike, Polk, Putnam, Rockdale, Spalding, Troup, Walton, and Upson. The 45-county area of influence consists of the 20-county 8-hour ozone maintenance area for the 1997 ozone NAAQS plus an additional 25 surrounding counties that are attaining the standard. The program requires a specially blended gasoline (Georgia Gas) to be sold in the area of influence year round with the most stringent requirements occurring during the summer.

Over the years, the federal conventional gas requirements have changed to be close to or identical to Georgia Gas requirements. This has eliminated the need for a specially blended gasoline in the Atlanta area. Conventional gasoline is equivalent to Georgia Gas in all ways except for the Reid Vapor Pressure (RVP) during summer months. Conventional gasoline is restricted to an RVP of 10 psi[2] from June 1 to September 15, including a 1.0 psi waiver for gasoline containing 10% ethanol. Further details can be found in Appendix B. Conventional gasoline is also required to meet an annual average sulfur content of 30 ppm. EPA recently adopted Tier 3 gasoline standards that reduce the annual sulfur content limit to 10 ppm starting in 2017. From June 1 to September 15 of any year, Georgia Gas Reid Vapor Pressure (RVP) is restricted to 8.0 psi or less. This RVP limit includes a 1.0 psi waiver for gasoline containing 10% ethanol. Georgia Gas limits the amount of sulfur to an annual average concentration of 30 parts per million by weight throughout the year, similar to conventional gasoline and less restrictive that Tier 3 gasoline.

By estimating NO_x and VOC emissions, first with Georgia Rule (bbb) in place and then estimating those same pollutants with the requirements of conventional gas in place, GA EPD can show the impact of eliminating the Georgia Rule (bbb) on NO_x and VOC emissions. This analysis is performed with the Federal Summer RVP requirement (8.8 psi upper limit for gasoline containing 10% ethanol) retained for 13 counties in the original 1-hr ozone nonattainment area. Emission impacts for both pollutants decrease over time with NO_x impacts eventually disappearing altogether. Additional details of the modeling and analysis associated with these scenarios can be found in Appendix B.

Georgia Rule (bbb) was required in 45-county "area of influence" as described above. Georgia EPD conducted several analyses to determine how the switch from Georgia gas to conventional gasoline

[2] With removal of the Georgia gasoline requirements, conventional gasoline will be restricted to an RVP of 7.8 psi (plus up to 1.0 psi ethanol waiver) in the original 13-county 1-hr ozone nonattainment area.

in this 45-county area will affect several maintenance and nonattainment areas.

To demonstrate that maintaining attainment of the 1997 Ozone NAAQS is not interfered with by switching from Georgia gas to conventional gasoline, analysis is conducted to evaluate the impact of this switch on the 20-county ozone maintenance area for VOC and NO_x.

To demonstrate that attaining and maintaining the 1997 $PM_{2.5}$ NAAQS is not interfered with by switching from Georgia gas to conventional gasoline, additional analysis is conducted to evaluate the impact of this switch on the 20-county $PM_{2.5}$ maintenance area (plus a small portion of Putnam and Heard counties) for NO_x. No other precursors need investigation since direct $PM_{2.5}$ emissions do not change with RVP and VOCs have been not been determined to be a significant contributor to the $PM_{2.5}$ nonattainment problem (40 CFR Parts 93.119(f)(7) through (10)).

To demonstrate that attaining the 2008 Ozone NAAQS is not interfered with by switching from Georgia gas to conventional gasoline, analysis is conducted to evaluate the impact of this switch on the 15-county ozone nonattainment area for VOC and NO_x.

3.1 Impact of Switching From Georgia Gas to Conventional Gasoline

3.1.1 NO_x Emission Analysis – Ozone NAAQS

NO_x and VOC emissions were analyzed using MOVES 2010b to show the change in on-road emissions from the switch from Georgia Gas to conventional gasoline. Emissions increases from switching to conventional gasoline are minimal, and continue to decrease into the future. Figure 3-1 shows the annual trend for NO_x emission increases.

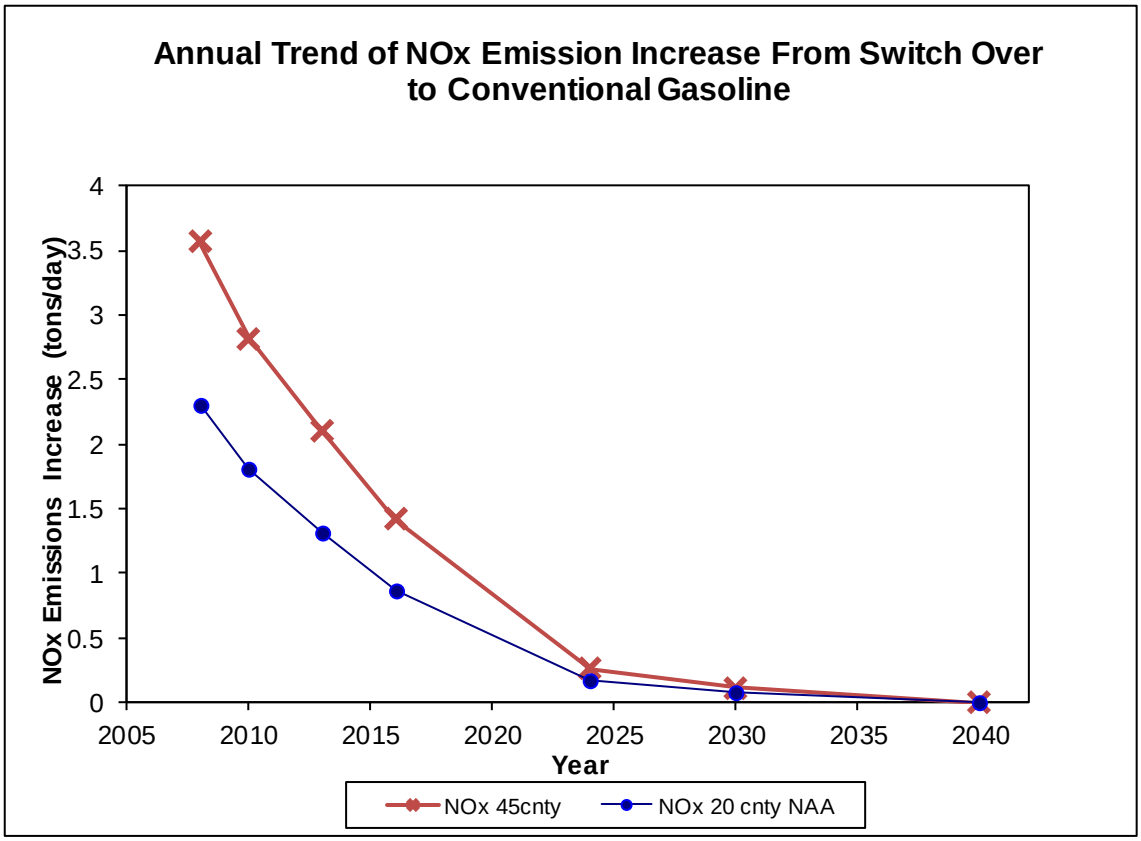

Figure 3-1: Annual Trend of NO_x Emissions Increase From Switch Over to Conventional Gasoline

The impact of switching from Georgia Gas to conventional gas in the 20-county 1997 8-hour ozone nonattainment area is that any NO_x emissions increase associated with the switch decreases steadily from 1.32 tons/day in 2013 and then to zero by 2040. If we include the entire 45-county area subject to Georgia Gas requirements, the NO_x emissions increase is 2.12 tons /day in 2013, dropping to zero by 2040.

Catalytic emission control systems, used on passenger cars since 1975, are the primary method of controlling NO_x emissions from motor vehicles. Sulfur in gasoline inhibits the emission control performance of catalyst technology. As a result, Georgia EPD established sulfur content limits for gasoline sold in the 45-county area in Rule (bbb). However, EPA's Tier 2 gasoline standard established requirements for all gasoline sold in the United States starting in 2004. The Tier 2 sulfur requirements are basically the same as Georgia Gasoline. Furthermore, EPA's Tier 3 fuel standards will require the sale of gasoline with sulfur content even lower than Rule (bbb) requirements starting in 2017. However, the volatility of the gasoline does impact the combustion process in gasoline engines. Thus the higher RVP allowed in conventional gasoline, compared to Georgia gas, will result in a very small increase in NO_x emissions in the 45-county area.

Table 3-1 shows the comparison of the NO_x emissions between Georgia Gas and Conventional Gas in the different areas and over a variety of years. The year 2008 is used as the first year of the analysis as it is the year of the MVEB for the 2008 RFP SIP and the baseline year in the Atlanta Maintenance Plan for the 1997 8-hr Ozone Standard. Additional years include those used in Atlanta Regional Commission (ARC) transportation conformity determination reports (2010, 2016, 2024, 2030, and 2040) and the MVEB year (2024) in the 1997 Atlanta Ozone Maintenance Plan. Because Georgia Gasoline covers the entire 45-county area, all 45 counties were used in the analysis for determining the impact of removal of the rule rather than just the current 15-county nonattainment area. Additional details can be found in Appendix B.

Table 3-1. Comparison of On-Road NO_x Emissions Between Georgia Gas and Conventional Gas

Pollutant and Region	Year	Georgia Gas	Conventional Gas	Emissions Increase with Conventional Gas	Emissions Increase with Conventional Gas
NO_x		tpd	tpd	tpd	%
13-county NAA	2008	280.50	281.85	1.35	0.48
	2010	229.41	230.47	1.05	0.46
	2013	174.49	175.20	0.72	0.41
	2016	135.45	135.90	0.44	0.33
	2024	74.29	74.37	0.08	0.11
	2030	70.52	70.56	0.04	0.06
	2040	74.76	74.76	0.00	0.00
7-county area	2008	86.71	87.65	0.94	1.09
	2010	69.29	70.05	0.76	1.09
	2013	50.59	51.19	0.60	1.19
	2016	36.12	36.55	0.42	1.18
	2024	24.82	24.90	0.08	0.32
	2030	22.68	22.71	0.03	0.15
	2040	24.73	24.73	0.00	0.00
20-county NAA	2008	367.21	369.50	2.30	0.63
	2010	298.70	300.51	1.81	0.61
	2013	225.08	226.39	1.32	0.58
	2016	171.57	172.44	0.87	0.51
	2024	99.11	99.27	0.16	0.17
	2030	93.19	93.27	0.08	0.08
	2040	99.49	99.49	0.00	0.00
25-county area not in NAA*	2008	118.62	119.90	1.28	1.08
	2010	95.75	96.77	1.02	1.06
	2013	69.74	70.54	0.80	1.15
	2016	49.57	50.13	0.56	1.13
	2024	34.00	34.10	0.10	0.29
	2030	31.11	31.14	0.04	0.12
	2040	34.46	34.46	0.00	0.00
45-county Marketing Rule Area	2008	485.82	489.40	3.58	0.74
	2010	394.45	397.28	2.83	0.72
	2013	294.82	296.94	2.12	0.72
	2016	221.14	222.57	1.43	0.64
	2024	133.11	133.37	0.26	0.20
	2030	124.30	124.41	0.11	0.09
	2040	133.95	133.95	0.00	0.00

*Note: 45-county area is the 20-county nonattainment area with an additional 25-counties that are not nonattainment included to complete the Georgia Marketing Rule geographic area. This refers to emissions from those additional counties.

3.1.2 VOC Emissions Analysis – Ozone NAAQS

VOC emissions were also analyzed using MOVES 2010b to show the change in on-road emissions from the switch to conventional gasoline. Figure 3-2 shows a trend similar to that of the NO_x emissions where emission increases from switching to conventional gasoline are minimal, and continue to decrease into the future. For VOCs, the impacts are greater than NO_x as can be seen in the Figure 3-2 and Table 3-2 because VOC emissions, unlike NO_x, are not only associated with combustion, but also evaporative emissions which are directly linked to RVP. Even in this case, the impacts would have been greater if emissions controls were not in place in on-road motor vehicles to handle volatility. As more aged vehicles are replaced with newer cleaner vehicles that have improved evaporative controls, the difference in VOC emissions between Georgia gasoline and conventional gasoline decreases over time (see Figure 3-2 and Table 3-2). The basis for the years illustrated in Table 3-2 are described in Section 3.1.1 as well as the reason for assessing the trends and magnitude of emission impact for the entire 45 county area.

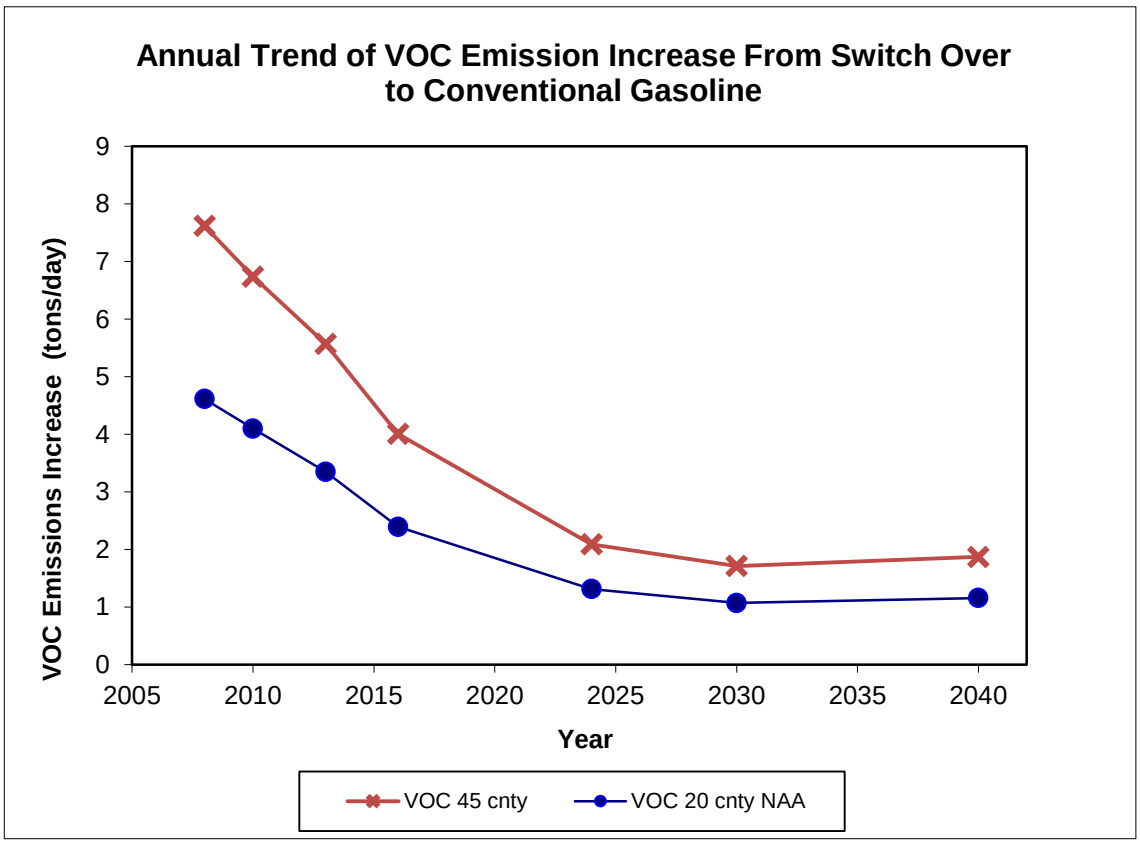

Figure 3-2: Annual Trend VOC Emissions Increase From Switch Over to Conventional Gasoline

VOC emission increases associated with the switch from Georgia Gas to conventional gas in the 20-county nonattainment area decrease from 3.35 tons/day in 2013 to approximately 1.16 ton/day in 2040. If we include the 45-county area of influence, the VOC emission increase is still only 5.66 tons/day in 2013 decreasing to 1.94 tons/day in 2040. Table 3-2 shows the difference in emissions between the use of Georgia Gas and Conventional Gas in the different areas.

