Georgia's Regional Haze Progress Report for the Second Planning Period

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GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

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Executive Summary

The Clean Air Act (CAA) mandates requirements to protect visibility, especially in Class I Federal areas. In 1999, the US Environmental Protection Agency (EPA) finalized the Regional Haze Rule (RHR) (64 FR 35714). The rule calls for state, tribal, and federal agencies to work together to improve visibility in 156 national parks and wilderness areas identified as mandatory Class I Federal areas under 40 CFR Part 81.400.

States are required to develop and implement air quality protection plans (State Implementation Plans, or SIPs) to reduce the pollution that causes visibility impairment. These plans establish goals and emission reduction strategies based on trends from various sources including area source emissions, mobile source emissions (both on-road and non-road emissions), biogenic emissions, and wildfire and agriculture emissions.

In developing its SIP (submitted to EPA on August 11, 2022, Georgia Environmental Protection Division (GA EPD) prepared a long-term strategy in order to establish reasonable progress goals (RPGs) for three Class I areas within its borders: Cohutta Wilderness Area, Okefenokee National Wilderness Area, and Wolf Island National Wilderness Area. The predicted reductions in visibility impairment were expected to result from implementation of existing and planned emission control programs. This document is intended to address the requirements of 40 CFR 51.308(g) requiring periodic reports evaluating progress goals toward RPGs.

Table of Contents

List of Tables

List of Figures

Acronyms and Abbreviations

Acronym/Abbreviation	Meaning
AEP	American Electric Power
BART	Best Available Retrofit Technology
CAA	Clean Air Act
CAMD	Clean Air Markets Division
CAMPD	Clean Air Markets Program data
CenSARA	Central State Air Resource Agencies
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CSA	Clean Smokestacks Act
CSAPR	Cross State Air Pollution Rule
d	distance (kilometers)
dv	deciview
EGU	Electric Utility Generating Unit
EPA	United States Environmental Protection Agency
FGD	Flue Gas Desulfurization
FLM	federal land manager
FR	Federal Register
FS	Forest Service
FWS	Fish and Wildlife Service
GA EPD	Georgia Environmental Protection Division
HAP	Hazardous Air Pollutant
HC	Hydrocarbon
HCl	Hydrochloric acid
ICI	Industrial/Commercial/Institutional
IDEM	Indiana Department of Environmental Management
IMPROVE	Interagency Monitoring of Protected Visual Environments
JEA	Jacksonville Electric Authority
LADCO	Lake Michigan Air Directors Consortium
lb/MMBtu	pound per million British thermal units
LEV	low emission vehicle
LTS	long-term strategy
MACT	Maximum Achievable Control Technology
MANE-VU	Mid-Atlantic/Northeast Visibility Union
MATS	Mercury and Air Toxics Standard
NAAQS	National Ambient Air Quality Standards
NCDAQ	North Carolina Division of Air Quality
NEI	National Emissions Inventory
NO_X	nitrogen oxides
NPS	National Park Service
PA DEP	Pennsylvania Department of Environmental Protection
PM	particulate matter
PM_{10}	fine particles with a diameter smaller than or equal to 10 micrometers (μm)

Acronym/Abbreviation	Meaning
$PM_{2.5}$	fine particles with a diameter smaller than or equal to 2.5 micrometers (µm)
ppb	parts per billion
ppm	parts per million
RACT	Reasonably Available Control Technology
RHR	Regional Haze Rule
RP	reasonable progress
RPG	reasonable progress goal
RPO	regional planning organization
SCC	source category code
SCR	Selective Catalytic Reduction
SESARM	Southeastern States Air Resource Managers, Inc.
SIP	state implementation plan
SO_2	sulfur dioxide
SO_4	sulfates
TECO	Tampa Electric Company
TDF	Tire Derived Fuel
tpy	tons per year
TVA	Tennessee Valley Authority
URP	uniform rate of progress
USDA	United States Department of Agriculture
USDI	United States Department of the Interior
VEPCO	Virginia Electric and Power Company
VISTAS	Visibility Improvement State and Tribal Association of the Southeast
VOC	Volatile Organic Compounds
WESTAR	Western States Air Resources Council
WRAP	Western Regional Air Partnership

1. Introduction

Section 169A of the Clean Air Act (CAA) "declares as a national goal the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory class I Federal areas which impairment results from manmade air pollution." Mandatory Class I Federal areas (referenced hereinafter as Class I areas) consist of National Parks greater than 6,000 acres, wilderness areas and national memorial parks greater than 5,000 acres, and international parks, all of which were in existence as of August 7, 1977. Visibility was found to be an important value in these areas.

The CAA directed the U.S. Environmental Protection Agency (EPA) to promulgate regulations aimed at meeting the goals of Section 169A. To this end, EPA originally finalized the Regional Haze Rule (RHR) in 1999. The RHR was amended and revised in 2005 and 2017 and is codified under 40 CFR 51.300-309. The overarching goal of the RHR is to achieve natural visibility conditions at Class I areas. The RHR requires states to submit two types of regional haze planning documents: regional haze state implementation plans (SIPs), each covering a 10-year planning period, and progress reports, which are typically submitted at the mid-point of each planning period. The regional haze SIPs themselves must include the required information such that they also serve as progress reports. Mid-course progress reports, such as this one, are their own stand-alone documents.

This document is intended to fulfill the requirements of paragraphs 51.308(g), (h), and (i) of the RHR and to serve as a progress report for the second regional haze planning period, which covers the period from 2019 to 2028. In this progress report, Georgia affirms that its regional haze SIP for the second planning period was published for approval November 21, 2024 (89 FR 92038), was effective on December 23, 2024, and is adequate for making reasonable progress towards the RHR goal of achieving natural visibility conditions at Class I areas.

The Georgia Environmental Protection Division (GA EPD) has consulted with the Federal Land Manager(s) (FLM) on the contents of this progress report and has made it available for public review prior to this submittal to EPA. However, per revisions made to the RHR in 2017 (82 FR 3078), this progress report is not being submitted as a formal SIP revision.

The RHR addressed the combined visibility effects of various pollution sources over a wide geographic region. This wide-reaching pollution net meant that many states – even those without mandatory federal Class I areas – would be required to participate in haze reduction efforts. Five regional planning organizations (RPOs) were formed to assist with the coordination and cooperation needed to address the visibility issue. These five RPOs are illustrated in Figure 1-1.[1]

[1] URL: https://www.epa.gov/visibility/visibility-regional-planning-organizations

The Southeastern States Air Resource Managers, Inc. (SESARM) has been designated by the EPA as the entity responsible for coordinating regional haze evaluations for the ten Southeastern states (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia), local air pollution control agencies, and tribal authorities. These parties collaborated through the organization known as Visibility Improvement - State and Tribal Association of the Southeast (VISTAS) to prepare the technical analyses and planning activities associated with visibility and related regional air quality issues supporting development of regional haze SIPs for the first and second planning periods. For the second planning period, local air pollution control agencies were represented by the Knox County, Tennessee local air pollution control agency and tribal authorities were represented by the Eastern Band of Cherokee Indians. Figure 1-2 shows the location of the 18 Class I areas within the VISTAS states. Table 1-1 shows the FLM responsible for each of these Class I areas. Agencies acting as FLMs for Class I areas within the VISTAS region include the United States Department of Agriculture Forest Service (USDA-FS), the United States Department of the Interior Fish and Wildlife Service (USDI-FWS), and the United States Department of the Interior National Park Service (USDI-NPS)