Table 3-2. Comparison of On-Road VOC Emissions Between Georgia Gas and Conventional Gas

Pollutant and Region	Year	Georgia Gas	Conventional Gas	Emissions Increase with Conventional Gas	Emissions Increase with Conventional Gas
VOC		tpd	tpd	tpd	%
13-county NAA	2008	132.57	134.84	2.27	1.72
	2010	109.58	111.60	2.02	1.84
	2013	83.76	85.34	1.58	1.89
	2016	66.48	67.58	1.10	1.65
	2024	47.54	48.20	0.66	1.39
	2030	46.05	46.60	0.55	1.19
	2040	50.37	50.95	0.58	1.15
7-county area	2008	38.74	41.07	2.34	6.04
	2010	32.44	34.52	2.08	6.41
	2013	26.63	28.40	1.77	6.64
	2016	21.45	22.74	1.30	6.05
	2024	13.96	14.61	0.65	4.65
	2030	13.30	13.82	0.53	3.95
	2040	15.03	15.61	0.58	3.85
20-county NAA	2008	171.30	175.91	4.61	2.69
	2010	142.02	146.12	4.10	2.89
	2013	110.39	113.74	3.35	3.03
	2016	87.93	90.32	2.39	2.72
	2024	61.50	62.82	1.31	2.13
	2030	59.35	60.42	1.07	1.80
	2040	65.40	66.56	1.16	1.77
25-county area not in NAA	2008	50.54	53.67	3.13	6.19
	2010	41.71	44.45	2.73	6.55
	2013	33.98	36.29	2.31	6.80
	2016	27.12	28.81	1.69	6.23
	2024	17.58	18.42	0.84	4.78
	2030	16.89	17.59	0.70	4.15
	2040	19.26	20.04	0.78	4.06
45-county Marketing Rule Area	2008	221.84	229.59	7.74	3.49
	2010	183.74	190.57	6.83	3.72
	2013	144.37	150.03	5.66	3.92
	2016	115.04	119.13	4.08	3.55
	2024	79.08	81.24	2.15	2.72
	2030	76.24	78.01	1.77	2.33
	2040	84.66	86.60	1.94	2.29

*Note: 45-county area is the 20-county nonattainment area with an additional 25-counties that are not nonattainment included to complete the Georgia Marketing Rule geographic area. This refers to emissions from those additional counties.

3.1.3 NO_x Emission Analysis - $PM_{2.5}$ NAAQS

NO_x is regulated as a precursor to $PM_{2.5}$ and the Atlanta area is currently designated nonattainment for the 1997 annual $PM_{2.5}$ NAAQS. Therefore, the increase in on-road NO_x emissions in the current Atlanta $PM_{2.5}$ nonattainment area that will result from the switch from Georgia Gas to conventional gasoline was determined using MOVES 2010b. Emissions increases from switching to conventional gasoline are minimal, and continue to decrease into the future. Figure 3-3 shows the annual trend for NO_x emission increases. The impact seen here is even smaller than the case with ozone because $PM_{2.5}$ NAAQS is an annual standard with annualized emissions where RVP between Georgia gasoline and conventional gasoline are identical for over 2/3 of the year (the annual, year-round sulfur requirements for conventional gas and Georgia gasoline are the same). Direct $PM_{2.5}$ is not impacted at all by volatility with the impact of RVP change on $PM_{2.5}$ direct emissions being zero. This has been confirmed by MOVES modeling. For further details see Appendix B.

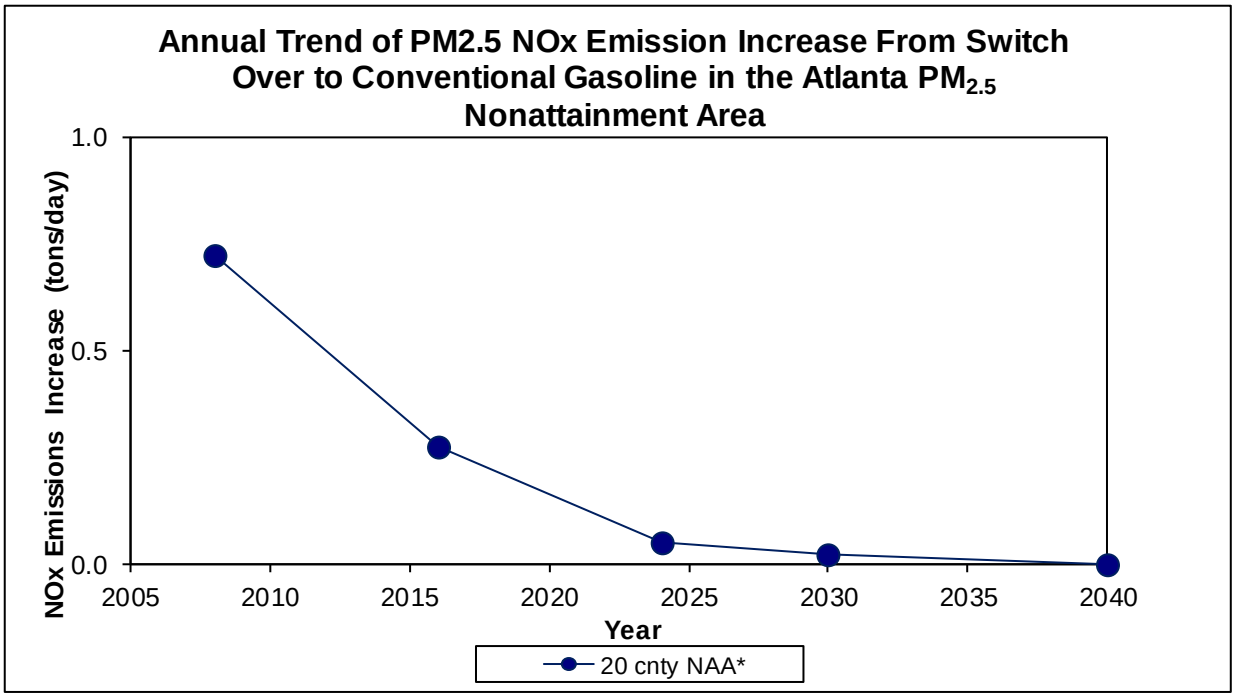

Figure 3-3: Annual Trend of PM2.5 NO_x Emissions Increase From Switch Over To Conventional Gasoline in the Atlanta $PM_{2.5}$ Nonattainment Area

Figure 3-3 also includes emissions form a portion of Putnam County that is part of the Atlanta $PM_{2.5}$ nonattainment area. The portion of Heard County that is part of the Atlanta $PM_{2.5}$ nonattainment area does not have regular public vehicular traffic.

The impact of switching from Georgia Gas to conventional gas in the 1997 annual $PM_{2.5}$ nonattainment area is that any NO_x emissions increase associated with the switch decreases steadily from only 0.28 tons/day in 2016 to zero by 2040. Table 3-3 shows the comparison of the NO_x emissions between Georgia Gas and Conventional Gas in the different areas. The years illustrated in Table 3.3 were chosen for similar reasons described in Section 3.1.1 except that 2008 is the baseline year in the submitted 1997 $PM_{2.5}$ Atlanta Maintenance Plan and 2024 is the MVEB year in the Plan.

Table 3-3. Comparison of On-Road NO_x Emissions Between Georgia Gas and Conventional Gas

Pollutant and Region	Year	Georgia Gas	Conventional Gas	Emissions Increase with Conventional Gas	Emissions Increase with Conventional Gas
NO_x		tpd	tpd	tpd	Percent
13-county	2008	297.19	297.64	0.44	0.15
	2016	144.72	144.86	0.14	0.10
	2024	79.14	79.17	0.03	0.03
	2030	74.99	75.01	0.01	0.02
	2040	79.27	79.27	0.00	0.00
7-county	2008	82.85	83.13	0.28	0.33
	2016	36.80	36.94	0.13	0.36
	2024	23.62	23.64	0.02	0.10
	2030	21.28	21.29	0.01	0.04
	2040	22.77	22.77	0.00	0.00
Putnam in NAA*	2008	0.41	0.41	0.002	0.41
	2016	0.19	0.19	0.001	0.34
	2024	0.09	0.09	0.000	0.12
	2030	0.07	0.07	0.000	0.05
	2040	0.06	0.06	0.000	0.00
20-county NAA and Putnam*	2008	380.45	381.18	0.72	0.19
	2016	181.71	181.99	0.28	0.15
	2024	102.84	102.89	0.05	0.05
	2030	96.34	96.37	0.02	0.02
	2040	102.11	102.11	0.00	0.00

*Small portion of Putnam County is considered in maintenance along with 20 full counties for the 1997 $PM_{2.5}$ annual NAAQS standard

Revision to the Georgia State Implementation Plan for the Removal of Miscellaneous Georgia Rules

In the Final Redesignation of the Rome, Georgia, Nonattainment Area for the 1997 Annual Fine Particulate Matter to Attainment on May 14, 2014 [79 FR 27493 through 27496], EPA agrees that repealing Georgia Rule 391-3-1-.02(2)(bbb) entitled "Gasoline Marketing." is expected to result in a minimal emission increase and unlikely to interfere the attainment of the $PM_{2.5}$ air quality standard.

> "Subsequent to publication of the proposed rule, GA EPD notified EPA that the Georgia Board of Natural Resources …had repealed Georgia Rule 391–3– 1–.02(2)(bbb) entitled ''Gasoline Marketing."…' The Gasoline Marketing rule, enacted to improve ozone levels in the Atlanta Area, required that fuel sold in the Atlanta ozone nonattainment area and in areas determined to have contributed to ozone levels in the nonattainment area contain reduced sulfur and have a reduced Reid Vapor Pressure. This rule applied to fuel sold in the Rome Area, and the projected mobile source emissions in GA EPD's maintenance plan assumed continued implementation of the rule through the maintenance period. GA EPD has subsequently provided calculations to EPA demonstrating that the repeal of the Gasoline Marketing rule increases the on-road NO_x emissions projected for 2023 in the Rome Area by approximately 3 tons per year (tpy) and does not change the projected emissions of SO2 or direct $PM_{2.5}$."
>
> "EPA has concluded that the changes to the aforementioned rules do not affect the Agency's decision to approve the redesignation request and maintenance plan for the Rome Area. Any increase in emissions that may result from these modifications is expected to be minimal and well within the margin necessary to maintain attainment of the 1997 Annual $PM_{2.5}$ standard."

EPA has also agreed with this assessment for the Final Redesignation of the Macon, Georgia Nonattainment Area for the 1997 Annual Fine Particulate Matter to Attainment also, dated May 13, 2014 [79 FR 27194 through 27196].

This document demonstrates that EPA's conclusions that repeal of Georgia rule (bbb) is unlikely to interfere with attainment and maintenance of the $PM_{2.5}$ air quality standard in the Rome and Macon nonattainment areas also hold true for the Atlanta $PM_{2.5}$ nonattainment area.

3.2 Emissions Compared to Motor Vehicle Emission Budgets

It is important to evaluate on-road NO_x and VOC emissions from both Georgia Gas and conventional gasoline to show that the removal of the Georgia Rule (bbb) will not affect transportation conformity. Motor vehicle emission budgets provide limitations of on-road mobile emissions, vital to assuring that future emissions from mobile sources will not interfere with the region's ability to attain a NAAQS standard (PM2.5 and ozone most specifically in this case), demonstrate rate of progress, or maintain pollutant levels below the standard. Here it is shown how removal of the Georgia Rule (bbb) does not require any changes to the motor vehicle emissions budgets nor interferes with transportation planning's ability to continue to demonstrate conformity with the SIP budgets in place.

3.2.1 NO_x and VOC Emissions Analysis – Ozone NAAQS

Figure 3-4 shows the NO_x emissions for both Georgia Gas and conventional gas and how the emissions relate to the 2008 and 2024 MVEBs in Georgia's Redesignation Request and Maintenance Plan for the Atlanta 1997 8-hour Ozone Nonattainment Area [78 FR 72040]. The difference in the two lines is nearly indistinguishable showing how Georgia Marketing Rule removal will not significantly affect these trends or the magnitude of emissions.

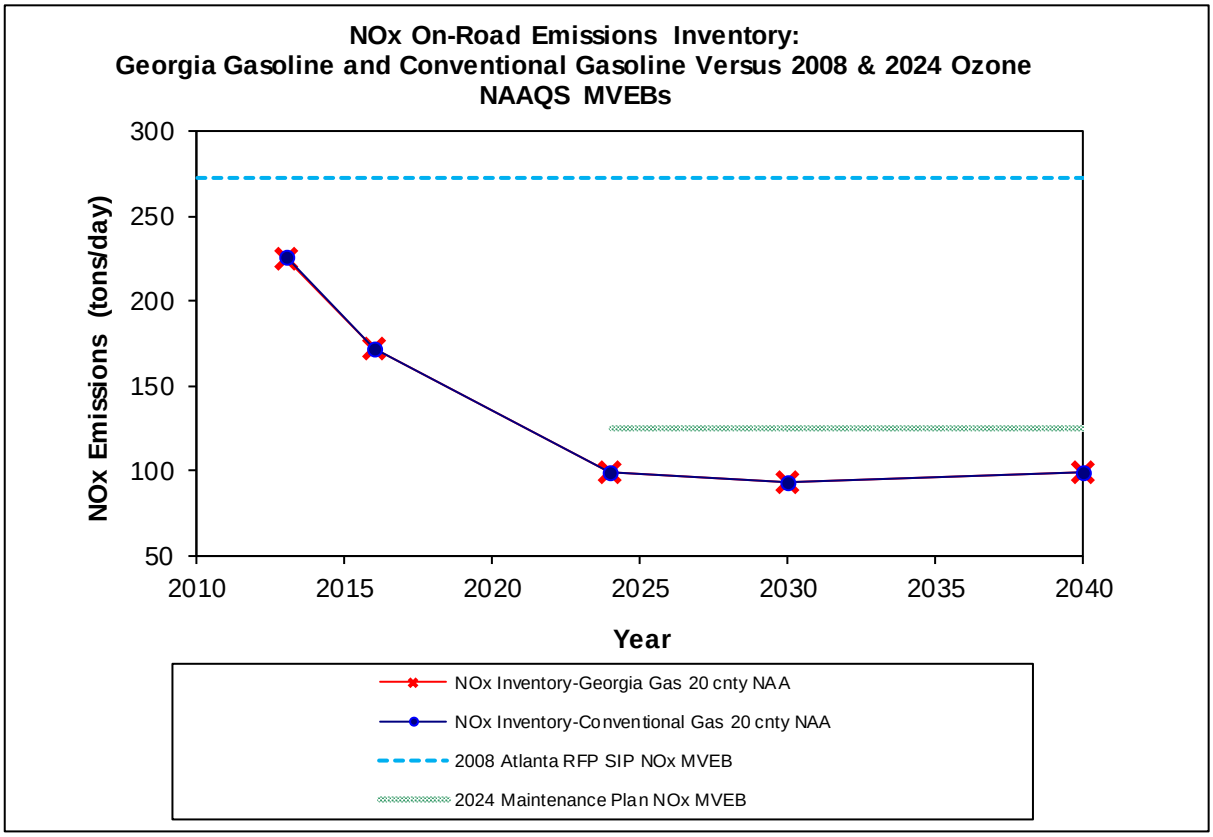

Figure 3-4: NO_x Emissions: Comparison of Georgia Gas and Conventional Gas to Baselines and Budgets for the 1997 Ozone Maintenance Plan NAAQS

The green line describing the 2024 NO_x MVEB for the 1997 8-hour Ozone Maintenance Plan (*2024 Maintenance Plan NOx MVEB* for short on Figure 3-4) begins at 2024 because this budget only applies from 2024 onward in the maintenance plan. The emissions from Georgia Gas and conventional gasoline are compared in this graph to the motor vehicle emissions budgets (MVEBs) to show that the removal of the Georgia Marketing Rule clearly does not impact Atlanta's ability to keep NO_x emissions below requirements. The dashed line represents the 2008 Atlanta RFP budget for NO_x in Georgia's 15% Reasonable Further Progress State Implementation Plan Revision for the Atlanta 8-hour Ozone Nonattainment Area [78 FR 65877].

In both the Georgia Gas and conventional gas cases the NO_x and VOC emissions after 2012 are well below the 2008 MVEB while emissions from 2024-2040 never exceed the 2024 MVEB . Table 3-4 shows the NO_x emissions for both types of gasoline in comparison to the two MVEBs.

Table 3-4. Comparison of NO_x On-Road Emissions With Conventional Gas Versus 1997 Ozone NAAQS Maintenance Plan MVEBs

Year	2008 RFP MVEB (tons/day)	2024 Maintenance Plan SIP MVEB (tons/day)	Conventional Gas Emissions (tons/day)
2013	272.67	N/A	226.39
2016	272.67	N/A	172.44
2024	272.67	126	99.27
2030	272.67	126	93.27
2040	272.67	126	99.49

A similar comparison can be made for VOC emissions. Figure 3-5 shows that comparison using both Georgia Gas and conventional gas and how the emissions relate to the 2008 and 2024 MVEBs.

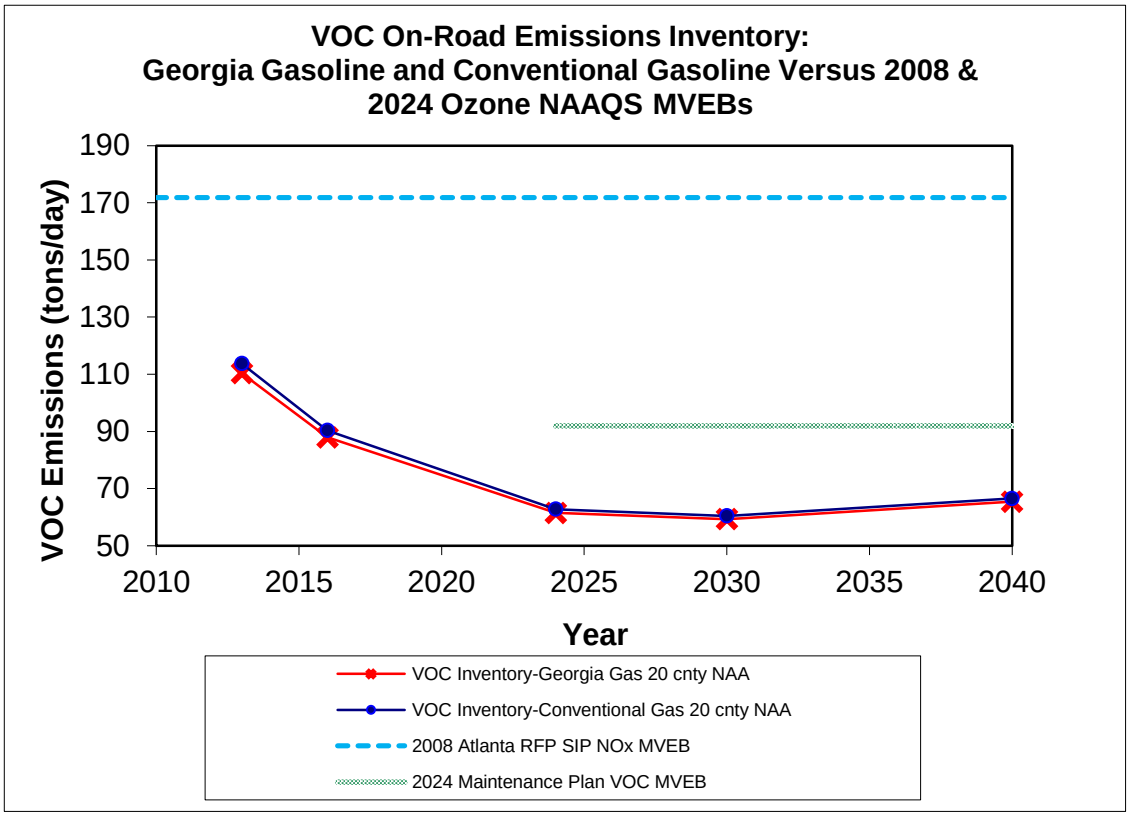

Figure 3-5: VOC Emissions: Comparison of Georgia Gas and Conventional Gas to Baselines and Budgets

Similar to NO_x, the difference in the two lines for VOC is also extremely small showing how the removal of the Georgia Marketing Rule will not significantly affect these trends or the magnitude of emissions.

The green line describing the 2024 MVEB for VOC begins at 2024 because this budget only applies from 2024 onward as also shown in the Atlanta 1997 8-hour Ozone Maintenance Plan [78 FR 72040]. The emissions from Georgia Gas and conventional gasoline are compared in this graph to the motor vehicle emissions budgets (MVEBs) to show that the removal of the Georgia Marketing Rule clearly does not impact Atlanta's ability to keep VOC emissions below requirements. The dashed line represents the 2008 Atlanta RFP budget for VOC in Georgia's 15% Reasonable Further Progress State Implementation Plan Revision for the Atlanta 8-hour Ozone Nonattainment Area [78 FR 65877].

In both the Georgia Gas and conventional gas cases the NO_x and VOC emissions after 2012 are well below the 2008 MVEB while emissions from 2024-2040 never exceed the 2024 ozone maintenance plan MVEB. Table 3-5 shows the VOC emissions for conventional gasoline in comparison to the two MVEBs.

Table 3-5. Comparison of VOC On-Road Emissions With Conventional Gas Versus MVEBs

Year	2008 RFP MVEB (tons/day)	2024 Maintenance Plan SIP MVEB (tons/day)	Conventional Gas Emissions (tons/day)
2013	171.83	N/A	113.74
2016	171.83	N/A	90.32
2024	171.83	92	62.82
2030	171.83	92	60.42
2040	171.83	92	66.56

3.2.2 NO_x Emissions Analysis - $PM_{2.5}$ NAAQS

Figure 3-6 shows the NO_x emissions for both Georgia Gas and conventional gas and how the emissions relate to the 2002 baseline and 2024 NO_x MVEB for the 1997 $PM_{2.5}$ NAAQS Maintenance Plan. The difference in the two lines is nearly indistinguishable showing how Georgia Marketing Rule removal will not significantly affect these trends or the magnitude of emissions. The 2002 baseline year (applied to 1997 PM2.5 NAAQS) is used here since there is no MVEB before 2024 and this is the value that emissions are compared to when conducting transportation conformity determinations for model years before 2024 (once the PM2.5 Maintenance Plan is approved, until then every year is compared to 2002 through the "baseline year interim emissions test" established in the transportation conformity final rule (69 FR 40004)).

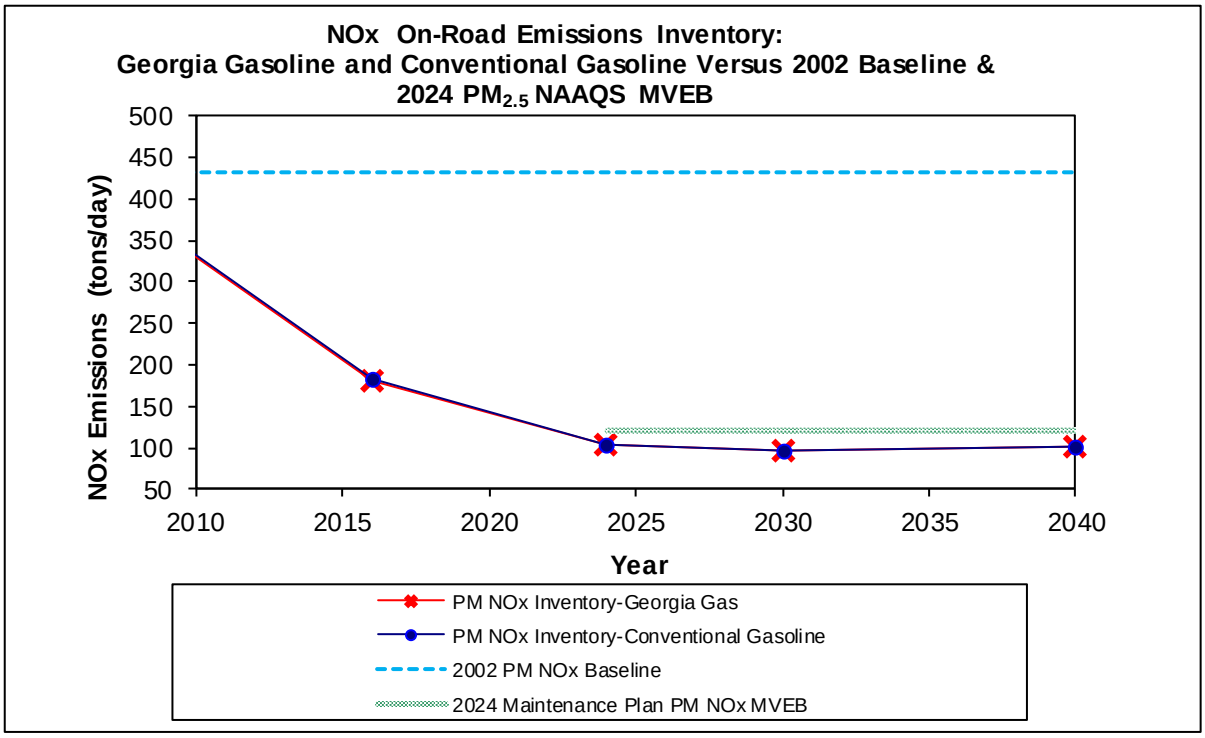

Figure 3-6: NO_x Emissions: Comparison of Georgia Gas and Conventional Gas to Baselines and Budgets for the 1997 $PM_{2.5}$ NAAQS Maintenance Plan

In Georgia's Redesignation Request and Maintenance Plan for the Atlanta 1997 Annual $PM_{2.5}$ Nonattainment Area, submitted to EPA on August 30, 2012, the 2024 MVEB for NO_x also begins at 2024 because this budget only applies from 2024 onward. NO_x is the only pollutant listed because it is the only significant $PM_{2.5}$ precursor impacted by the removal of the Georgia Gas rule or volatility. Direct $PM_{2.5}$ is not impacted by volatility. This MVEB is represented in Figure 3-6 by a green line. The emissions from Georgia Gas and conventional gasoline are compared in this graph to the MVEBs to show that the removal of the Georgia Marketing Rule and waiver of the RVP rule clearly does not impact Atlanta's ability to keep NO_x emissions below these requirements. The dashed line represents the 2002 emissions baseline.

In both the Georgia Gas and conventional gas cases the NO_x emissions are well below the 2002 baseline while emissions from 2024-2040 never exceed the 2024 $PM_{2.5}$ maintenance plan MVEB. Table 3-6 shows the NO_x emissions for both types of gasoline in comparison to the two MVEBs.

Table 3-6. Comparison of NO_x On-Road Emissions With Conventional Gas Versus 1997 $PM_{2.5}$ NAAQS Maintenance Plan MVEBs

Year	2002 Baseline Emissions (tons/day)	2024 Maintenance Plan SIP MVEB (tons/day)	Conventional Gas Emissions (tons/day)
2016	432.85	N/A	181.99
2024	432.85	121.72	102.89
2030	432.85	121.72	96.37
2040	432.85	121.72	102.11

3.3 15-County Analysis

As presented above in greater detail in Section 1.0, the Atlanta area was designated nonattainment in 1991 for **13-counties** for the 1990 1-hour ozone standard: Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Paulding, and Rockdale. On April 30, 2004, EPA designated a **20-county** nonattainment area under the 1997 8-hour ozone standard. The eight-hour ozone nonattainment area encompasses the **13-counties** of the former 1-hour ozone nonattainment area plus seven additional "ring" counties. These **7-counties** included the counties of Barrow, Bartow, Carroll, Hall, Newton, Spalding, and Walton.

On May 21, 2012, EPA published a final rule in the federal register designating a new **15-county** Atlanta area marginal nonattainment for the 2008 8-hour Ozone National Ambient Air Quality Standard. The 15-county area includes the counties of Bartow, Cherokee, Clayton, Cobb, Coweta, Dekalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Newton, Paulding, and Rockdale.

Georgia Rule (bbb) covered the **20-county** nonattainment area plus an additional 25 counties to be called the **45-county** area of influence.

In order to show that the new 15-county marginal non-attainment area will not be affected by the removal of the Gasoline Marketing Rule, NO_x and VOC emissions were analyzed in the same manner as in the 20-county and 45-county areas to show the change in emissions from the switch to conventional gasoline. Emissions increases from switching to conventional gasoline are minimal, and continue to decrease into the future.

3.3.1 15-County NO_x Emissions Analysis

Figure 3-7 shows the annual trend for NO_x emission increases.

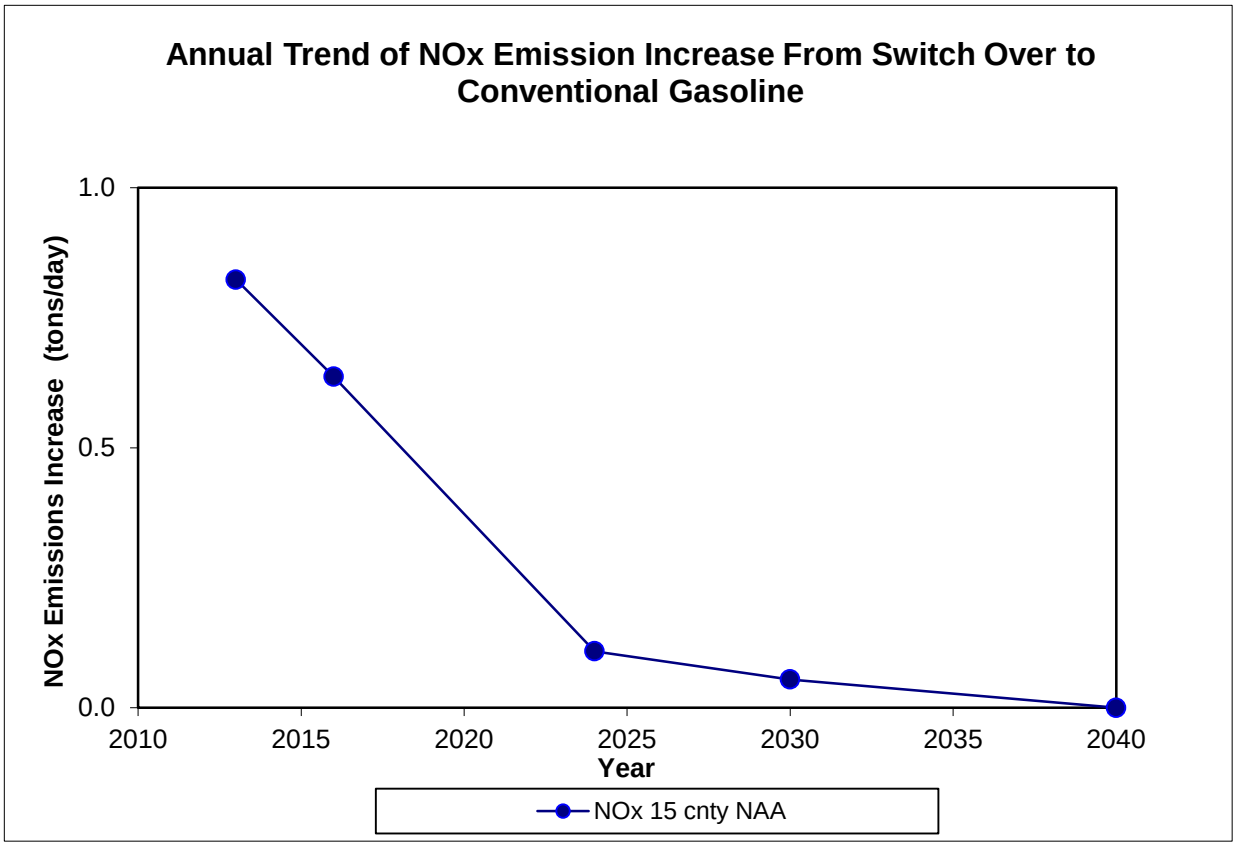

Figure 3-7: NO_x Emissions Increase Trends Associated With Switch to Conventional Gasoline

As shown in Table 3-7, replacing Georgia Gasoline with Conventional Gasoline in the new 15-county NAA results in only ~0.80 tons/day increase in NO_x emissions in 2013 decreasing to 0.11 tons/day by 2024 and zero by 2040.