Figure 1-1: Geographical Areas of Regional Planning Organizations

Figure 1-2: Mandatory Federal Class I Areas in the VISTAS Region

Table 1-1: Mandatory Federal Class I Areas in the VISTAS Region

State	Area Name	Acreage	Federal Land Manager
Alabama	Sipsey National Wilderness Area	12,646	USDA-FS
Florida	Chassahowitzka National Wilderness Area	23,360	USDI-FWS
Florida	Everglades National Park	1,397,429	USDI-NPS
Florida	St. Marks National Wilderness Area	17,745	USDI-FWS
Georgia	Cohutta National Wilderness Area	33,776	USDA-FS
Georgia	Okefenokee National Wilderness Area	343,850	USDI-FWS
Georgia	Wolf Island National Wilderness Area	5,126	USDI-FWS
Kentucky	Mammoth Cave National Park	51,303	USDI-NPS
North Carolina	Great Smoky Mountains National Park	273,551	USDI-NPS
North Carolina	Joyce Kilmer-Slickrock National Wilderness Area	10,201	USDA-FS
North Carolina	Linville Gorge National Wilderness Area	7,575	USDA-FS
North Carolina	Shining Rock National Wilderness Area	13,350	USDA-FS
North Carolina	Swanquarter National Wilderness Area	9,000	USDI-FWS
South Carolina	Cape Romain National Wilderness Area	28,000	USDI-FWS
Tennessee	Great Smoky Mountains National Park	241,207	USDI-NPS
Tennessee	Joyce Kilmer-Slickrock National Wilderness Area	3,832	USDA-FS
Virginia	James River Face National Wilderness Area	8,703	USDA-FS
Virginia	Shenandoah National Park	190,535	USDI-NPS
West Virginia	Dolly Sods National Wilderness Area	10,215	USDA-FS
West Virginia	Otter Creek National Wilderness Area	20,000	USDA-FS

2. Long-term Strategy for Visibility Improvement

In Georgia's second Regional Haze Plan, atmospheric ammonium sulfate was identified as the largest contributor to visibility impairment in Class I areas throughout the southeastern United States during the baseline period. Emissions sensitivity modeling performed for VISTAS determined that the most effective ways to reduce ammonium sulfate were to reduce sulfur dioxide (SO_2) emissions from Electric Generating Units (EGUs) and, with an important but smaller impact, to reduce SO_2 emissions from non-utility industrial point sources. Reductions in SO_2 from point sources were therefore identified as the focus of Georgia's long-term strategy for visibility improvement.

The second regional haze plan included the review of ammonium nitrate. Industrial and EGU point source contributions to ammonium nitrate visibility impairment at Class I areas within the VISTAS states were evaluated and did not meet thresholds that were used to select sources for four-factor analyses and thus, GA EPD did not require any four-factor analyses for nitrogen oxides (NO_X) controls in the second period for selected sources.

2.1. 2028 Reasonable Progress Goals for Georgia's Class I Area(s)

Table 2-1 and Table 2-2 show the 2028 reasonable progress goals (RPGs) for Georgia's Class I area on the 20% most impaired and 20% clearest visibility days, respectively. As seen in these tables, all three Georgia Class I areas have met the 2028 RPGs.

Table 2-1: 2028 RPGs for Visibility Impairment in Georgia's Class I Area, 20% Most Impaired Days

Class I Area	Baseline Average, dv (2000-2004)	2022 Average, dv (2018-2022)	2028 Goal (dv)	Natural Background (dv)
Cohutta	29.12	15.69	14.90	9.88
Okefenokee	25.34	16.36	16.90	9.45
Wolf Island	25.34	16.36	16.90	9.45

Table 2-2: 2028 RPGs for Visibility Impairment in Georgia's Class I Area, 20% Clearest Days

Class I Area	Baseline Average, dv (2000-2004)	2022 Average, dv (2018-2022)	2028 Goal (dv)	Natural Background (dv)
Cohutta	13.73	7.09	9.15	4.42
Okefenokee	15.23	10.74	11.58	5.43
Wolf Island	15.23	10.74	11.58	5.43

*The regional haze requirement for the 20% clearest days is to maintain the visibility impairment at or below the baseline impairment.

2.2. Requirements for the Periodic Progress Report

The requirements for periodic reports are outlined in 40 CFR 51.308(g). Each state must submit a report to the EPA every five years evaluating the progress towards the RPGs for each Class I area

located within the state and in each Class I area located outside the state which may be affected by emissions from within the state.

The EPA's revised regional haze rule no longer requires the progress report to be a formal SIP submittal. At a minimum, the progress report must cover the first year not covered by the previously submitted progress report through the most recent year of data available prior to submission. Georgia's previous progress report (included in the submitted SIP for the second planning period) included data through the year 2018. Therefore, this progress report covers years since 2018. For the purposes of this periodic review, the most recent data available are used to highlight the progress made. This review includes National Emissions Inventory (NEI) data for 2017 and 2020, visibility data through 2022, stationary source data through 2020, and power plant emissions data through 2023. Section 51.308(f)(5) of the RHR requires that this second period regional haze plan revision address the progress report requirements of paragraphs 51.308(g)(1) through (g)(5). This progress report must meet the requirements in 40 CFR 51.308(g) with the exception of 40 CFR 51.308(g)(7), which applies to first period progress reports only, and 40 CFR 51.308(g)(8), as applicable. 40 CFR 51.308(g)(8) applies to states with a long-term strategy that includes a smoke management plan for prescribed fires. Since Georgia did not include a smoke management plan in its long-term strategy, this requirement does not apply. The 40 CFR 51.308(g)(1)-(6) requirements are summarized below:

- A description of the status of implementation of all measures included in the SIP for achieving reasonable progress goals for Class I areas both within and outside the State.
- A summary of the emission reductions achieved throughout the State through implementation of the measures described in 40 CFR 51.308(g)(1) above.
- For each Class I area within the State, the State must assess the following visibility conditions and changes, with values for most impaired and least impaired days expressed in terms of five-year averages of these annual values:
  - (i) The current visibility conditions for the most impaired and least impaired days;
  - (ii) The difference between current visibility conditions for the most impaired and least impaired days and baseline visibility conditions;
  - (iii) The change in visibility impairment for the most impaired and least impaired days over the past five years.
- An analysis tracking the change over the past five years in emissions of pollutants contributing to visibility impairment from all sources and activities within the state. Emissions changes should be identified by type of source or activity. The analysis must be based on the most recently updated emissions inventory, with estimates projected forward as necessary and appropriate, to account for emissions changes during the applicable five-year period.

- An assessment of any significant changes in anthropogenic emissions within or outside the State that have occurred over the past five years that have limited or impeded progress in reducing pollutant emissions and improving visibility.
- An assessment of whether the current implementation plan elements and strategies are sufficient to enable the State, or other States with mandatory Class I Federal areas affected by emissions from the State, to meet all established reasonable progress goals for the period covered by the most recent plan required under 40 CFR 51.308(f).

(h) ***Determination of the adequacy of existing implementation plan.*** At the same time the State is required to submit any progress report to EPA in accordance with paragraph (g) of this section, the State must also take one of the following actions based upon the information presented in the progress report:

(1) If the State determines that the existing implementation plan requires no further substantive revision at this time in order to achieve established goals for visibility improvement and emissions reductions, the State must provide to the Administrator a declaration that revision of the existing implementation plan is not needed at this time.

(2) If the State determines that the implementation plan is or may be inadequate to ensure reasonable progress due to emissions from sources in another State(s) which participated in a regional planning process, the State must provide notification to the Administrator and to the other State(s) which participated in the regional planning process with the States. The State must also collaborate with the other State(s) through the regional planning process for the purpose of developing additional strategies to address the plan's deficiencies.

(3) Where the State determines that the implementation plan is or may be inadequate to ensure reasonable progress due to emissions from sources in another country, the State shall provide notification, along with available information, to the Administrator.

(4) Where the State determines that the implementation plan is or may be inadequate to ensure reasonable progress due to emissions from sources within the State, the State shall revise its implementation plan to address the plan's deficiencies within one year.

3. Status of Implementation of Control Measures

40 CFR 51.308(g)(1), of the RHR requires: *A description of the status of implementation of all measures included in the implementation plan for achieving reasonable progress goals for Class I areas both within and outside the State.* 40 CFR 51.308(g)(2), of the RHR requires: *A summary of the emissions reductions achieved throughout the State through implementation of the measures described in paragraph (g)(1) of this section.*

This section provides the status of implementation of the emission reduction measures that were included in the regional haze SIP for the second planning period, as required by 40 CFR 51.308(g)(1).

3.1. Federal and State Programs Included in the 2028 Projection Year

3.1.1. Federal Programs

The following federal programs were included in the 2028 projection year that was used to establish reasonable progress goals for Class I areas both within and outside Georgia. The emissions reductions associated with the Federal and other state programs that are described in the following paragraphs were included in the VISTAS future year emissions estimates for the first planning period. Descriptions contain qualitative assessments of emissions reductions associated with each program, and where possible, quantitative assessments. Although many programs were initiated prior to this reporting period (2019-2024), it is believed that these programs continue to yield emission reductions. In cases where delays or modification have altered emissions reduction estimates such that the original estimates of emissions are no longer accurate, information is also provided on the effects of these alterations.

3.1.1.1. Federal EGU and Industrial Unit Trading Program (Cross State Air Pollution Rule or CSAPR)

The CAA requires each upwind state to ensure that it does not interfere with either the attainment of a National Ambient Air Quality Standard (NAAQS) or continued compliance with a NAAQS at any downwind monitor. This section of the CAA, Section 110(a)(2)(D)(i)(I), is called the "Good Neighbor" provision. The EPA has implemented a number of rules enforcing the Good Neighbor provision for a variety of NAAQS.

The EPA finalized CSAPR on August 8, 2011 (76 FR 48208). This rule required 28 states to reduce SO_2, annual NO_X, and ozone season NO_X from fossil fuel-fired EGUs in support of the 1997 and 2006 $PM_{2.5}$ NAAQS and the 1997 ozone NAAQS. CSAPR relied on a trading program to achieve these reductions and became effective January 1, 2015, as set forth in an October 23, 2014, decision by the U.S. Court of Appeals for the D.C. Circuit. Phase 1 of the program began January 2015 for annual programs and May 2015 for the ozone season program. Phase 2 began January 2017 for the annual programs and May 2017 for the ozone season program. Total emissions allowed in each compliance period under CSAPR equals the sum of the affected state emission budgets in the program. The 2017 budgets for these programs, exclusive of new unit set asides and tribal budgets, are:

- SO_2 Group 1 – 1.37 million tons,
- SO_2 Group 2 – 892,000 tons,
- Annual NO_X – 1.21 million tons, and

- Ozone Season NO_X – 586,000 tons

The EPA published revised CSAPR ozone season NO_X budgets to address the 2008 ozone NAAQS on October 26, 2016 (81 FR 74504). This rule, called the CSAPR Update, reduced state budgets for NO_X during the ozone season to 325,645 tons in 2017 and 330,526 tons in 2018 and later years, exclusive of new unit set asides and tribal budgets. This rule applies to all VISTAS states except North Carolina, South Carolina, Georgia, and Florida, and continues to encourage NO_X emissions reductions from fossil fuel-fired EGUs. The EPA published a revised new unit set asides on July 31, 2023 (88 FR 36654 and 49295) for SO_2 and NO_X respectfully. This resulted in a reduction in the new unit set asides but did not change any other fundamental portions of the rule. The U.S. Court of Appeals for the D.C. Circuit remanded, but did not vacate, the CSAPR Update to the EPA to address the court's holding that the rule unlawfully allows significant contributions to continue beyond downwind attainment deadlines. Therefore, the reductions required by the CSAPR Update rule remain in effect.

3.1.1.2. NO_X SIP Call

Phase I of the NO_X SIP Call was included in the regional haze SIP. This applies to certain EGUs and large non-EGUs, including large industrial boilers and turbines, and cement kilns. Those states affected by the NO_X SIP call in the VISTAS region have developed rules for the control of NO_X emissions that have been approved by the EPA. The NO_X SIP Call has resulted in a significant reduction in NO_X emissions from large stationary combustion sources. For the first regional haze SIP, the emissions for NO_X SIP Call-affected sources were capped at 2007 levels and carried forward to the 2009 and 2018 inventories.

3.1.1.3. Mercury and Air Toxics Standard (MATS)

The regional haze SIP also included emissions reductions from one-hour ozone SIPs submitted to EPA to demonstrate attainment of the one-hour ozone NAAQS. These SIPs require NO_X reductions from specific coal-fired power plants and address transportation plans in these cities. These reductions further improve regional visibility.

3.1.1.4. One-hour Ozone SIPS (Atlanta/Birmingham/Northern Kentucky)

The regional haze SIP also included emissions reductions from one-hour ozone SIPS submitted to EPA to demonstrate attainment of the one-hour ozone NAAQS. These SIPs require NO_x reductions from specific coal-fired power plants and address transportation plans in these cities. These reductions further improve regional visibility.

3.1.1.5. NO_X RACT in 8-hour Nonattainment Area SIPs

The North Carolina Division of Air Quality's (NCDAQ's) SIP for the Charlotte / Rock Hill / Gastonia nonattainment area includes Reasonably Available Control Technology (RACT) for NO_X for two facilities located in the nonattainment area: Philip Morris USA and Norandal USA. These controls were also modeled for 2018. Additional RACT controls may be realized as other companies subject to RACT complete the determination, but RACT-level controls were assumed for just these two sources. These controls further improve regional visibility.

3.1.1.6. 2010 SO_2 NAAQS

On June 22, 2010 (75 FR 35520), the EPA finalized a new primary NAAQS for SO_2. This regulation significantly strengthened the short-term requirements by lowering the standard to 75 parts per billion (ppb) on a one-hour basis. Using inventory and other technical data as support, the EPA determined that anthropogenic SO_2 emissions originate chiefly from point sources, with fossil fuel combustion at electric utilities accounting for 66% and fossil fuel combustion at other industrial facilities accounting for 29% of total anthropogenic SO_2 emissions. The EPA simultaneously revised ambient air monitoring requirements for SO_2, requiring fewer monitors due to the use of a hybrid approach combining air quality modeling and monitoring to determine compliance with the new standard. Much of this work focuses on the evaluation of point source emissions. To ensure compliance with the 2010 SO_2 NAAQS, reductions in SO_2 emissions have occurred and further reductions may be necessary at certain point sources.

3.1.1.7. Onroad and Non-Road Programs including:

The CAA authorizes the EPA to establish emission standards for motor vehicles under Section 202 and the authority to establish fuel controls under Section 211. The CAA generally prohibits states other than California from enacting emission standards for motor vehicles under Section 209(a) and for non-road engines under Section 209(e). States may choose to adopt California requirements or meet federal requirements. Federal programs to reduce emissions from onroad and non-road engines are therefore critical to improving both visibility and air quality.

Several of the programs discussed below address SO_2 emissions by reducing allowable sulfur contents in various fuels. As well as reducing SO_2 emissions, reduced sulfur content improves the efficiency of NO_X controls on existing engines and facilitates the use of state-of-the-art NO_X controls on new engines.

3.1.1.8. 2007 Heavy-Duty Highway Rule

In Subpart P of 40 CFR Part 86, the EPA set limitations for heavy-duty engines, which became effective between 2007 and 2010. This rule limited NO_X to 0.20 grams per brake horsepower-hour (g/bhp-hr) and limited non-methane hydrocarbons to 0.14 g/bhp-hr. The rule also required that the

sulfur content of diesel fuel not exceed 0.0015% by weight to facilitate the use of modern pollution control technology on these engines. These standards continue to provide benefit as older vehicles are replaced with newer models. EPA required a 97% reduction in the sulfur content of highway diesel fuel, from levels of 500 parts per million (ppm) (low sulfur diesel) to 15 ppm (ultra-low sulfur diesel). These requirements were successfully implemented on the timeline in the regulation. This program applies to all areas of the country.