Table 3-7. Comparison of On-Road NO_x Emissions Between Georgia Gas and Conventional Gas

Pollutant and Region	Year	Georgia Gas	Conventional Gas	Emissions Increase with Conventional Gas	Emissions Increase with Conventional Gas
NO_x		tpd	tpd	tpd	%
15-county	2013	191.55	192.38	**0.82**	0.43
	2016	147.49	148.13	0.64	0.43
	2024	83.06	83.17	0.11	0.13
	2030	78.67	78.73	0.05	0.07
	2040	83.79	83.79	**0.00**	0.00

3.3.1 15-County VOC Emissions Analysis

A similar comparison can be made for VOC emissions. The trend for VOC emission increases, associated with the switch from Georgia Gas to conventional gas in the 20-county nonattainment area, also decreases as shown in Figure 3-8.

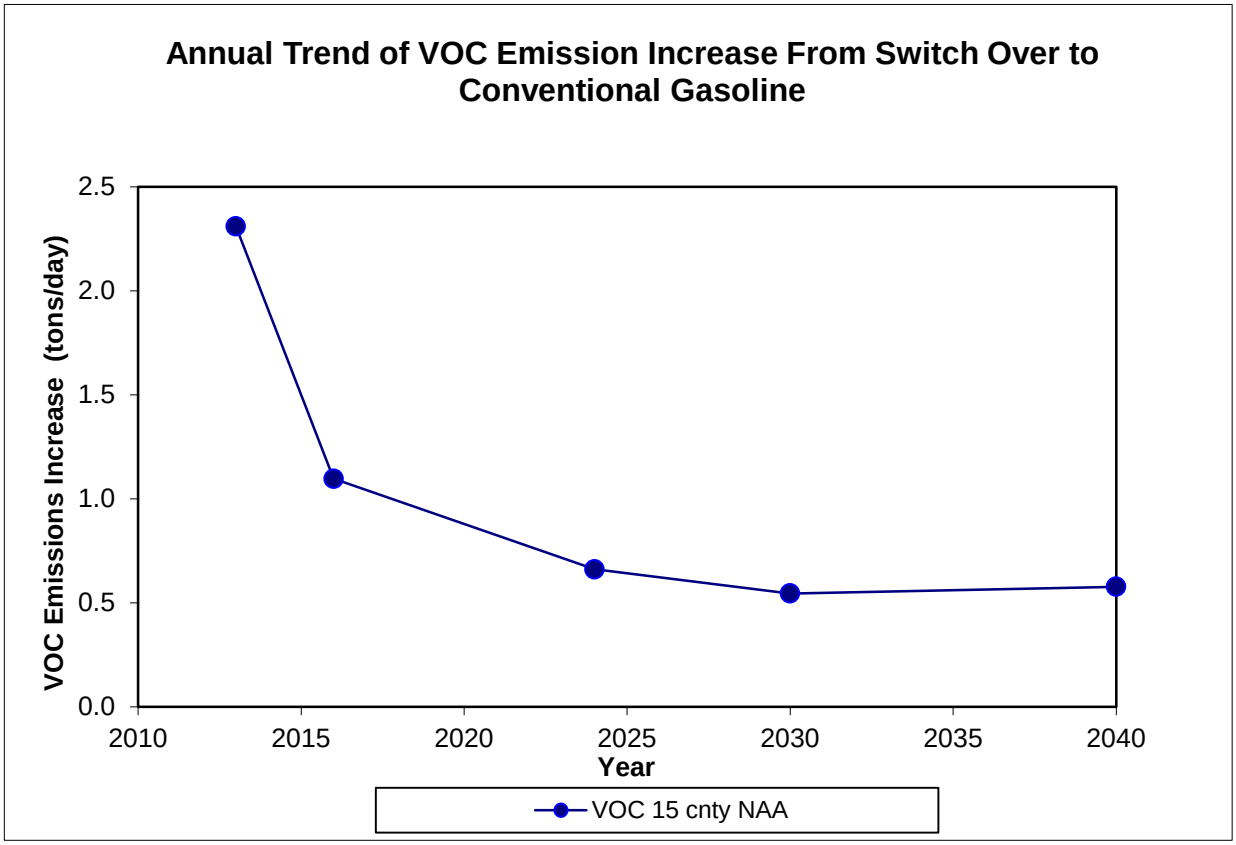

Figure 3-8: VOC Emissions Increase Trends Associated With Switch to Conventional Gasoline

Table 3-8 shows the VOC emissions, associated with the switch from Georgia Gas to conventional gas in the new 15 county NAA results in 2.31 tons/day increase in VOC emissions in 2013 decreasing to 0.86 tons/day by 2024, continuing through 2040 to 0.75 tons/day.

Table 3-8. Comparison of On-Road VOC Emissions Between Georgia Gas and Conventional Gas

Pollutant and Region	Year	Georgia Gas	Conventional Gas	Emissions Increase with Conventional Gas	Emissions Increase with Conventional Gas
VOC		tpd	tpd	tpd	%
15-county	2013	91.80	94.11	2.31	2.52
	2016	72.89	74.56	1.67	2.29
	2024	51.79	52.65	0.86	1.65
	2030	50.12	50.83	0.71	1.41
	2040	54.99	55.75	0.75	1.37

3.4 Attainment Inventory Comparison

In Georgia's April 4, 2012, submittal of the Redesignation Request and Maintenance Plan for the 1997 8-hour Ozone Standard, Table 3-13 shows the consolidated emissions projections of all metro Atlanta sources from 2008 to 2024. The approved 1997 plan [78 FR 72040] demonstrated that that future NO_x and VOC emissions through 2024, or the maintenance inventory, remained well below the emission levels calculated in 2008, the attainment inventory year.

Also, in Georgia's August 30, 2012, submittal of the Redesignation Request and Maintenance Plan for the 1997 $PM_{2.5}$ Standard, Table 3-15 shows the consolidated emissions projections of all metro Atlanta sources from 2008 to 2024. The plan demonstrated that future NO_x emissions through 2024, the maintenance inventory, remained well below the emission levels calculated in 2008, the attainment inventory year. Again direct PM is not impacted by RVP or sulfur content.

A comparison of the attainment inventory with the emissions that result from the removal of the Gasoline Marketing Rule has been made and confirms that conventional gas emissions remains below those in the attainment inventory just as in the case with Georgia gas. If current and future emissions of precursors to NAAQS pollutants are shown to be below the emission levels determined the year the Atlanta region attained the standard, then the Atlanta region will continue pollutant concentration levels below the 1997 ozone and $PM_{2.5}$ standards.

3.4.1 Total NO_x Emissions and the 2008 Attainment Inventory

Figure 3-9 shows that there is no discernable difference in the total NO_x emissions inventory between Georgia Gasoline and conventional gasoline; and compared to the 2008 attainment inventory, both stay well below.

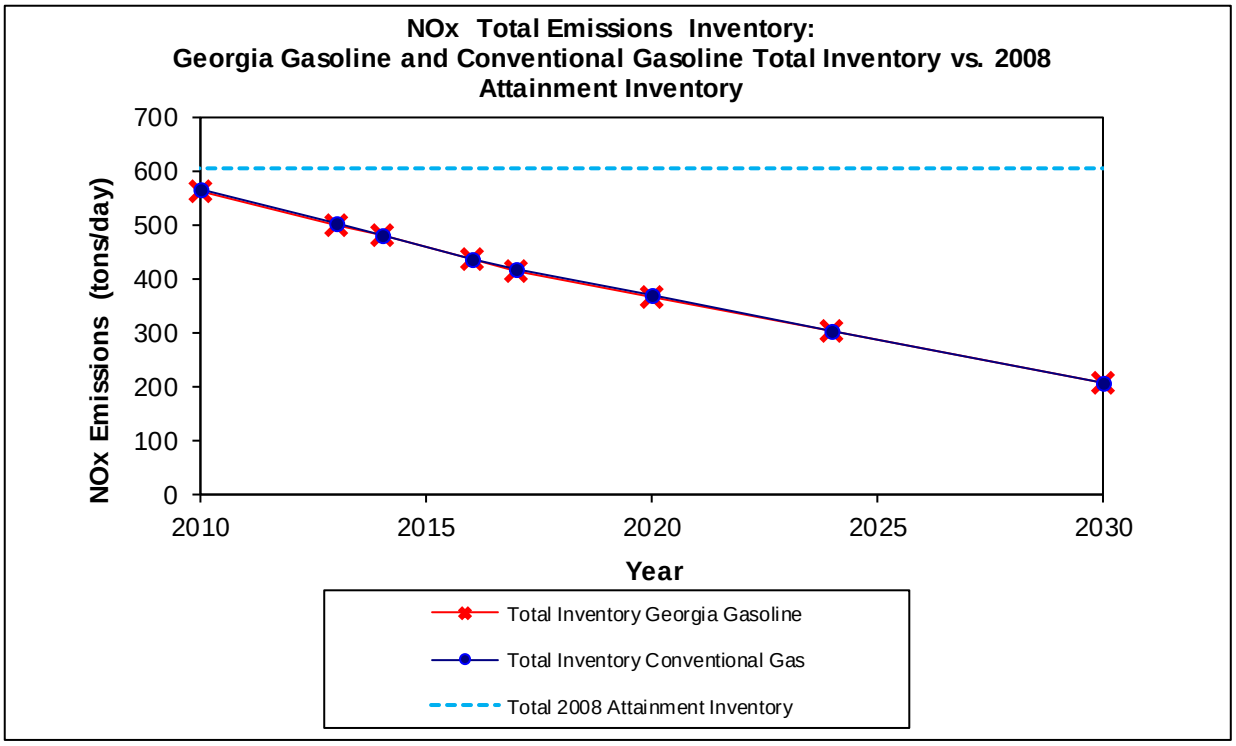

Figure 3-9: Comparison of Total NO_x Emissions Inventory: Georgia Gasoline and Conventional Gasoline vs. 2008 Attainment Inventory

Table 3-9 shows the difference between the total NO_x emissions inventory for both Georgia Gas and for conventional gasoline. By calculating this difference, a margin of safety is demonstrated well below the attainment inventory. This margin is the difference between actual emissions and the level at which an increase in emissions could indicate a scenario where the area could fall into possible nonattainment with the 1997 8-hour ozone standard. A large margin indicates that emissions are well below a level where there would be any concern over maintaining criteria pollutant concentration levels below the NAAQS in a maintenance area.

Table 3-9. 2008 Ozone NAA Inventory Comparison to Georgia Gas Margin and Conventional Gas Margin

Year	Total 2008 NO_x Attainment Inventory	Total NO_x Emissions Inventory with Georgia Gasoline	Total NO_x Emissions Inventory with Conventional Gasoline	Georgia Gas Margin (NO_x)	Conventional Gas Margin (NO_x)
	tpd	tpd	tpd	tpd	tpd
2010	606.78	564.39	566.20	42.39	40.58
2013	606.78	500.80	502.11	105.98	104.67
2014	606.78	479.60	480.77	127.18	126.01
2016	606.78	437.21	438.07	169.57	168.71
2017	606.78	416.01	416.84	190.77	189.94
2020	606.78	367.67	368.40	239.11	238.38
2024	606.78	303.19	303.35	303.59	303.43
2030	606.78	206.47	206.55	400.31	400.23

A comparison of the attainment inventory with the emissions that result from the removal of the Gasoline Marketing Rule, confirm that conventional gas emissions remain below those in the attainment inventory. After calculating the margin for both Georgia Gas and conventional gas, it is important to evaluate the amount of the margin allotted to the removal of the Gasoline Marketing Rule and more specifically the switch to conventional gasoline. In Table 3-10, the increase in emissions with Gasoline Marketing rule removal is 0.16 tons/day or just 0.054% of the margin in 2024.

Table 3-10. Margin Allotted to Conventional Gasoline

Year	Georgia Gas Margin (NO_x)	Conventional Gas Margin (NO_x)	Amount of Margin Allotted to Switch to Conventional Gasoline	% of Margin Allotted to Switch to Conventional Gasoline
	tpd	tpd	tpd	%
2010	42.39	40.58	1.81	4.27
2013	105.98	104.81	1.32	1.24
2014	127.18	126.18	1.17	0.92
2016	169.57	168.93	0.87	0.51
2017	190.77	190.16	0.83	0.43
2020	239.11	238.57	0.73	0.30
2024	303.59	303.46	0.16	0.05
2030	400.31	400.24	0.08	0.02

3.4.2 Total VOC Emissions and the 2008 Attainment Inventory

Figure 3-10 below shows a slight difference in the total VOC emissions inventory between Georgia Gasoline and conventional gasoline compared to the 2008 attainment inventory, however, just as in the case of total VOC emissions inventory, both stay well below the 2008 attainment inventory.

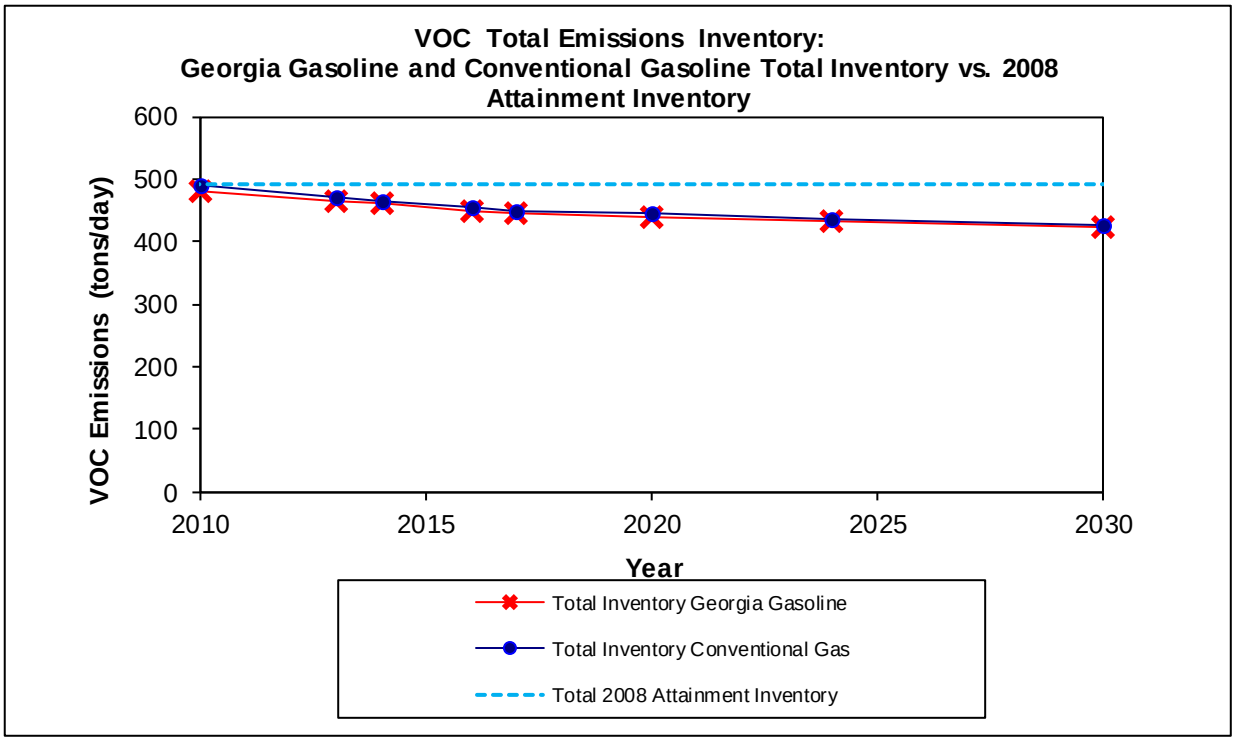

Figure 3-10: Comparison of Total VOC Emissions Inventory: Georgia Gasoline and Conventional Gasoline vs. 2008 Attainment Inventory

Table 3-11 shows the difference between the total VOC emissions inventory for both Georgia Gas and for conventional gasoline and the calculation results used to determine the margin for both Georgia Gas and conventional gas. In both cases, the margins increase beginning in 2010 through to the year 2040.

Table 3-11. Georgia Gas Margin and Conventional Gas Margin

Year	Total 2008 VOC Attainment Inventory	Total VOC Emissions Inventory with Georgia Gasoline	Total VOC Emissions Inventory with Conventional Gasoline	Georgia Gas Margin (VOC)	Conventional Gas Margin (VOC)
	tpd	tpd	tpd	tpd	tpd
2010	491.82	481.47	485.57	10.35	6.25
2013	491.82	465.94	469.29	25.88	22.53
2014	491.82	460.76	463.79	31.06	28.03
2016	491.82	450.41	452.80	41.41	39.02
2017	491.82	445.23	447.60	46.59	44.22
2020	491.82	440.23	442.57	51.59	49.25
2024	491.82	433.35	434.66	58.47	57.16
2030	491.82	423.03	424.10	68.79	67.72

A comparison of the attainment inventory with the emissions that result from the removal of the Gasoline Marketing Rule, confirm that conventional gas emissions remain below those in the attainment inventory. After calculating the margin for both Georgia Gas and conventional gas, the margin allotted to the switch to conventional gasoline is shown in Table 3-12, at 1.31 tons/day or just 2.24% of the margin in 2024.

Table 3-12. Margin Allotted to Conventional Gasoline

Year	Georgia Gas Margin (VOC)	Conventional Gas Margin (VOC)	Amount of Margin Allotted to Switch to Conventional Gasoline	% of Margin Allotted to Switch to Conventional Gasoline
	tpd	tpd	tpd	%
2010	10.35	6.25	4.10	39.57
2013	25.88	22.53	3.35	12.93
2014	31.06	28.03	3.03	9.76
2016	41.41	39.02	2.39	5.77
2017	46.59	44.25	2.37	5.08
2020	51.59	49.25	2.34	4.54
2024	58.47	57.16	1.31	2.24
2030	68.79	67.72	1.07	1.56

3.4.3 Total NO_x Emissions and the 2008 Attainment Inventory

Figure 3-11 shows that there is no discernable difference in the total NO_x emissions inventory between Georgia Gasoline and conventional gasoline; and compared to the 2008 attainment inventory, both stay well below.

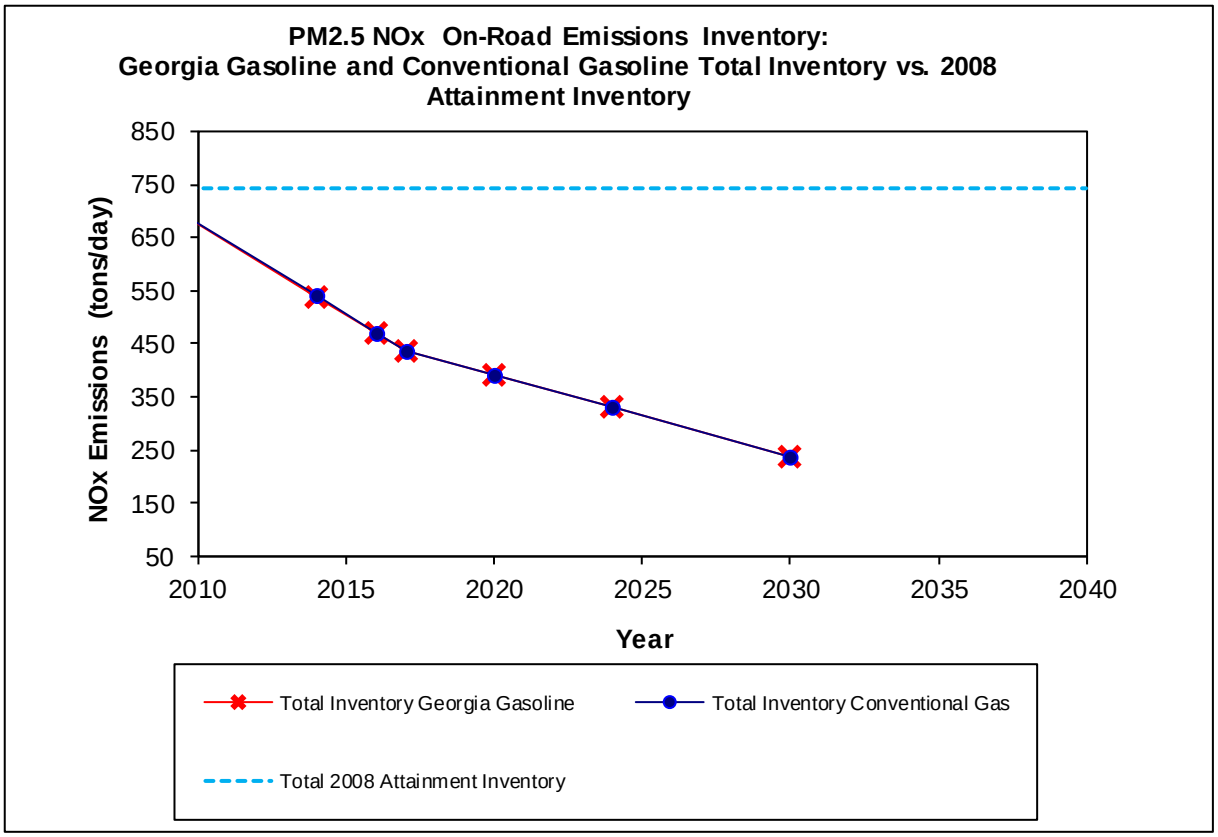

Figure 3-11: Comparison of Total NO_x Emissions Inventory: Georgia Gasoline and Conventional Gasoline vs. 2008 Attainment Inventory

Table 3-13 shows the difference between the total NO_x emissions inventory for both Georgia Gas and for conventional gasoline and resulting safety margins. By demonstrating that the margin of safety is well below the attainment inventory for both scenarios, the removal of Georgia Rule (bbb) is shown not to impact the ability of Atlanta to remain below the 1997 annual NAAQS standard for $PM_{2.5}$. This safety margin is the difference between forecasted actual emissions and the level (attainment emission level or "overall attainment inventory") at which an increase in emissions could indicate a scenario where the area could fall into possible nonattainment with the 1997 annual $PM_{2.5}$ standard. The year 2008 is being used here for PM2.5 (in lieu of 2002) because it represents when Atlanta attained the 1997 PM2.5 standard based on ambient monitoring, and overall emissions levels (all sectors, not just on-road where the baseline year of 2002 or MVEBs matter most) that year make up the "attainment inventory".

Table 3-13. 1997 $PM_{2.5}$ NAA Inventory Comparison to Georgia Gas Margin and Conventional Gas Margin

Year	Total 2008 NO_x Attainment Inventory	Total NO_x Emissions Inventory with Georgia Gasoline	Total NO_x Emissions Inventory with Conventional Gasoline	Georgia Gas Margin	Conventional Gas Margin
	tpd	tpd	tpd	tpd	tpd
2014	743.92	539.48	539.80	204.44	204.12
2016	743.92	471.44	471.72	272.48	272.20
2017	743.92	437.42	437.68	306.50	306.24
2020	743.92	391.43	391.66	352.49	352.26
2024	743.92	330.22	330.27	413.70	413.65
2030	743.92	238.40	238.44	505.52	505.48

A comparison of the attainment inventory with the emissions that result from the removal of the Gasoline Marketing Rule, confirm that conventional gas emissions remain below those in the attainment inventory. After calculating the margin for both Georgia Gas and conventional gas, it is important to evaluate the amount of the margin allotted to the removal of the Gasoline Marketing Rule and more specifically the switch to conventional gasoline. In Table 3-14, the increase in emissions with Gasoline Marketing rule removal is 0.05 tons/day or just 0.01% of the margin in 2024. As with Table 3-3 a small portion of Putnam County is considered in this non-attainment area along with 20 full counties for the 1997 PM2.5 annual NAAQS standard.

Table 3-14. Margin Allotted to Conventional Gasoline

Year	Georgia Gas Margin	Conventional Gas Margin	Amount of Margin Allotted to Switch to Conventional Gasoline	% of Margin Allotted to Switch to Conventional Gasoline
	tpd	tpd	tpd	%
2014	204.44	204.12	0.32	0.15
2016	272.48	272.20	0.28	0.10
2017	306.50	306.24	0.26	0.08
2020	352.49	352.26	0.23	0.07
2024	413.70	413.65	0.05	0.01
2030	505.52	505.48	0.04	0.01

4.0 Georgia Rule 391-3-1-.02(mmm), NO_x Emissions from Stationary Gas Turbines and Stationary Engines used to Generate Electricity

As stated in Section 1.0 above, 110(l) of the CAA requires that a SIP revision not interfere with any applicable requirement concerning attainment, and reasonable further progress (as defined in section 171 and 182 of the CAA).

4.1 Purpose of the Rule Revision

On March 25, 2014, the Georgia Board of Natural Resources (DNR Board) adopted revisions to Georgia Rule 391-3-1-.02(2)(mmm), "NO_x Emissions from Stationary Gas Turbines and Stationary Engines used to Generate Electricity" that added subparagraph 8 pertaining to stationary engines at data centers.

Rule (mmm) was adopted by the DNR Board and submitted to EPA as part of Georgia's October 28, 1999, serious attainment plan for the 1-hour ozone NAAQS, and the revised plan dated July 17, 2001. Similar to the Gasoline Marketing Program described in section 3.0, Rule (mmm) is applicable to 45 counties (area of influence) in and around metro Atlanta. The **45-county** area of influence includes the following counties: Banks, Barrow, Bartow, Butts, Carroll, Chattooga, Cherokee, Clarke, Clayton, Cobb, Coweta, Dawson, Dekalb, Douglas, Fayette, Floyd, Forsyth, Fulton, Gordon, Gwinnett, Hall, Haralson, Heard, Henry, Jackson, Jasper, Jones, Lamar, Lumpkin, Madison, Meriwether, Monroe, Morgan, Newton, Oconee, Paulding, Pickens, Pike, Polk, Putnam, Rockdale, Spalding, Troup, Walton, and Upson. The 45-county area of influence consists of the 20-county 8-hour ozone maintenance area for the 1997 ozone NAAQS plus an additional 25 surrounding counties that are attaining the standard.

Section 3.2.1.1.5.b. of the 2001 attainment plan explains the purpose of this new rule (mmm). The rule was developed and has been implemented to reduce emissions from stationary engines that tend to operate during high electricity demand days. These engines are referred to as "peaking engines". Engines that are used solely for emergency power outages were not subject to the emission limits of the rule. This emergency generator exemption is found in existing subparagraph 7 with the definition of the type of engine and turbine that qualify in subparagraph 4.(i) as follows:

> Emergency standby stationary gas turbines and stationary engines" means any stationary gas turbine or stationary engine that operates only when electric power from the local utility is not available and which operates less than 200 hours per year.

Prior to the March 25, 2014, revision to rule (mmm), emergency generators at data centers were required to operate in accordance with the definition of emergency standby engines found in subparagraph 4.(i) However, these units at data centers have an operational need that differs slightly from that envisioned when rule (mmm) was originally adopted. Data centers are equipped with uninterruptable power supplies (UPSs). During a power outage, the data centers will receive power from the UPSs and not the generators, as envisioned by the definition of emergency standby engines. Instead the generators need to operate when the UPSs fail or become unreliable. Also, in

order to retain reliability, emergency generators at data centers need to be operated for routine testing and maintenance.

4.2 Rule Revision and Prevention of Increase in Emissions – Ozone NAAQS

As a result of these difficulties, EPD added subparagraph 8 to specifically address the needs of data centers. The limit on hours of operation for data centers is 500 hours per year, compared to 200 hours per year for emergency standby engines, in order to meet contractual, regulatory, and/or legal requirements. The new data center provision also limits routine testing and maintenance to the hours of 10 p.m. and 4 a.m., a time of day in which ozone formation does not occur during the May through September ozone season. The new provision requires recordkeeping to ensure compliance with the provisions of the rule. The new subparagraph 8. is shown below.

> 8. Stationary engines at data centers that meet all of the following criteria are not subject to the emission limitations in subparagraph 1:
>
> (i) Operate only for routine testing and maintenance, when electric power from the local utility is not available, or during internal system failures;
>
> (ii) Total annual operation for the engine is less than 500 hours per year;
>
> (iii) Operation for routine testing and maintenance during the months of May through September occurs only between 10 p.m. to 4 a.m. Operation for routine testing and maintenance during the months of January through April and October through December may be done during any time of day; and
>
> (iv) The facility maintains records of all operation, including the reason for the operation.

As stated above, prior to the addition of the data center provision to Rule (mmm), generators at data centers were operated in accordance with the definition of emergency standby stationary engines. Such engines are exempt from permitting in accordance with 391-3-1-.03(6)(b)11(i). Since such engines are not required to be permitted, EPD does not have specific information on the number or capacity of generators at data centers. The generators at data centers remain exempt from permitting in accordance with 391-3-1-.03(b)(6)(b)11(iii) provided that the total horsepower of all engines at a facility remain below 1500 horsepower and no engine operates for more than 1000 hours per year.

4.3 Rule Revision – $PM_{2.5}$ NAAQS

In the Final Redesignation of the Rome, Georgia Nonattainment Area for the 1997 Annual Fine Particulate Matter to Attainment on May 14, 2014 [79 FR 27493 through 27496], EPA agrees that amending Georgia Rule 391–3–1–.02(2)(mmm) is an expected minimal increase and unlikely to interfere the attainment of the $PM_{2.5}$ air quality standard.

> "Subsequent to publication of the proposed rule, GA EPD notified EPA that the Georgia Board of Natural Resources had modified Georgia Rule 391–3–1–.02(2)(mmm) entitled

> ''NO_x Emissions from Stationary Gas Turbines and Stationary Engines used to Generate Electricity'' to exempt certain engines at data centers from the rule's NO_x limits…
>
> GA EPD adopted Georgia Rule 391–3–1–.02(2)(mmm) as a statewide ozone control measure[3], and the recent amendment exempts stationary engines at data centers from the rule's NO_x emission limits provided that the engines operate for less than 500 hours per year and only for routine testing and Maintenance (limited to May through September between 10 p.m. and 4 a.m.), when electric power from a utility is not available, or during internal system failures. These data centers are equipped with uninterruptable power supplies (UPSs) that supply electricity during a power outage, and the exempted engines are designed to provide power only when the UPSs malfunction. Given the nature of the exempted engines and the conditions necessary to qualify for the exemption, any emissions increase is likely negligible…EPA has concluded that the changes to the aforementioned rules do not affect the Agency's decision to approve the redesignation request and maintenance plan for the Rome Area. Any increase in modifications is expected to be minimal and well within the margin necessary to maintain attainment of the 1997 Annual $PM_{2.5}$ standard."

EPA has agreed with this assessment for the Final Redesignation of the Macon, Georgia Nonattainment Area for the 1997 Annual Fine Particulate Matter to Attainment also, dated May 13, 2014 [79 FR 27194 through 27196]. For the same reason that EPA concluded that the revision to Rule (mmm) did not affect their decision to approve the redesignation requests for Rome or Macon, this rule change will have no impact on the ability to attain or maintain ambient air quality standards in the Atlanta area. This rule revision does not change or impose a new emission limit on stationary engines at data centers. Stationary engines that operate as emergency standby stationary engines, which applied to data centers prior to the change, were exempt from the NO_x emission limits of Rule (mmm). Under the revised rule, stationary engines at data centers are still exempt from the NO_x emission limits of Rule (mmm). Because the revision to the rule limits operation of data center generator engines to less than 500 hours per year and limits routine testing and maintenance operations to night-time hours (10 p.m. to 4 a.m.), a period during which ozone and fine particulate matter atmospheric photochemical formation does not occur, this change will not result in an emissions increase and thus has no impact on maintenance or attainment of the $PM_{2.5}$ and ozone NAAQS.