3.1.1.9. Tier 2 Vehicle and Gasoline Sulfur Program (40 CFR Part 80, Subpart H; Part 85; Part 86)

EPA's Tier 2 fleet averaging program for on-road vehicles, modeled after the California Low Emission Vehicle (LEV) II standards, became effective in the 2005 model year. The Tier 2 program allows manufacturers to produce vehicles with emissions ranging from relatively dirty to very clean, but the mix of vehicles a manufacturer sells each year must have average NO_X emissions below a specified value. Mobile emissions continue to be reduced by this program as motorists replace older, more polluting vehicles with cleaner vehicles. The Tier 2 program applies nationwide, including Georgia, and, thus, has a more direct impact on Georgia Class I areas.

3.1.1.10. Tier 3 Motor Vehicle Emissions and Fuel Standards

The federal Tier 3 program under Subpart H of 40 CFR Part 80, 40 CFR Part 85, and 40 CFR Part 86 reduces tailpipe and evaporative emissions from passenger cars, light-duty trucks, medium-duty passenger vehicles, and some heavy-duty vehicles. The tailpipe standards include different phase-in schedules that vary by vehicle class and begin to apply between model years 2017 and 2025. The Tier 3 gasoline sulfur standard, which reduced the allowable sulfur content to 10 ppm in 2017, allows manufacturers to comply across the fleet with the more stringent Tier 3 emission standards. Reduced sulfur content in gasoline will also enable the control devices on vehicles already in use to operate more effectively. Compared to older standards, the non-methane organic gases and NO_X tailpipe standards for light duty vehicles in this rule are 80% less than the existing fleet average. The heavy-duty tailpipe standards are 60% less than the existing fleet average.

3.1.1.11. Non-Road Diesel Emissions Program

The EPA promulgated a series of control programs in 40 CFR Part 89, Part 90, Part 91, Part 92, and Part 94 that implemented limitations by 2012 on compression ignition engines, spark-ignition non-road engines, marine engines, and locomotive engines. Environmental benefits continue into the future as consumers replace older engines with newer engines that have improved fuel economy and more stringent emissions standards. These regulations also required the use of cleaner fuels. The non-road diesel rule set standards that reduced emissions by more than 90% from non-road diesel equipment and, beginning in 2007, the rule reduced fuel sulfur levels by 99% from previous levels. The reduction in fuel sulfur levels applied to most non-road diesel fuel in 2010 and applied to fuel used in locomotives and marine vessels in 2012.

3.1.1.12. Large Spark Ignition and Recreational Vehicle Rule

EPA has adopted new standards for emissions of NO_X, hydrocarbons (HC), and carbon monoxide (CO) from several groups of previously unregulated non-road engines. Included in these are large industrial spark-ignition engines and recreational vehicles. Non-road spark-ignition engines are those powered by gasoline, liquid propane gas, or compressed natural gas rated over 19 kW (25 horsepower). These engines are used in commercial and industrial applications, including forklifts, electric generators, airport baggage transport vehicles, and a variety of farm and construction applications. Non-road recreational vehicles include snowmobiles, off-highway motorcycles, and all-terrain-vehicles. These rules were initially effective in 2004 and were fully phased-in by 2012.

3.1.1.13. Emission Control Area Designation and Commercial Marine Vessels

On April 4, 2014, new standards for ocean-going vessels became effective and applied to ships constructed after 2015. These standards are found in MARPOL Annex VI,[2] the international convention for the prevention of pollution from ocean-going ships. These requirements also mandate the use of significantly cleaner fuels by all large ocean-going vessels when operated near the coastlines. The cleaner fuels lower SO_2 emission rates as well as emissions of other criteria pollutants since the engines operate more efficiently on the cleaner fuel. These requirements apply to vessels operating in waters of the United States as well as ships operating within 200 nautical miles of the coast of North America, also known as the North American Emission Control Area.

3.1.1.14. Maximum Achievable Control Technology Programs (40 CFR Part 63)

VISTAS applied controls to future year emissions estimates from various maximum achievable control technology (MACT) regulations for volatile organic compounds (VOC), SO_2, NO_X, and particulate matter (PM) for source categories where controls were installed on or after 2002.

Table 3-1 describes the MACTs used as control strategies for the non-EGU point source emissions in the regional haze SIP. The table notes the pollutants for which controls were applied as well as the promulgation dates and the compliance dates for existing sources.

Table 3-1: MACT Source Categories

MACT Source Category	40 CFR 63 Subpart	Original Promulgation Date	Compliance Date (Existing Sources)	Pollutants Affected
Hazardous Waste Combustion (Phase I)	63(EEE), 261 and 270	9/30/99	9/30/03	PM
Portland Cement Manufacturing	LLL	6/14/99	6/10/02	PM
Secondary Aluminum Production	RRR	3/23/00	3/24/03	PM
Lime Manufacturing	AAAAA	1/5/04	1/5/07	PM, SO_2

[2] URL: https://www.epa.gov/sites/production/files/2016-09/documents/resolution-mepc-251-66-4-4-2014.pdf

MACT Source Category	40 CFR 63 Subpart	Original Promulgation Date	Compliance Date (Existing Sources)	Pollutants Affected
Taconite Iron Ore Processing	RRRRR	10/30/03	10/30/06	PM, SO_2
Industrial Boilers, Institutional/Commercial Boilers and Process Heaters	DDDDD	9/13/04	9/13/07	PM, SO_2
Reciprocating Internal Combustion Engines	ZZZZ	6/15/04	6/16/07	NO_X, VOC
Stationary Combustion Turbines	YYYY	3/5/04	3/5/04 (oil-fired) 3/9/22 (gas-fired)	CO, VOC

The Industrial/Commercial/Institutional (ICI) boiler MACT standard (40 CFR Part 63, Subpart DDDDD) was vacated by the U.S. Court of Appeals and remanded the regulation to EPA on June 8, 2007. VISTAS chose, however, to leave the emissions reductions associated with this regulation in place as the CAA required use of alternative control methodologies under Section 112(j) for uncontrolled source categories. The applied MACT control efficiencies were 4% for SO_2 and 40% for PM_{10} and $PM_{2.5}$ to account for the co-benefit from installation of acid gas scrubbers and other control equipment to reduce hazardous air pollutants (HAPs).

EPA finalized the revised ICI Boiler MACT on March 21, 2011. EPA subsequently reconsidered certain aspects of the rule and proposed changes on December 2, 2011. The rules were repromulgated on January 31, 2013. The final compliance date for ICI boilers at major sources was 2016, with the option to request an additional year. EPA's estimate of nationwide SO_2 emissions reductions from this rule is over 500,000 tons/year, as compared to an estimate of 113,000 tons/year in the analysis for the 2004 rule (78 FR 7138 and 69 FR 55218). On November 5, 2015, EPA finalized additional revisions to the Boiler MACT and projected that these updates would not significantly change the emissions reductions expected from the rule. It is, therefore, reasonable to conclude that the 2012 rule has brought about more SO_2 reductions in Georgia than were modeled in Georgia's Regional Haze Plan.

3.1.1.15. State EGU Control Measures

Emissions from EGUs have been regulated through state measures in North Carolina and Georgia, which were included in the regional haze SIP modeling. Reductions associated with these measures were used to estimate the 2018 visibility improvements at the VISTAS Class I areas.

3.1.1.16. North Carolina Clean Smokestacks Act

In June of 2002, the North Carolina General Assembly enacted the Clean Smokestacks Act (CSA), which required significant actual emissions reductions from coal-fired power plants in North Carolina. These reductions were included as part of the VISTAS 2018 Best and Final modeling effort. Under the CSA, power plants were required to reduce their NO_X emissions by 77% in 2009 and their SO_2 emission by 73% in 2013. Actions taken to date by facilities subject to these requirements comply with the provisions of the CSA, and compliance plans and schedules will

allow these entities to achieve the emissions limitations set out by the Act. This program has been highly successful. In 2009, regulated entities emitted less than the 2013 system annual cap of 250,000 tons of SO_2 and less than the 2009 system annual cap of 56,000 tons of NO_X. In 2002, the sources subject to CSA emitted 459,643 tons of SO_2 and 142,770 tons of NO_X. In 2011, these sources emitted only 73,454 tons of SO_2 and 39,284 tons of NO_X, well below the Act's system caps.

This legislation established annual caps on both SO_2 and NO_X emissions for the two primary utility companies in North Carolina, Duke Energy and Progress Energy. Duke Energy and Progress Energy have produced emissions reductions beyond what was required which further improved regional visibility.

3.1.1.17. Georgia Multi-Pollutant Control for Electric Utility Steam Generating Units

Georgia rule 391-3-1.02(2)(sss), enacted in 2007, requires flue-gas desulphurization (FGD) and selective catalytic reduction (SCR) controls on large coal-fired EGUs in Georgia. Reductions from this regulation were included as part of the VISTAS 2018 Best and Final modeling effort. These controls reduced SO_2 emissions from the affected emissions units by at least 95% and reduced NO_X emissions by approximately 85%. Control implementation dates vary by EGU, starting with December 31, 2008, and ending with December 31, 2015.

GA EPD is unaware of any changes to these federal programs that have or will result in emission increases beyond that projected for 2028. The emission projections for 2028 are discussed in Section 7 of Georgia's Round 2 Regional Haze SIP.

3.1.2. Consent Agreements:

- Lehigh Cement Company/Lehigh White Cement Company (US District Court, Eastern District of Pennsylvania): the EPA reached a settlement with these companies on December 3, 2019, to settle alleged violations of the CAA. The settlement will reduce emissions of NO_X and SO_2 and applied to facilities located in serval states, including Alabama.
- VEPCO (US District Court, Eastern District of Virginia): Virginia Electric and Power Company (also known as Virginia-Dominion Power) agreed to spend $1.2 billion by 2013 to eliminate 237,000 tons of SO_2 and NO_X emissions each year from eight coal-fired electricity generating plants in Virginia and West Virginia.
- Anchor Glass Container (US District Court for the Middle District of Florida): On August 3, 2018, Anchor agreed to convert six of its furnaces to oxyfuel furnaces and will meet NO_X emission limits at these furnaces that are consistent or better than best available control technology. On remaining furnaces, Anchor agreed to install oxygen enriched air staging and meet more stringent emission limits. To control SO_2, Anchor agreed to install dry or semi-dry scrubber systems on two furnaces. Remaining furnaces must achieve batch optimization and

meet enforceable emissions limits. Anchor also agreed to install NO_X and SO_2 continuous emissions monitoring systems at all furnaces. The expected emission reductions from the agreement are 2,000 tpy of NO_X and 700 tpy of SO_2 at facilities located in Florida, Georgia, Indiana, Minnesota, New York and Oklahoma.

- The Tennessee Valley Authority (TVA) entered into a court settlement in 2011 for previous violations of the CAA at 11 of its coal-fired plants in Alabama, Kentucky, and Tennessee. This settlement required shutdowns, new controls, and a switch from coal to natural gas at certain facilities. The settlement required the continuous operation of all new and existing SCR controls and FGD controls. The settlement required TVA to invest between $3 to $5 billion on new and upgraded state-of-the-art pollution controls. TVA invested an additional $350 million on clean energy projects that reduced pollution, saved energy and protected public health and the environment. As compared to TVA's 2008 emissions, upon full implementation of the settlement, TVA achieved the following emission reductions: (1) for NO_X, a reduction of 115,977 tons per year (69% reduction) and (2) for SO_2, a reduction of 225,757 tons per year (67% reduction).
- Under a settlement agreement, Tampa Electric Company (TECO) converted units at the TECO Gannon Station Power Plant (now TECO Bayside Power Station) from coal to natural gas and installed permanent emissions-control equipment to meet stringent pollution limits.
- In October 2007, American Electric Power (AEP) agreed to spend $4.6 billion dollars to eliminate 72,000 tons of NO_X emissions each year by 2016 and 174,000 tons of SO_2 emissions each year by 2018 from sixteen coal-fired plants located in Indiana, Kentucky, Ohio, Virginia, and West Virginia.
- Under a 2002 voluntary agreement, Gulf Power upgraded its operation to significantly cut NO_X emissions at its Crist generating plant.

GA EPD is unaware of any changes to these consent agreements that have or will result in emission increases beyond that projected for 2028. The emission projections for 2028 are discussed in Section 7 of Georgia's Round 2 Regional Haze SIP.

3.1.3. State Control Programs

The following state programs were included in the 2028 projection that was used to establish reasonable progress goals for Class I areas both within and outside Georgia.

3.1.3.1. North Carolina Clean Smokestacks Act

Under the North Carolina Clean Smokestacks Act, coal-fired power plants in North Carolina were required to achieve a 77% cut in NO_X emissions by 2009 and a 73% cut in SO_2 emissions by 2013.

3.1.3.2. Georgia Multi-Pollutant Control for Electric Utility Steam Generating Units

Georgia Rule 391-3-1-.02(2)(sss) "Multi-Pollutant Control for Electric Utility Generating Units" established a schedule for the installation and operation of NO_X and SO_2 pollution control systems on many of the coal-fired power plants in Georgia. This rule, adopted in 2007, required controls for all affected units to be in place before June 1, 2015. The rule reduced SO_2 emissions by approximately 90%, NO_X emissions by approximately 85%, and mercury emissions by approximately 79%.

GA EPD is unaware of any changes to these state programs that have or will result in emission increases beyond that projected for 2028. The emission projections for 2028 are discussed in Section 7 of Georgia's Round 2 Regional Haze SIP.

3.2. Measures Included in the Regional Haze Plan for the Second Planning Period

The following additional measures were included as part of Georgia's Long-Term Strategy for the second planning period.

3.2.1. Measures within Georgia

Based on the analysis in the Regional Haze SIP for the second planning period, Georgia identified seventeen facilities to evaluate additional controls for reasonable progress for Georgia's Class I areas. Three facilities, International Paper – Savannah Mill (IP Savannah), Georgia Power – Plant Bowen, and Brunswick Cellulose are located in Georgia. The other fourteen facilities are located outside Georgia.

IP Savannah submitted a four-factor analysis for No. 13 Power Boiler (PB13), No. 15 Recovery Furnace (RF15), No. 15 Recovery Furnace Smelt Dissolving Tank (RF10), and No. 7 Lime Kiln (LK07). GA EPD reviewed the analysis and concluded that RF15, RF10, and LK07 are small sources of SO_2 emissions (30 tpy) as compared to PB13 (roughly 4,000 tpy) and thus did not evaluate them for additional emission controls. Reasonable progress for IP Savannah was determined that it will no longer be allowed to burn coal in the No. 13 Power Boiler. These emission reductions measures are projected to result in a reduction of 2,662 tons of SO_2 per year.

Plant Bowen submitted a four-factor analysis for coal-fired electric generating units (EGUs), Units 1-4. GA EPD reviewed the analysis and concluded that no additional controls were reasonable. Plant Bowen will limit the Steam Generating Units (Emission IDs SG01, SG02, SG03, and SG04) to the MATS SO_2 emission limit of 0.20 lb/MMBtu based on a 30-day operating rolling average. This recommendation would remove the hydrochloric acid (HCl) emission limit from the Title V permit, creating a federally enforceable SO_2 limit for Units 1-4 beyond the allowance trading program requirements of CSAPR and the Acid Rain Program. There are no additional SO_2

reductions as a result of this limitation. The compliance schedule for Plant Bowen should be the effective date of EPA approval of the Georgia Regional Haze SIP.