[3] It should be noted that rule (mmm) is not a statewide ozone control measure. Rule (mmm) only applies to 20 counties that were designated nonattainment and 25 additional counties determined by EPD to contribute to nonattainment for the 1997 ozone NAAQS. Rome is located in Floyd County which is one of those 25 additional counties. Monroe County, a portion of which is located in the Macon nonattainment area, is also one of the 25 additional counties.

5.0 NO_x and VOC Sensitivity

As stated in Section 1.0 above, 110(l) of the CAA requires that a SIP revision not interfere with any applicable requirement concerning attainment, and reasonable further progress (as defined in section 171 and 182 of the CAA). This section will demonstrate that the emissions increases resulting from the removal of Georgia Rules (aaa) and (bbb) will insignificant to no impact on ozone concentrations in the Atlanta areas.

5.1 Sensitivity of Ozone in Atlanta to NO_x and VOC Emissions

Control of NO_x and VOC are generally considered the most important components of an ozone control strategy, and NO_x and VOC make up the largest controllable contribution to ambient ozone formation. However, the metro Atlanta nonattainment area has shown a greater sensitivity of ground-level ozone to NO_x controls rather than VOC controls. This is due to the biogenic nature of VOC emissions in Georgia. Therefore, implemented control measures have focused on the control of NO_x emissions. The Atlanta nonattainment area is NO_x limited in such a way that changes in VOC emissions have little effect on ozone formation.

5.1.1 Sensitivity Modeling NO_x and VOC Emissions

As part of the **S**outh**E**astern **M**odeling, **A**nalysis, and **P**lanning (SEMAP) project, Georgia Tech performed an analysis of the sensitivity of ozone concentrations in the Eastern U.S. to reductions in emissions of both nitrogen oxides (NO_x) and volatile organic compounds (VOCs). This analysis was based off of the 2007 and 2018 SEMAP modeling which used CMAQ version 5.01 with updates to the vertical mixing coefficients and land-water interface. May 1st through September 30th was modeled using a 12-km modeling grid that covered the Eastern U.S. Details of the modeling platform set-up can be found in Appendix D.

5.1.2 Modeling Scenarios

Sensitivities were modeled relative to 2018 emissions to evaluate the impact of NO_x and VOC reductions on daily 8-hour maximum ozone concentrations. Each emission sensitivity run reduced the 2018 anthropogenic NO_x or VOC emissions (point, area, mobile, NONROAD, marine/aircraft/rail) within a specific geographic region by 30%.

Georgia EPD performed a sensitivity study with the information provided by the SEMAP modeling project and the Georgia Tech analysis to examine the normalized sensitivities of NO_x and VOC emissions on 8-hour daily maximum ozone concentrations (part per billion ozone/ton per day, ppt/TPD) at 10 ozone monitors in Atlanta. EPD used a 75 parts per billion (ppb) threshold to address the 2008 ozone NAAQS. For further details on the approach used to calculate the normalized sensitivities of NO_x and VOC, please see Appendix C.

5.1.3 Modeling Results

Table 5-1. Normalized NO_x and VOC Sensitivity at 10 Atlanta Ozone Monitors

AIRS ID	Site Name	NO_x (ppb/TPD)	VOC (ppb/TPD)
13-067-0003	Kennesaw	-0.0743	-0.0045
13-077-0002	Newnan	-0.0806	-0.0018
13-085-0001	Dawsonville	-0.0622	-0.0007
13-089-0002	South DeKalb	-0.0771	-0.0058
13-097-0004	Douglasville	-0.0797	-0.0042
13-121-0055	Confederate Ave.	-0.0612	-0.0077
13-135-0002	Gwinnett	-0.0763	-0.0026
13-151-0002	McDonough	-0.0869	-0.0034
13-223-0003	Dallas /Yorkville	-0.0693	-0.0011
13-247-0001	Conyers	-0.0898	-0.0031
	AVERAGE (ppb/TPD)	**-0.0757**	**-0.0035**

The results in Table 5-1 above show that NO_x emission reductions are generally 15-25 times more effective than VOC emission reductions at reducing ozone concentrations. In order to look at the impact of removing NO_x or VOC controls on the 2008 ozone NAAQS, the site-specific normalized sensitivities are multiplied by the increase in NO_x and/or VOC emissions.

The site-specific normalized NO_x and VOC sensitivities were applied to the expected emission increases due to the removal of the Consumer and Commercial Products Rule, Georgia Rule (aaa) and the Gasoline Marketing Rule, Georgia Rule (bbb). The emission increases are based on 2013 values and represent the largest impact as the emissions increase will decrease each successive year. The removal of the Georgia Rule (aaa) results in an increase of VOC emissions of 0.17 tons per day in 2013. The removal of Georgia Rule (bbb) results in an increase of 5.03 tons per day of VOC in 2013 for the 45-county area decreasing over time to 1.76 tons per day by 2040; while NO_x emissions increase to 3.20 tons per day in the 45-county decreasing over time to zero by 2040. The corresponding ozone increases at each monitor are found in Table 5-2 and demonstrate very insignificant increases in ozone concentrations. The calculated changes in ozone levels are below the level of precision of the ambient ozone monitors (1 ppb).

Table 5-2. Emissions Increases Due to Georgia Rules (aaa) and (bbb) and Effects on Ozone Formation

Monitor	Rule (aaa)		Rule (bbb)				Combined
	2013 VOC Emissions Increase with Removal of Georgia Rule (aaa) (tons/day)	Corresponding Ozone Increase at Monitor (ppb)	2013 NO_x Emissions Increase with Conventional Gas (tons/day)	Corresponding Ozone Increase at Monitor (ppb)	2013 VOC Emissions Increase with Conventional Gas (tons/day)	Corresponding Ozone Increase at Monitor (ppb)	Corresponding Ozone Increase at Monitor (ppb)
Kennesaw	0.17	0.0077	2.08	0.1545	5.03	0.0226	0.1848
Newnan	0.17	0.0003	2.08	0.1676	5.03	0.0091	0.1770
Dawsonville	0.17	0.0001	2.08	0.1294	5.03	0.0035	0.1330
South DeKalb	0.17	0.0010	2.08	0.1604	5.03	0.0292	0.1906
Douglasville	0.17	0.0007	2.08	0.1658	5.03	0.0211	0.1876
Confederate Ave.	0.17	0.0013	2.08	0.1273	5.03	0.0387	0.1673
Gwinnett	0.17	0.0004	2.08	0.1587	5.03	0.0131	0.1722
McDonough	0.17	0.0006	2.08	0.1808	5.03	0.0171	0.1985
Dallas /Yorkville	0.17	0.0002	2.08	0.1441	5.03	0.0055	0.1498
Conyers	0.17	0.0005	2.08	0.1868	5.03	0.0156	0.2029

6.0 Emission Offsets

In cases where VOC or NO_x emissions have increased due to the removal of a rule or a program in a nonattainment area, offset measures may be considered in a state's 110(l) demonstration. If an offset measure is used, it must be reproducible, enforceable, surplus, quantifiable, and a permanent measure. The emission reduction must also not otherwise be relied upon to meet air quality attainment requirements in other air quality programs related to the SIP.

6.1 Emissions Increase

As indicated in section 2.1.1, the removal of the Georgia Rule (aaa) results in an increase of VOC emissions of 0.17 tons per day in 2013 resulting in an equivalent ozone season increase in emissions of 42.54 tons.

The removal of Georgia Rule (bbb), is shown in sections 3.1.1 and 3.1.2 and results in an increase of 5.66 tons per day of VOC in 2013 for the 45-county area decreasing over time to 1.94 tons per day by 2040; while NO_x emissions increase to 2.12 tons per day in the 45-county decreasing over time to zero by 2040. The removal of Georgia Rule (bbb) will not be approved by EPA until 2015, and the gasoline suppliers will continue to comply with the rule until that time. Therefore, for purposes of calculating offsets, Georgia EPD is interpolating between 2013 and 2016 for the 2015 emissions increase as shown in Table 6-1.

Table 6-1. Interpolation of Emissions Increase Due to Georgia Rule (bbb)

2013 NO_x (tons/day)	2013 VOC (tons/day)	2015 NO_x (tons/day)	2015 VOC (tons/day)	2016 NO_x (tons/day)	2016 VOC (tons/day)
2.12	5.66	**1.66**	**4.61**	1.43	4.08

The revision to rule (mmm) adds a provision that allows engines that were previously classified as "emergency generators" to be operated in accordance with a new provision for "data centers". Since emergency generators are not subject to the emission limits in rule (mmm), reclassifying these units as data center engines will not result in any increase in emissions.

Section 5 addresses the ozone formation in the Atlanta area and the sensitivity to reductions of NO_x and VOC emissions, and since the Atlanta area is a NO_x limited area, the control of NO_x emissions result in greater reductions of ozone at the monitor. The maximum VOC emissions increase resulting from the removal of Rules (aaa) 0.17 and (bbb) is 4.06 tons per day, respectively. This increase in VOC emissions can be converted to an equivalent increase in NO_x emissions based on the ratio of normalized ozone sensitivities found in section 5 as follows:

From Georgia Rule (aaa)

$$0.17 \text{ TPD VOC} \times (-0.0035 \text{ ppb/TPD VOC})/(-0.0757 \text{ ppb/TPD } NO_x) = 0.0079 \text{ TPD } NO_x$$

Converted to Ozone Season Emissions:

0.0079 TPD x 244 days = **1.92 tons of NO_x**

There are no NO_x emissions increases from Georgia Rule (aaa).

From Georgia Rule (bbb)

4.61TPD VOC x (-0.0035 ppb/TPD VOC)/(-0.0757 ppb/TPD NO_x) = 0.2131 TPD NO_x

Converted to Number of Tons from the number of days the Rule is in effect*:

0.2131 TPD x 107 days = **22.81 tons of NO_x**

*Note: Georgia Rule (bbb) is in effect only from June 1 to September 15 of any calendar year, and therefore in effect only 107 days per year.

By adding the actual NO_x emissions increase to the equivalent NO_x emissions increase from VOC emissions using the sensitivity calculation, the resulting NO_x emissions increase leads to the needed emissions offset.

1.66 TPD x 107 days = **177.62** tons of NO_x + 22.81 tons of sensitivity NO_x

200.43 = tons of NO_x offsets needed.

Table 6-2 summarizes the total offsets needed from both Georgia Rules (aaa) and (bbb).

Table 6-2. Emissions Offsets Needed from Removal of Georgia Rules (aaa) and (bbb)

Offsets Needed from Georgia Rule (aaa) (tons)	Offsets Need from Georgia Rule (bbb) (tons)	Total Offsets Needed (tons)
1.92	200.43	202.35

6.2 Emissions Offset

Because of the temporary increase in NO_x and VOC emissions in the nonattainment area due to the removal Rules (aaa) and (bbb), Georgia EPD is securing NO_x emissions offsets to ensure that both the original 13-county 1990 1-hour ozone maintenance area, the 1997 20-county ozone maintenance area, and the 1997 22-county[4] $PM_{2.5}$ maintenance area remain in attainment with their respective

[4] 20 entire counties plus 2 partial counties.

NAAQS and that the rule removal will not interfere with attainment of the 2008 ozone NAAQS for the 15 county Atlanta nonattainment area. Georgia proposes to demonstrate noninterference by substituting the quantifiable, permanent, surplus, enforceable and contemporaneous measures described herein to achieve equivalent or greater emission reductions to offset these expected emission increases. The following is an analysis and calculations to determine the offsets needed to address the removal of the Rule (bbb) in 45 counties that encompass each of these maintenance and nonattainment area and the removal of Rule (aaa) in the 13 counties of the 1-hour ozone maintenance area, which is included within the 1997 and 2008 maintenance and nonattainment areas. As described more fully in this submission, a minimum of 202.35 tons of NOx emission reductions will be achieved through implementation of the Locomotive Conversion Program[5] and school bus early replacements[6]. **As such, these measures will fully offset the expected emission increases associated with the removal of Rules (aaa) and (bbb).**[7]

This SIP revision obligates the State to fully implement the Locomotive Conversion Program and is detailed in: 1) the attached Norfolk Southern Railway Company Scope of

[5] The Locomotive Conversion Program will result in the:

- Conversion of 20 Norfolk Southern Railway locomotives in the Atlanta area from Tier 0 or lower locomotives with at least five years of expected remaining life, to ten mother/slug sets, where the "mother" locomotive will be ECO710 3,000 horsepower locomotives meeting EPA Tier 3 switch-duty emission standards or better (i.e., with lower emissions) to be completed by October 30, 2015;
- Installation of locomotive technology to accommodate an electric layover system on the converted Norfolk Southern Railway locomotives and install plug-in stations and associated yard infrastructure to operate an electric layover heating system at the Norfolk Southern Atlanta Terminal in Atlanta, Georgia; and
- Conversion of six CSX Transportation locomotives in the Atlanta Area from Tier 0 or a lower rating to 3,000 horsepower locomotives meeting EPA Tier 3 Line-haul and Tier 2 Switch emission standards or better (i.e., with lower emissions) to be completed by October 15, 2016.
- Conversion of two Norfolk Southern Railway locomotives in the Rome area from Tier 0 or lower locomotives with at least five years of expected remaining life, to two mother/slug sets, where the "mother" locomotive will be ECO710 3,000 horsepower locomotives meeting EPA Tier 3 switch-duty emission standards or better (i.e., with lower emissions) to be completed by November 23, 2015.

[6] School bus early replacements resulting in 5.08 tons per year of NO_x reductions in the 45-county area were completed in 2014.

[7] Georgia EPD notes that the Atlanta Area is NOx-limited, so the impact on ozone formation of reducing NOx emissions is greater than it is for reducing emissions of VOCs. Accordingly, for purposes of calculating the emissions reductions necessary to offset the removal of Rules (aaa) and (bbb) from the SIP, Georgia is relying on NOx emission reductions. As described in this SIP revision, Georgia performed a sensitivity analysis to calculate the NOx equivalent emissions reductions necessary to offset the expected emissions increase in NOx and VOCs associated with removal of Rules (aaa) and (bbb). Georgia EPD further notes that the impact of the NOx and VOC emissions increase on ambient $PM_{2.5}$ concentrations is not expected to interfere with current progress toward attainment of the 1997 Annual $PM_{2.5}$ standard.

Work for Atlanta, Paragraphs A through C; 2) the attached CSX Transportation, Inc., Scope of Work, Paragraphs A through C; and 3) the attached Norfolk Southern Railway Company Scope of Work for Rome, Paragraphs A through C. These attachments are included as part of this SIP revision. The Georgia Department of Natural Resources has entered into contracts with the Norfolk Southern Railway Company (contracts date April 29, 2014 and November 25, 2014) and CSX Transportation, Inc. (contract date August 19, 2014), to complete this work. In total, the Locomotive Conversion Program will result in at least 199.20 tons of NOx reductions by no later than October 15, 2016. More detail is provided below.

In addition, Georgia will make publically available the reports described in the attached Scope of Work documents, Paragraphs D through G. All future reports submitted to the Georgia Department of Natural Resources pursuant to these Scope of Work documents shall be transmitted to EPA within 30 days of receipt by the Department.

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6.2.1 Locomotive and Diesel Retrofit Conversion Offsets

Georgia EPD has both a locomotive retrofit program and a diesel school bus early replacement program. These programs will provide adequate emissions reductions to be used for offsets for the removal of Georgia Rules (aaa) and (bbb).

Locomotive Retrofits:

Georgia EPD has been working with the railroad industry to retrofit existing diesel locomotive engines with lower emitting locomotive engines.

The locomotive emission reduction program underway in Georgia is expected to reduce 199.20 tons of NO_x per year for 10 years or more. These projects are funded through the US DOE Congestion Mitigation and Air Quality Program (CMAQ) and established though project awards from the GA DOT to the GA EPD and executed contracts between the GA EPD and Norfolk Southern Railway, Inc. and CSX. The Atlanta projects represent $24,000,000.00 in CMAQ funding and $10,290,000.00 in private match from the railroads invested in implementing these low-emission technologies. The Rome project represents $900,000.00 in CMAQ funding and $1,452,000.00 in private match.

Locomotives have very large engines (3000 – 3500 hp in these projects) and traditionally run on 'locomotive-grade' non-road diesel with resulting high emissions of PM, NO_x, and VOC. Under the CMAQ projects, 17 older traditional switcher locomotives, which operate 24-hours per day year-round, are repowered with newly-available low-emission engines. In addition, 11 switchers will be converted to 'slugs', which are driven by electrical motors whose electricity is received from companion 'mother' locomotives. (This configuration is referred to as 'mother-slug' locomotives.) The slugs will have no associated diesel-combustion emissions.

As shown in Table 6-3, the emission reductions are phased in over 3 years starting in 2014, fitting into the March 2014 to September 2016 contemporaneous period.

Table 6-3. Locomotive Conversion Schedule

Conversion Period	Number of Locomotives Repowered	Number of Locomotives Converted to Slugs
Nov- Dec 2014	2	2
Feb – Oct 2015	8	8
during or before Nov 2015	1	1
May – Aug 2016	6	0

NO_x reductions from the locomotive reductions will yield 190.78 tons/year in Atlanta and 8.42 tons/year in Rome for a total of 199.20 tons/yr. Further details on the locomotive reductions can be found in Appendix E.

The converted low-emission locomotives are required to remain in the assigned operating areas (in and near the rail yards) for at least 10 years after entering revenue service. Of note, other states that have supported locomotive emission reductions through the CMAQ program have had 2 to 5 year commitment periods. We are unaware of any other state that was able to secure 10-year periods of commitment.

During this 10-year period, 2008 Federal Locomotive Emission Standards are phasing in (EPA Fact Sheet EPA-420-/f-09-025 (Table 2). April 2009.). While locomotive fleets have a slow turnover (20 to 40 years for a Class 1 switcher locomotive), they are re-manufactured every 15 to 20 years and must be brought up to standards at that time. According to the Regulatory Impact Analysis released with the 2008 Locomotive Standards, reductions from large railroad switch locomotives by the end of the 10 year period (2025) is estimated to be 11,886 tons of NO_x for the national fleet of 5206 switchers (page 3-79, section 3.3.2.2 and table 3-88, of the Regulatory Impact Analysis: Control of Emissions of Air Pollution from Locomotive Engines and Marine Compression Ignition Engines Less than 30 Liters Per Cylinder (RIA)). Scaling this to the approximately 30 switchers in Norfolk Southern's Inman Yard and 10 switchers in CSX's Tilford yard, the switcher fleet upgrades will reduce, on average, emissions of ~91 tons/year of NO_x. This does not account for the additional large emission reductions anticipated from the line-haul traffic that moves through the Atlanta railyards. By 2025, the increased emissions from removing GA Rule 391-3-.02(2)(aaa) (consumer products) and 391-3-.02(2)(bbb) is estimated to be only ~38 tons/year so the stricter standards in 2025 will more than offset the increase in emissions that would be expected with rules removal.

Further, Class I railroads assign the more advanced fleets to their large, urban, complex yards such as in Atlanta. These locomotives often have specialized equipment installed to aid in their control and operation. For example, the Norfolk Southern locomotives converted under the GA EPD CMAQ program will have an Electric Layover Heating System installed so that they can be plugged into power systems installed in the yard to reduce the need for idling. It is highly unlikely that these locomotives will be transferred even after the 10-year commitment period expires.

Conversion schedules for this retrofit program can be found in Appendix E.

School Bus Early Replacement:

Georgia EPD also has a strong school bus early replacement program. Recently completed 2014 projects funded by DERA and CMAQ grants, have resulted in NO_x emissions reductions of 5.08 tons per year in the 45-county area covered by Rule (bbb). Calculations of NO_x emissions within the contract time frame of the emission reduction can be found in Appendix E.

6.3 Offset Equivalency Demonstration

Based on the amount of offsets available from school bus early replacements and railroad locomotive engine retrofits, Georgia EPD has offsets in excess of the increase in emissions due to the removal of Georgia Rules (aaa) and (bbb). Tables 6-2 through 6-6 show in detail the emission increases and the available offsets for comparison.

Table 6-5. Emissions Decrease Due to All Retrofits

Source of Offset	Locomotive Retrofits	School Bus Replacements	Total Decrease
NO_x Emissions Decrease (tons/year)	199.20	5.08	204.28

The offsets available from both bus replacements and rail locomotive diesel retrofits totals 204.28 tons per year of NO_x.

As shown in Table 6-6, the annual NO_x decrease from the school bus replacements and locomotive retrofits are more than adequate to offset the maximum NO_x and VOC increase expected from the repeal of rules 391-3-1-.02(2)(aaa) and (bbb). The increase in emissions from removal of these rules is at a maximum immediately following their repeal and gradually decreases over time.

Table 6-6. Emissions Increases Compared to Available Emissions Offsets

Emissions Increases Due to Georgia Rule (aaa) (tons)	Emissions Increases Due to Georgia Rule (bbb) (tons)	Total Emissions Increase from Rule Removals (tons)	Total Available Offsets (tons)
1.92	200.43	202.35	204.28

7.0 Contingency Measures

All of the school bus early replacements that will be used as offsets have already occurred in a contemporaneous timeframe, and therefore meet the requirement that offsets be reproducible, enforceable, surplus, quantifiable, and permanent. However, some of the locomotive retrofits (although cotemporaneous) will occur after this SIP revision is submitted to U.S. EPA. Therefore, Georgia EPD is putting into place a contingency measure for the likelihood that some of the locomotive retrofits are not completed. This contingency measure will ensure that sufficient substitute emission reductions occur to replace any emission reductions that would not be realized by locomotive retrofits not be completed.

7.1.1 Contingency Provisions - Stationary Source Offsets

On December 30, 2013, Georgia Power Company submitted a construction application to Georgia EPD for Yates Steam – Electric Generating Plant in Newnan, Georgia. Existing coal-fired Units 6 and 7 are to be modified to operate at 100% natural gas, and upon completion of the project existing coal-fired Units 1, 2, 3, 4, and 5 will be retired. The net decrease in NO_x emissions at the facility is 9,123.7 tons per year. The actual decrease in NO_x emissions from Units 1 through 5 will be 7435.0 tons per year. Georgia Power is not relying on the NO_x decrease from retiring Units 1 through 5 to net out of or avoid any applicable requirements (including nonattainment NSR). Furthermore, EPD has not relied on the retirement of Units 1 through 5 in any SIP revisions or any NAAQS attainment or maintenance requirements. Units 1 through 5 will be permanently retired by April 16, 2015.

The facility's Title V permit modification was issued August 29, 2014. Since the emissions reduction from the retirement of Units 1 through 5 is significantly larger than the emissions increase from the removal of Rules (aaa) and (bbb), EPD only needs to rely on the emissions decrease from one of the units for offsetting emissions. EPD has elected to use the emission reductions from Plant Yates Unit 3 for offsetting emissions.

REGULATORY REQUIREMENTS:

In order to determine the amount of emissions reductions resulting from the shutdown of Plant Yates Unit 3 available for use as offsets, EPD used the provisions of Appendix S to Part 51 - Emission Offset Interpretative Ruling to conduct an evaluation.

Section IV.C. of Appendix S defines the Baseline for determining credit for emissions and air quality offsets in the following manner:

The baseline for determining credit for emission and air quality offsets will be the SIP emission limitations in effect at the time the application to construct or modify a source is filed. Thus, credit for emission offset purposes may be allowable for existing control that goes beyond that required by the SIP. Emission offsets generally should be made on a pounds per hour basis when all facilities involved in the emission offset calculations are operating at their maximum expected or allowed production rate. The reviewing agency should specify other averaging periods (e.g., tons per year) in addition to the pounds per hour basis if necessary to carry out the intent of this Ruling. When offsets

are calculated on a tons per year basis, the baseline emissions for existing sources providing the offsets should be calculated using the actual annual operating hours for the previous one or two year period (or other appropriate period if warranted by cyclical business conditions). Where the SIP requires certain hardware controls in lieu of an emission limitation (e.g., floating roof tanks for petroleum storage), baseline allowable emissions should be based on actual operating conditions for the previous one or two year period (i.e., actual throughput and vapor pressures) in conjunction with the required hardware controls.

In Section IV.C. of Appendix S, offsets created through shutting down an existing source, must adhere to the following requirements:

3. Emission Reduction Credits from Shutdowns and Curtailments.

(i) Emissions reductions achieved by shutting down an existing source or curtailing production or operating hours may be generally credited for offsets if they meet the requirements in paragraphs IV.C.3.i.1. through 2 of this section.

(1) Such reductions are ***surplus, permanent, quantifiable, and federally enforceable.***

(2) The shutdown or curtailment occurred after the last day of the base year for the SIP planning process. For purposes of this paragraph, a reviewing authority may choose to consider a prior shutdown or curtailment to have occurred after the last day of the base year if the projected emissions inventory used to develop the attainment demonstration explicitly includes the emissions from such previously shutdown or curtailed emission units. However, in no event may credit be given for shutdowns that occurred before August 7, 1977.

(ii) Emissions reductions achieved by shutting down an existing source or curtailing production or operating hours and that do not meet the requirements in paragraphs IV.C.3.i.1. through 2 of this section may be generally credited only if:

(1) The shutdown or curtailment occurred on or after the date the new source permit application is filed; or

(2) The applicant can establish that the proposed new source is a replacement for the shutdown or curtailed source, and the emissions reductions achieved by the shutdown or curtailment met the requirements of paragraphs IV.C.3.i.1. through 2 of this section.

BASELINE EMISSIONS:

The provisions for determining baseline credit specified in Appendix S states that the SIP limits are in effect when a permit application is submitted. The requested SIP revision does not involve permitting activity, so this definition is not directly applicable. However, Georgia EPD is submitting

a SIP for the revision and the removal of several air quality rules. Thus, EPD will use the SIP limits in place at the time of submittal of the SIP revision. The emissions increase from the SIP revision has been determined on a ton per year basis. However, some of the limitations are on a 30-day rolling average basis. Thus, the analysis is carried out based on annual emission rates and, where a 30-day rolling average applies, monthly emission rates. The baseline provision also states that baseline emissions should be calculated using actual annual operating hours for the previous one or two year period (or other appropriate period if warranted by cyclical business conditions). EPD has used the two most-recent available calendar year period (2012 and 2013) for calculating baseline emissions. This data was obtained from EPA's Clean Air Markets Program Data website. Baseline emissions for 2012 were 688 tons. Baseline emissions for 2013 were 632 tons. The average baseline emissions for this 2-year period are 660 tons/year.

Tables 7-1 through 7-3 show the baseline NO_x emissions of Plant Yates Unit 3 for 2012 at 687.70 tons per year and for 2013 at 631.34 tons per year with a resulting annual average emissions baseline for 2012-2013 as 659.62 tons.

Table 7-1. Plant Yates Unit 3 Emissions Baseline For 2012

Facility Name	Facility ID (ORISPL)	Unit ID	Year	Month	Average NO_x Rate (lb/MMBtu)	NO_x (tons)	Heat Input Rate (MMBtu)	Operating Time
Yates	728	Y3BR	2012	1	0.3439	62.274	358224.7	703.50
Yates	728	Y3BR	2012	2	0.3172	54.950	347173.9	671.50
Yates	728	Y3BR	2012	3	0.3615	86.559	449601.7	744.00
Yates	728	Y3BR	2012	4	0.3052	56.666	371056.0	720.00
Yates	728	Y3BR	2012	5	0.2746	54.091	392058.9	744.00
Yates	728	Y3BR	2012	6	0.2782	14.377	103071.7	211.25
Yates	728	Y3BR	2012	7	0.2532	48.787	382052.6	744.00
Yates	728	Y3BR	2012	8	0.2599	50.466	386369.9	744.00
Yates	728	Y3BR	2012	9	0.2552	51.948	406316.0	720.00
Yates	728	Y3BR	2012	10	0.2977	54.004	355901.8	646.75
Yates	728	Y3BR	2012	11	0.3833	82.964	424649.2	720.00
Yates	728	Y3BR	2012	12	0.3301	70.616	426410.4	744.00
Yates	728	Y3BR	2012	All		**687.702**		

Table 7-2. Plant Yates Unit 3 Emissions Baseline For 2013

Facility Name	Facility ID (ORISPL)	Unit ID	Year	Month	Average NO_x Rate (lb/MMBtu)	NO_x (tons)	Heat Input Rate (MMBtu)	Operating Time
Yates	728	Y3BR	2013	1	0.4881	109.57	444385.9	744.00
Yates	728	Y3BR	2013	2	0.4173	86.65	415304.8	672.00
Yates	728	Y3BR	2013	3	0.4508	105.17	465671.8	744.00
Yates	728	Y3BR	2013	4	0.4280	95.97	447970.6	720.00
Yates	728	Y3BR	2013	5	0.2600	58.73	450211.5	744.00
Yates	728	Y3BR	2013	6	0.2310	45.93	387750.5	720.00
Yates	728	Y3BR	2013	7	0.2571	52.44	404768.0	744.00
Yates	728	Y3BR	2013	8	0.3430	77.06	430355.7	500.75
Yates	728	Y3BR	2013	9				
Yates	728	Y3BR	2013	10				
Yates	728	Y3BR	2013	11				
Yates	728	Y3BR	2013	12				
Yates	728	Y3BR	2013	All		**631.53**		

Table 7-3. Plant Yates Unit 3 Annual Average Emissions Baseline For 2012 - 2013

Facility Name	Facility ID (ORISPL)	Unit ID	Year	NO_x (tons)	Annual Average Emissions Baseline
Yates	728	Y3BR	2012	687.70	
Yates	728	Y3BR	2013	631.53	
Yates	728	Y3BR	2012 - 2013		**659.62**

SURPLUS:

Surplus is defined in 40 CFR 51.491 as "at a minimum, emissions reductions in excess of an established program baseline which are not required by SIP requirements or State regulations, relied upon in any applicable attainment plan or demonstration, or credited in any RFP or milestone demonstration, so as to prevent the double-counting of emissions reductions."

The shutdown of Yates Unit 3 has not been relied upon by any attainment plan or demonstration or credited in any RFP demonstration.

Yates Unit 3 is subject to the following SIP requirements and SIP-approved state regulations:

- Georgia Air Quality Control Rule 391-3-1-.02(2)(jjj), "NO_x Emissions from Electric Utility Generating Units" [Rule (jjj)],
- 40 CFR Part 76, the Acid Rain Nitrogen Oxides Emission Reduction Program, and
- The Clean Air Interstate Rule

For Georgia Rule (jjj), the surplus was determined by first considering the sections of rule that pertain to the facility. Plant Yates is located in Coweta County and is therefore subject to subparagraphs 3 and 5 of Rule (jjj). Both subparagraphs 3 and 5 state that each affected unit(s) shall not exceed the alternative emission limit established in the Title V permit for the affected units(s). The current alternative limits are found in condition 3.4.8 of Title V permit 4911-077-001-V-03-0 issued July 27, 2010. Condition 3.4.8 establishes a combined 30-day rolling average emission limit of 0.38 lb/MMBtu from the combined emissions from Yates Units 2 and 3.