Brunswick Cellulose submitted a four-factor analysis for No. 4 Power Boiler (U700), No. 5 Recovery Furnace (R401), No. 6 Recovery Furnace (R407). Georgia reviewed the analysis and it was concluded that Brunswick Cellulose would be required to eliminate the firing of tire derived fuel (TDF) in the No. 4 Power Boiler. In addition, the firing of No. 6 fuel oil would be limited to times of natural gas curtailment with additional fuel oil firing allowed during adverse bark/wood fuel conditions to give the facility operational flexibility. The No. 4 Power Boiler will be limited to 15 tons per year of SO_2 emissions from firing fuel oil outside of periods of natural gas curtailment. Reducing these fuel types will reduce SO_2 emission by 116 tons per year. The facility has until October 2025 to eliminate firing TDF in the No. 4 Power Boiler.

GA EPD determined that additional controls were not needed for the purpose of remedying any existing anthropogenic visibility impairment at Cohutta Wilderness Area and Okefenokee National Wilderness Area for the three facilities chosen for a four-factor analysis. The existing controls were adopted into Georgia's long-term strategy (LTS) as permanent and enforceable measures. These measures are described in Section 7.8 of Georgia's regional haze SIP for the second planning period and there has been no change since the adoption into the regulatory portion of the SIP.

3.2.2. Measures outside Georgia

VISTAS provided consultation letters on behalf of Georgia to Arkansas, Indiana, Missouri, Ohio and Pennsylvania; and Georgia provided consultation letters to Florida, Kentucky, South Carolina, and Tennessee to address measures outside of Georgia. A summary of the responses is below:

<u>White Springs Agricultural Chemicals, Inc. - FL</u>

- The White Springs, Florida source is listed as "Nutrien White Springs Ag Chem (12047-769711)" on page 254 of the October 8, 2021, Florida Regional Haze Plan narrative as effectively controlled for sulfuric acid plants C, D, E, and F, which is further discussed on page 256. The provisions to be adopted into the Florida SIP are in the file named: "Final SIP 2021-01 Regional Haze.pdf" on pages 13-14.

<u>Buckeye Florida, Limited Partnership - FL</u>

- The Buckeye Florida, LLC source is listed as "Foley Cellulose, LLC Foley Mill (12123-752411)" and discussed on page 280-282 of the October 8, 2021, Florida Regional Haze Plan narrative.

<u>Rock Tenn CP, LLC – FL</u>

- The Rock Tenn CP, LLC source is listed as "WestRock Fernandina Beach Mill (12089-753711)" and discussed on pages 269-280 of the October 8, 2021, Florida Regional Haze Plan narrative.

Jacksonville Electric Authority (JEA) - FL

- JEA Northside in Florida is discussed as Units 1 and 2 together and, separately, Unit 3. Units 1 and 2 are determined to be effectively controlled with SO_2 limits more stringent than the alternative MATS 0.2 pounds (lb) SO_2/million British Thermal Units (MMBtu) limit (see p.254 Florida haze plan narrative, Appendix G-3c-1, and p.12 of the "Final SIP 2021-01" file). JEA Northside Unit 3's FFA is discussed in section 7.8.1 on pages 264-269 with the conclusions in Section 7.8.1.1.5 on page 264 of the Florida narrative, Appendix G-3c-2, and on page 13 of the "Final SIP 2021-01" file.[3]

Santee Cooper Cross Generating Station - SC

- Santee Cooper Cross Generating Station in South Carolina is discussed in the May 3, 2022, South Carolina Regional Haze Plan narrative on pages 181-184 in Section 7.8.4[4] and Appendix G.

Alumax of South Carolina – SC

- Alumax of South Carolina (now Century Aluminum of South Carolina) is discussed in the May 3, 2022, South Carolina Regional Haze Plan narrative in section 7.8.1[5] on pages 162-168 and Appendix G. The units affected are listed in Table 7-21 as Potlines 02, 03, 04, 05, and Bake Oven 01.

Tennessee Valley Authority (TVA) – Shawnee Fossil Plant – KY

- The State of Kentucky requested that this facility perform a reasonable progress analysis. Kentucky provided the facility's reasonable progress analysis, dated February 19, 2021, which is include in Appendix F-1 of Georgia's Regional Haze SIP. TVA proposes to accept a facility-wide emission limitation of no more than 8,719 tons of SO_2 per 12-month rolling total starting on December 31, 2034. This represents a 7,028 ton per year reduction in SO_2 emissions when compared to projected 2028 emissions. At the time of writing this

[3] See Florida's conclusions for JEA Unit 3 on page 269 of the SIP narrative that: "…the Department has determined that switching to lower sulfur No. 6 fuel oil is necessary for reasonable progress…. Thus, the Department will require JEA to either begin firing only fuel oil with sulfur content less than or equal to 1% in 2026, or shut down the unit by the end of 2028."

[4] See South Carolina's conclusions for Units 1-4 that: "Units 1-4 are well controlled, and additional controls are not needed for the purpose of remedying any existing anthropogenic visibility impairment at Cape Romain….the Department is proposing that existing SO_2 control measures for Cross based on the MATS rule be adopted into the regulatory portion of the SIP as required by Section 169A(b)(2) of the CAA."

[5] See South Carolina's conclusions that: "…the units at Century are well controlled for SO_2, and additional controls are not needed for the purpose of remedying any existing anthropogenic visibility impairment at Cape Romain.… the Department is proposing that existing measures in Department-issued permits be adopted into the SIP as required by Section 169A(b)(2) of the CAA."

Progress Report, GA EPD is not aware that an emission limitation has been finalized. Kentucky has yet to propose its Regional Haze SIP revision for the second planning period.

Eastman Chemical Company - TN

- Eastman Chemical Company (Eastman) is discussed in the February 23, 2022, Regional Haze SIP narrative in section 7.8.1 on pages 205-206 and Appendix G-2 of the Tennessee Regional Haze SIP (Appendix G-2f contains Tennessee's analysis and conclusions).[6]

General James M. Gavin Power Plant (0627010056) - OH

- Ohio EPA's Regional Haze SIP for the Second Implementation Period, dated July 2021, contains a four-factor analysis for the General James M. Gavin Power Plant. Ohio EPA concluded that no technically feasible control measures were identified for SO_2 control at Gavin Power Plant beyond existing wet FGD systems.

Duke Energy Ohio, Wm. H. Zimmer Station (1413090154) - OH

- Ohio EPA's Regional Haze SIP for the Second Implementation Period, dated July 2021, contains an enforceable commitment, in the form of a Director's Final Findings and Orders, requiring the permanent shutdown of the coal-fired boilers at the Zimmer Power Station by no later than January 1, 2028.

Gibson – IN

- The Indiana Department of Environmental Management (IDEM) is not requiring 4-factor analyses from its EGU's, including the Gibson Generating Station and Indiana Michigan Power. In their letter, IDEM states that "IDEM is intently evaluating other emission sectors for this second implementation period to determine their visibility impacts on Class I areas. IDEM will conduct a review of all its emission sources, with focus on the EGU sector, for its January 31, 2025, progress report; pursuant to 40 CFR 51.308(g). IDEM will evaluate EGUs for the third implementation period of the Regional Haze rule, as necessary, to be submitted in 2028." Additionally, IDEM cites the EPA's 2019 Guidance that states a "key flexibility of the regional haze program is that a state is not required to evaluate all sources of emissions in each implementation period." IDEM submitted their final Regional Haze SIP to EPA on December 30, 2021.

Indiana Michigan Power DBA AEP Rockport – IN

- The Indiana Department of Environmental Management is not requiring 4-factor analyses from its EGU's. See above information for Gibson.

[6] See conclusions in Appendix G-2f of the Tennessee Regional Haze SIP: "TDEC-APC…concluded that reasonable progress for Eastman Chemical Company the permanent shutdown of B-83 Boilers 18, 19, and 20 and the installation of permanent dry sorbent injection (without upgrading the existing ESPs) on Boilers 23 and 24."

Genon NE MGMT CO/Keystone Station - PA

- The State of Pennsylvania requested that this facility perform a reasonable progress analysis. Pennsylvania provided the facility's reasonable progress analysis, dated January 11, 2021. The facility stated that emissions of SO_2 and NO_X from Units 1 and 2 at the Station are already well controlled by wet FGD and SCR and that substantial SO_2 and NO_X emission reductions have already been achieved with the existing emission controls. The facility concluded that, for Keystone Generating Station's Units 1 and 2, no additional controls are needed in order for Pennsylvania Department of Environmental Protection. (PA DEP) to meet their reasonable progress goal for the Second Decadal Review.

GA EPD did not take credit for any of the in-state or out-of state measures in establishing reasonable progress goals for the Class I areas in Georgia.

3.3. Changes to Measures Included in Long-Term Strategy for First Planning Period

The following measures were included in Georgia's long-term strategy for the first planning period. Georgia completed source-specific reasonable progress and Best Available Retrofit Technology (BART) determinations for all applicable sources in the first-round regional haze SIP. For reasonable progress control analysis, Georgia identified 24 BART-eligible sources. Twenty-two (22) of the twenty-four (24) sources were able to demonstrate that they did not cause or contribute to visibility impairment in any Class I area within 300 km of the source. The exemptions were demonstrated through CALPUFF modeling, conducted using the VISTAS modeling protocol, or by accepting emissions limits for visibility causing pollutants. Two BART-eligible sources, Georgia Power - Plant Bowen (Units 1-4) and Interstate Paper (F1 Power Boiler, F3 Recovery Boiler, and F4 Lime Kiln), completed a BART analysis and another BART-eligible source, Georgia Pacific - Cedar Springs (Power Boilers 1 and 2 and Recovery Boiler 3) took permit limits to avoid BART (77 FR 11471-11472). No additional controls were required for Georgia Power - Plant Bowen, but additional restrictions were implemented for Interstate Paper and Georgia Pacific - Cedar Springs through permit modifications.

Initially, 29 emission units were identified for analysis of additional controls for meeting the reasonable progress requirements because each unit's contribution to total sulfate visibility impairment was at least 0.5% of the total sulfate visibility impairment at one or more Class I areas. Of the 29 units, seven units were removed based on facilities' updated emission estimates, six units took enforceable permit limits that rendered them no longer subject to a four-factor analysis, and one was also a BART source that completed a BART demonstration (equivalent to a reasonable progress determination). The remaining 15 units completed a reasonable progress four-factor analysis determination. Of those 15, no additional controls were required for 13 emission units, but additional controls for 2 emission units were required.

Table 3-2 lists the current status for emission units that took voluntary emission limits, required reasonable progress controls, or required BART controls. All facilities that were required to implement emission reductions have met their compliance dates.

Table 3-2: Current Status of Reasonable Progress Sources and BART sources from the First Implementation Period

Facility	Emissions Unit	Emission Controls Included in SIP	Estimated Tons Reduced	Required Control Date	Status of Controls
GA Pacific – Brunswick Cellulose	F1 Pwr. Boiler 4	Required by reasonable progress determination. Permit limit of 568 tpy of SO_2	1074	January 1, 2012	Permit condition in place; 2012 SO_2 emissions = 142 tons
Georgia Pacific – Cedar Springs	Power Boiler U500	BART avoidance limit. Permit limit of 135 pounds SO_2 per hour (same as BART exemption modeling limit)	1385	Upon Completion of BART exemption project	BART project was completed on July 31, 2011. The facility performed an initial compliance test and passed.
	Power Boiler U501	BART avoidance limit. Permit limit of 135 pounds SO_2 per hour (same as BART exemption modeling limit)	1385		
International Paper – Savannah	Power Boiler 13, including combustion of process organic emissions	Required by reasonable progress determination. Permit limit of 6578 tpy of SO_2	2000	January 1, 2016	Permit condition in place to meet the scheduled control date (Permit No. 2631-051-0007-V-02-0)
Packaging Corp. of America	CE Power Boiler	Reasonable progress avoidance limit. Permit limit of 600 tpy of SO_2	53	January 1, 2012	Permit condition in place; 2012 SO_2 emissions = 1.3 tons
Rayonier Perf. Fibers	PB02 Pwr. Boiler 2	Reasonable progress avoidance limit. Permit limit of 318 tons SO_2 per 12 consecutive months, compliance date of June 4, 2008	306	January 1, 2018	Permit condition in place to limit No. 6 & No. 2 oil to 7.4235 and 1.30305 MMgal/yr respectively (Permit No. 2631-305-0001-V-03-0)
	PB03 Pwr. Boiler 3	Reasonable progress avoidance limit. Permit limit of 149 tons SO_2 per 12 consecutive months, compliance date of June 4, 2008	1448	January 1, 2018	Permit condition in place (Permit No. 2631-305-0001-V-03-0)

Facility	Emissions Unit	Emission Controls Included in SIP	Estimated Tons Reduced	Required Control Date	Status of Controls
	RF01 No. 5 Rec. Furn.	Reasonable progress avoidance limit. Permit limit of 194 tons SO_2 per 12 consecutive months, compliance date tied to facility modification	139	January 1, 2018	Permit condition in place to meet the limit once the construction and conversion project is completed (Permit No. 2631-305-0001-V-03-0)
	RF04 No. 6 Rec. Furn.	Reasonable progress avoidance limit. Permit limit of 307 tons SO_2 per 12 consecutive months, compliance date tied to facility modification	27	January 1, 2018	Permit condition in place to meet the limit once the construction and conversion project is completed (Permit No. 2631-305-0001-V-03-0)
Southern States Phosphate and Fertilizer	SA02 Acid Plant 2	Reasonable progress avoidance limit. Permit limit of 580 tpy of SO_2	228	January 1, 2014	Permit condition in place to meet the scheduled control date (Permit No. 2819-051-0077-V-02-1)
Interstate Paper	Power Boiler	Required by BART determination. Burn natural gas except during curtailment	178	January 1, 2012	Permit condition in place; in 2012 burned oil during Q2 curtailment, burned nat. gas for balance of year
TOTAL of all reductions			8,223		

3.4. Emission Reductions Achieved through Implementation of Control Measures

40 CFR 51.308(g)(2), of the RHR requires: *A summary of the emission reductions achieved throughout the State through implementation of the measures described in (1) above.* As required by 40 CFR 51.308(g)(2), Georgia is not expecting any increases in SO_2 emissions and Georgia did not implement additional control measures as a result of the four-factor analyses.

4. Visibility Conditions

40 CFR 51.308(g)(3), of the RHR requires: *For each Class I area within the State, the State must assess the following visibility conditions and changes, with values for most impaired and least impaired days expressed in terms of five-year averages of these annual values:*

- *(i) The current visibility conditions for the most impaired and least impaired days;*
- *(ii) The difference between current visibility conditions for the most impaired and least impaired days and baseline visibility conditions;*
- *(iii) The change in visibility impairment for the most impaired and least impaired days over the past five years.*

40 CFR 51.308(g)(3) requires the state to assess the visibility conditions for the most impaired and least impaired days expressed in terms of five-year averages. The visibility conditions that must be reviewed include: (1) the current visibility conditions; (2) the difference between current visibility conditions compared to the baseline; and (3) the change in visibility impairment for the most and least impaired days over the past five years. The Interagency Monitoring of Protected Visual Environments (IMPROVE) program provides visibility data allowing such assessments within Class I areas or at nearby Class I areas.[7]

Table 4-1 and Table 4-2 show the current visibility conditions and the difference between the current visibility and the baseline condition expressed in terms of five-year averages of observed visibility impairment for the 20% most impaired days and the 20% clearest days, respectively. The baseline conditions are for 2000 through 2004 and the current conditions are for 2018 through 2022. Because the RPGs in the first planning period were calculated for the 20% worst days, the table includes a comparison of the baseline average and current average for the 20% worst days.