Table 7-4. Plant Yates Units 2 and 3, Actual Emissions For 2012

Month	Avg. NO_x Rate (lb/MMBtu) Unit 2	NO_x (tons) Unit 2	Heat Input (MMBtu) Unit 2	Avg. NO_x Rate (lb/MMBtu) Unit 3	NO_x (tons) Unit 3	Heat Input (MMBtu) Unit 3	NO_x (tons) Units 2&3	Heat Input (MMBtu) Units 2&3	Avg. NO_x Rate (lb/MMBu) Units 2&3	Rule (jjj) limit (lb/MM Btu)
1	0.384	37.41	190618.7	0.344	62.27	358224.7	99.69	548843.4	0.363	
2	0.317	58.79	368492.0	0.317	54.95	347173.9	113.74	715665.9	0.318	
3	0.362	85.95	445547.9	0.362	86.56	449601.7	172.51	895149.6	0.385	
4	0.305	57.71	379976.0	0.305	56.67	371056.0	114.38	751032.0	0.305	
5	0.275	54.67	397491.6	0.275	54.09	392058.9	108.76	789550.5	0.275	0.38
6	0.284	49.88	350706.8	0.278	14.38	103071.7	64.26	453778.4	0.283	0.38
7	0.253	49.96	387965.9	0.253	48.79	382052.6	98.75	770018.5	0.256	0.38
8	0.260	48.73	375171.8	0.260	50.47	386369.9	99.20	761541.7	0.261	0.38
9	0.255	44.33	347220.1	0.255	51.95	406316.0	96.28	753536.1	0.256	0.38
10	0.264	18.55	140419.9	0.298	54.00	355901.8	72.56	496321.7	0.292	
11				0.383	82.96	424649.2	82.96	424649.2	0.391	
12				0.330	70.62	426410.4	70.62	426410.4	0.331	

Table 7-5. Plant Yates Units 2 and 3, Actual Emissions For 2013

Month	Avg. NO_x Rate (lb/MMBtu) Unit 2	NO_x (tons) Unit 2	Heat Input (MMBtu) Unit 2	Avg. NO_x Rate (lb/MMBtu) Unit 3	NO_x (tons) Unit 3	Heat Input (MMBtu) Unit 3	NO_x (tons) Units 2&3	Heat Input (MMBtu) Units 2&3	Avg. NO_x Rate (lb/MMBu) Units 2&3	Rule (jjj) limit (lb/MM Btu)
1				0.488	109.57	444385.9	109.57	444385.9	0.493	
2				0.417	86.66	415304.8	86.66	415304.8	0.417	
3				0.451	105.17	465671.8	105.17	465671.8	0.452	
4				0.428	95.97	447970.6	95.97	447970.6	0.428	
5				0.260	58.73	450211.5	58.73	450211.5	0.261	0.38
6	0.288	12.34	76983.7	0.231	45.93	387750.5	58.26	464734.2	0.251	0.38
7				0.257	52.44	404768.0	52.44	404768.0	0.259	0.38
8	0.300	29.84	193346.5	0.343	77.06	430355.7	106.9	623702.2	0.343	0.38
9	0.259	65.57	501190.0				65.57	501190.0	0.262	0.38
10	0.485	99.20	409047.9				99.20	409047.9	0.485	
11	0.539	106.96	397407.5				106.96	397407.5	0.538	
12	0.561	87.83	312954.9				87.83	312954.9	0.561	

A comparison of actual emissions from Yates Units 2 and 3 for the baseline period is compared to this limit in Tables 7-4 and 7-5. Actual emissions were obtained from EPA's Air Markets Program Data website. Actual emissions were lower than the Rule (jjj) alternative limits for each of the months in which the rule was applicable.

When considering the Acid Rain Nitrogen Oxides Emission Reduction Program (40 CFR Part 76), Yates Unit 3 is subject to a multi-state NO_x averaging plan in accordance with 40 CFR 76.11. Condition 7.9.7 of Title V permit 4911-077-001-V-03-0 issued July 27, 2010, established an annual

average alternative contemporaneous emission limitation of 0.48 lb/mmBtu for unit 3. This condition also establishes an annual heat input limit of 4,830,444 mmBtu.

Tables 7-6 and 7-7 compare actual NO_x emissions and heat input for unit 3 to the alternative emission and heat input limits. This comparison uses data from Tables 7-1 and 7-2. Both the actual emission rate and heat input were below the limits during the baseline period.

Table 7-6. Comparison of Yates Unit 3 actual emission rate and heat input to Acid Rain averaging plan alternative NO_x and heat input limits 2012.

Year	Month	NO_x (tons)	Heat Input (MMBtu)	NO_x (lb/MMBtu)
2012	1	62.27	358,224.7	
2012	2	54.95	347,173.9	
2012	3	86.56	449,601.7	
2012	4	56.67	371,056.0	
2012	5	54.09	392,058.9	
2012	6	14.37	103,071.7	
2012	7	48.79	382,052.6	
2012	8	50.47	386,369.9	
2012	9	51.95	406,316.0	
2012	10	54.00	355,901.8	
2012	11	82.96	424,649.2	
2012	12	70.62	426,410.4	
2012	entire year	687.70	4,402,887.6	**0.31**
Acid Rain Averaging Plan Alternative Limits			4,830,444.0	**0.48**

Table 7-7. Comparison of Yates Unit 3 actual emission rate and heat input to Acid Rain averaging plan alternative NO_x and heat input limits 2013.

Year	Month	NO_x (tons)	Heat Input (MMBtu)	NO_x (lb/MMBtu)
2013	1	109.57	444,385.9	
2013	2	86.66	415,304.8	
2013	3	105.17	465,671.8	
2013	4	95.97	447,970.6	
2013	5	58.73	450,211.5	
2013	6	45.93	387,750.5	
2013	7	52.44	404,768.0	
2013	8	77.06	430,355.7	
2013	9			
2013	10			
2013	11			
2013	12			
2013	entire year	631.53	3,446,419.8	**0.37**
Acid Rain Averaging Plan Alternative Limits			4,830,444.0	**0.48**

For EPA's Clean Air Interstate Rule (CAIR) annual NO_x program, the State of Georgia is not subject to the CAIR ozone season NO_x program. CAIR is a market-based trading program and does not establish facility-level or unit-level emission limits. Instead, allocations are issued to each effective facility and compliance is demonstrated through an inter-state trading program administered by EPA. The 2012 and 2013 NO_x allocations for Plant Yates were 5045 and 5122 tons, respectively. These figures do not include unused new-unit set aside allowances allocated to Plant Yates. Actual emissions from Plant Yates, as obtained from EPA's Air Markets Program Data website, are shown in Tables 7-8 and 7-9.

Table 7-8. Comparison of Yates Actual Emission Rates for CAIR Allocations 2012.

State	Facility Name	Facility ID (ORISPL)	Year	Month	Y1BR NO_x (tons)	Y2BR NO_x (tons)	Y3BR NO_x (tons)	Y4BR NO_x (tons)	Y5BR NO_x (tons)	Y6BR NO_x (tons)	Y7BR NO_x (tons)	Total NO_x (tons)
GA	Yates	728	2012	1	41.88	37.41	62.27	107.41	13.65	215.98		478.60
GA	Yates	728	2012	2		58.79	54.95			215.40		329.14
GA	Yates	728	2012	3		85.95	86.56		21.33	86.00	171.07	450.92
GA	Yates	728	2012	4		57.71	56.67	33.98		97.77	28.06	274.19
GA	Yates	728	2012	5		54.67	54.09			156.20		264.96
GA	Yates	728	2012	6		49.88	14.38			149.73		213.99
GA	Yates	728	2012	7		49.96	48.79			159.80	44.87	303.43
GA	Yates	728	2012	8		48.73	50.47			19.23	163.53	281.96
GA	Yates	728	2012	9		44.33	51.95				155.81	252.09
GA	Yates	728	2012	10		18.55	54.00				210.86	283.41
GA	Yates	728	2012	11			82.96			210.41	30.11	323.49
GA	Yates	728	2012	12			70.62			237.77		308.38
			2012	Entire Year								**3764.55**
			2012	CAIR Allocation								**5045.00**

Table 7-9. Comparison of Yates Actual Emission Rates for CAIR Allocations 2013.

State	Facility Name	Facility ID (ORISPL)	Year	Month	Y1BR NO_x (tons)	Y2BR NO_x (tons)	Y3BR NO_x (tons)	Y4BR NO_x (tons)	Y5BR NO_x (tons)	Y6BR NO_x (tons)	Y7BR NO_x (tons)	Total NO_x (tons)
GA	Yates	728	2013	1			109.57			235.97		345.54
GA	Yates	728	2013	2			86.66			225.50		312.16
GA	Yates	728	2013	3			105.17			29.092		134.27
GA	Yates	728	2013	4			95.97					95.97
GA	Yates	728	2013	5			58.73					58.73
GA	Yates	728	2013	6	9.31	12.34	45.93			107.38	57.70	232.65
GA	Yates	728	2013	7			52.44			78.27	41.30	172.00
GA	Yates	728	2013	8		29.84	77.06			234.98	219.75	561.63
GA	Yates	728	2013	9		65.57				203.52	205.57	474.66
GA	Yates	728	2013	10		99.20				11.26		110.46
GA	Yates	728	2013	11		106.96				38.19		145.16
GA	Yates	728	2013	12		87.83						87.83
			2013	Entire Year								**2731.05**
			2013	CAIR Allocation								**5122.00**

As shown in the tables, actual NO_x emissions from Plant Yates were below the facility's CAIR allocations for both 2012 and 2013.

Condition 3.2.6 of Title V permit amendment 4911-077-0001-V-03-5, issued August 29, 2014, requires Georgia Power to shut down Yates Unit 3 (as well as Units 1, 2, 4, and 5) once both repowered Yates Units 6 and 7 commence operation following conversion to natural gas. Yates Units 6 and 7 must be converted to natural gas by April 16, 2015. Therefore, Yates Unit 3 must be shut down by April 16, 2015. On and after that date, actual emissions from Yates Unit 3 will be zero. Since the baseline actual emissions from Unit 3 are all below the applicable current SIP requirements, the emission reduction associated with shutting down Unit 3 (660 tons/year) is surplus.

PERMANENT:

Since Yates Unit 3 will be permanently shut down on or before April 16, 2015, the emissions reduction from the shutdown of Unit 3 is permanent.

QUANTIFIABLE:

The baseline emissions for Yates Unit 3 were obtained from EPA's Clean Air Markets Program Data website. Emissions data contained in this website were obtained using continuous emissions monitors required by 40 CFR Part 75. Emissions following a shutdown are, by definition, zero. Therefore, the emission reductions are quantifiable.

ENFORCEABLE:

Enforceability of the emission reductions from Yates Unit 3 are addressed separately in Section 7.1.3 of this document.

ADDITIONAL REQUIREMENTS:

Other Requirements of Appendix S, Section IV.C.3, specifically, Paragraph (i)(2) of Section IV.C.3. states that emission reductions from shutting down an existing source is creditable only if the shutdown or curtailment occurred after the last day of the base year for the SIP planning process. EPA's June 6, 2013, proposed rule for implementing the 2008 Ozone standard, "Implementation of the 2008 National Ambient Air Quality Standards for Ozone: State Implementation Plan Requirements; Proposed Rule", states that states should use the calendar year for most recently available triennial emissions reporting inventory (2011) as the base year. The emission reductions from Unit 3 will occur at the time that the unit is shut down, which will be on or before April 16, 2015. Therefore, emission reductions from the shutdown of Yates Unit 3 are creditable.

SUMMARY:

This analysis shows that the emission reductions resulting from the shutdown of Yates Unit 3 meet the requirements of 40 CFR 51 Appendix S and are therefore creditable as offsets. The amount of available offsets is the average of the 2012-2013 baseline period, 660 tons per year.

In Section 6.1, EPD has determined that 202.35 tons [200.43 from Rule (bbb) and 1.92 from Georgia Rule (aaa)] of NO_x reductions are necessary to offset the maximum NO_x and VOC emissions increase that will result from the repeal of Georgia Rules 391-3-1-.02(2)(aaa) and (bbb).

The annual NO_x decrease from the retirement of Plant Yates Unit 3 is more than adequate to offset the maximum NO_x and VOC increase expected from the repeal of rules 391-3-1-.02(2)(aaa) and (bbb).

7.1.2 Contingency Measure Triggers

Because some of the locomotive retrofits discussed in Section 6.2 have not yet been completed, Georgia EPD is aware that events could occur that could prevent the completion of the locomotive retrofit projects on which Georgia EPD relies for offsets. In order to ensure that there are sufficient offsets available for the emissions increase attributed to the removal of Georgia Rules (aaa) and (bbb), Georgia EPD is committing in this SIP revision to obtain any remaining necessary offsets from the contingency measure described in Section 7.1.1, above.

Upon the determination that sufficient offsets will not be achieved by the railroad retrofit projects within one year from the date of EPA's final action to remove the Georgia Rules (aaa) and (bbb) from the SIP, Georgia EPD will take action to ensure that equivalent offsets necessary to satisfy the entire emission reduction commitment of the State are achieved from the contingency measure described in Section 7.1.1 no later than one year from the date of EPA's final action to remove Georgia Rules (aaa) and (bbb) from the SIP. Implementation of the contingency measure is discussed in Section 7.1.3.

7.1.3 Contingency Measures - Implementation

As stated in the introduction to this section, if an offset measure is used, it must be contemporaneous, reproducible, enforceable, surplus, quantifiable, and a permanent measure. The implementation component of this section of the SIP specifically addresses enforceability.

If it is necessary to implement the contingency measure described in Section 7.1.1, Georgia EPD will revise Georgia Rule 391-3-1-.02(12)(f), Clean Air Interstate Rule NOx Annual Trading Program, for the purposes of retiring or reducing the appropriate New Source Set Asides and submit that rule revision as a SIP revision. This SIP revision will also include the permit condition requiring Yates Unit 3 to shut down.

8.0 Conclusion

In this SIP revision, Georgia EPD demonstrates that the removal of Georgia Rules 391-3-1-.02(2)(aaa), *Consumer and Commercial Products* and Georgia Rule 391-3-1-.02(2)(bbb), *Gasoline Marketing*; from the Georgia SIP does not interfere with the requirements of 110(l).

Georgia Rules 391-3-1-.02(2)(aaa), *Consumer and Commercial Products* decreases VOC emissions in the nonattainment area only 0.17 tons per day. Therefore, removal of this rule will have a very minimal impact on ozone monitors in the metro area.

The benefit of Georgia Rule 391-3-1-.02(2)(bbb), *Gasoline Marketing* that requires Georgia Gas in the nonattainment area is also now minimal. Analysis shows that for both Georgia Gas and conventional gasoline, the NO_x and VOC emissions after 2012 are well below the 2006 MVEB or 2008 ozone maintenance plan levels while emissions from 2024-2040 never exceed the 2024 ozone maintenance plan MVEB.

Georgia Rules 391-3-1-.02(2)(mmm), *NO_x Emissions from Stationary Gas Turbines and Stationary Engines used to Generate Electricity* is being amended so that the nonattainment area will not be impacted at all. Therefore, revision of this rule will have no impact on ozone monitors in the metro area.

Furthermore, the State of Georgia is a NO_x limited area and the sensitivity of ozone formation in the Atlanta area to reductions of NO_x is greater than the sensitivity to reductions in VOC emissions. Therefore the conclusions in this plan are consistent with EPA's "*Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures*" which states that the removal of a VOC control could result in an area-wide VOC emissions increase, and yet may still be consistent with the conditions of Section 110(l) "in areas where ozone formation is limited by the availability of NO_x emissions."

Offsetting emissions are available from early replacement of school buses and locomotive retrofits that more than cover the increase in NO_x and VOC emissions from the removal of Georgia Rules (aaa) and (bbb). This SIP contains a commitment from Georgia EPD that it will replace any offset not achieved through the diesel retrofits with stationary source contingency measure offsets that are contemporaneous, reproducible, enforceable, surplus, quantifiable, and a permanent measure as required by 40 CFR 51 Appendix S.

For these reasons, the removal of these rules meet the requirements of 110(l); specifically that their removal will not interfere with attainment, reasonable further progress or any other requirement of the Clean Air Act.

References

State of Georgia, Rules for Air Quality Control, Chapter 391-3-1, Effective September 5, 2013.

EPA Consumer and Commercial Solvent Use Final Report: August 1996.

USEPA, National Emissions Inventory: Inventory years 2008, and 2010.

USEPA "Implementation of the 2008 National Ambient Air Quality Standards for Ozone: State Implementation Plan Requirements", 78 FR 34178 through 78 FR 34239, Proposed Rule, June 6, 2013.1997

Atlanta 8-Hour Ozone Maintenance Plan, March 21, 2012, submitted to EPA on April 4, 2012.