The data shows that all Class I areas saw an improvement in visibility on the 20% most impaired days and on the 20% clearest days. The current observed 5-year average values for two out of the three on the 20% most impaired days are below the 2028 goal. Cohutta Wilderness Area is slightly above the 2028 goal at the time of this progress report. On the 20% clearest days, the current observed 5-year average value for all three areas are below the 2028 goal and thus ensures no

[7] https://vista.cira.colostate.edu/Improve/improve-program/

degradation in visibility for the 20 % clearest days since the baseline period as required in 40 CFR 51.308(g)(3). Since there is not an IMPROVE monitor located at Wolf Island Wilderness Area, the Okefenokee National Wilderness Area monitor values and reasonable progress goals are being used as a surrogate for Wolf Island Wilderness Area.

Table 4-1: Current Observed Visibility Impairment, Change from Baseline, and Comparison to 2028 RPGs, 20% Most Impaired Days

Class I Area	Baseline Average, dv (2000-2004)	Current Average, dv (2018-2022)	Change, current – baseline (dv)	2028 Goal (dv)	Difference, current – goal (dv)
Cohutta	29.12	15.69	-13.43	14.90	0.79
Okefenokee	25.34	16.36	-8.98	16.90	-0.54
Wolf Island	25.34	16.36	-8.98	16.90	-0.54

Table 4-2: Current Observed Visibility Impairment, Change from Baseline, and Comparison to 2028 RPGs, 20% Clearest Days

Class I Area	Baseline Average, dv (2000-2004)	Current Average, dv (2018-2022)	Change, current – baseline (dv)	2028 Goal (dv)	Difference, current – goal (dv)
Cohutta	13.73	7.09	-6.64	9.15	-2.06
Okefenokee	15.23	10.74	-4.49	11.58	-0.84
Wolf Island	15.23	10.74	-4.49	11.58	-0.84

The previous progress report covered visibility through 2018. Table 4-3 and Table 4-4 display the change in visibility impairment for the 20% most impaired and 20% clearest days for five-year periods from 2018 through 2022. The data shows that all three Class I areas saw an improvement in visibility on the 20% most impaired and 20% clearest days. The data in Table 4-3 shows there was a -1.72 deciview (dv) and -1.06 dv change between the 2014-2018 and 2018-2022 five-year periods for 20% most impaired days at Cohutta and Okefenokee/Wolf Island respectively. The data in Table 4-4 shows there was a -1.03 dv and -0.83 dv change between the 2014-2018 and 2018-2022 five-year periods for 20% clearest days at Cohutta and Okefenokee/Wolf Island respectively. Both comparisons show an increase in visibility at all three Class I areas.

Table 4-3: Observed Visibility Impairment for Five-Year Periods Through 2022, 20% Most Impaired Days

Class I Area	2014-2018	2015-2019	2016-2020	2017-2021	2018-2022
Cohutta	17.41 dv	16.89 dv	16.19 dv	16.05 dv	15.69 dv
Okefenokee	17.42 dv	17.04 dv	16.71 dv	16.53 dv	16.36 dv
Wolf Island	17.42 dv	17.04 dv	16.71 dv	16.53 dv	16.36 dv

Table 4-4: Observed Visibility Impairment for Five-Year Periods Through 2022, 20% Clearest Days

Class I Area	2014-2018	2015-2019	2016-2020	2017-2021	2018-2022
Cohutta	8.12 dv	7.53 dv	7.78 dv	7.42 dv	7.09 dv
Okefenokee	11.57 dv	11.36 dv	11.20 dv	11.00 dv	10.74 dv
Wolf Island	11.57 dv	11.36 dv	11.20 dv	11.00 dv	10.74 dv

Figure 4-1 through Figure 4-4 display the data listed in Table 4-1 through Table 4-4. Monitoring data from the IMPROVE network used in these figures are current as of October 2023.[8] Figure 4-1 shows the uniform rate of progress (URP) towards natural background for the 20% most impaired days and observed visibility impairment for the 20% most impaired days in Cohutta Wilderness Area, as well as the associated glide slope and the predicted impairment from the regional haze SIP. The 2028 RPG is included in the graph. The observed five-year average impairment for 2022 is below both the glide path and the predicted impairment.

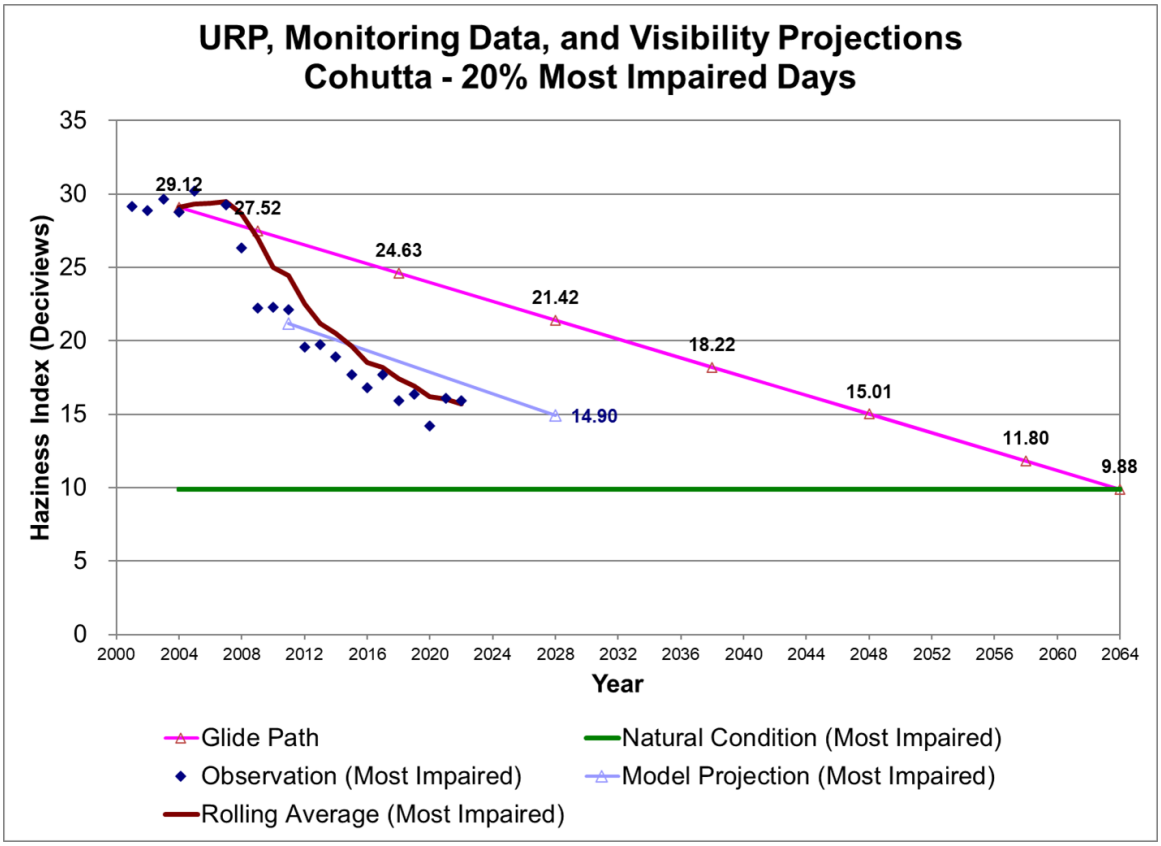


Figure 4-1: Cohutta Wilderness Area Visibility Impairment on the 20% Most Impaired Days, Glide Path, and 2028 RPG

Figure 4-2 shows the observed five-year average impairment values for the 20% clearest days in Cohutta Wilderness Area, as well as the predicted impairment from the regional haze SIP. The observed five-year average impairment for the 20% clearest days for 2022 is below both the baseline and the predicted impairment.

[8] http://vista.cira.colostate.edu/Improve/rhr-summary-data/sia_impairment_daily_budgets_10_23.zip

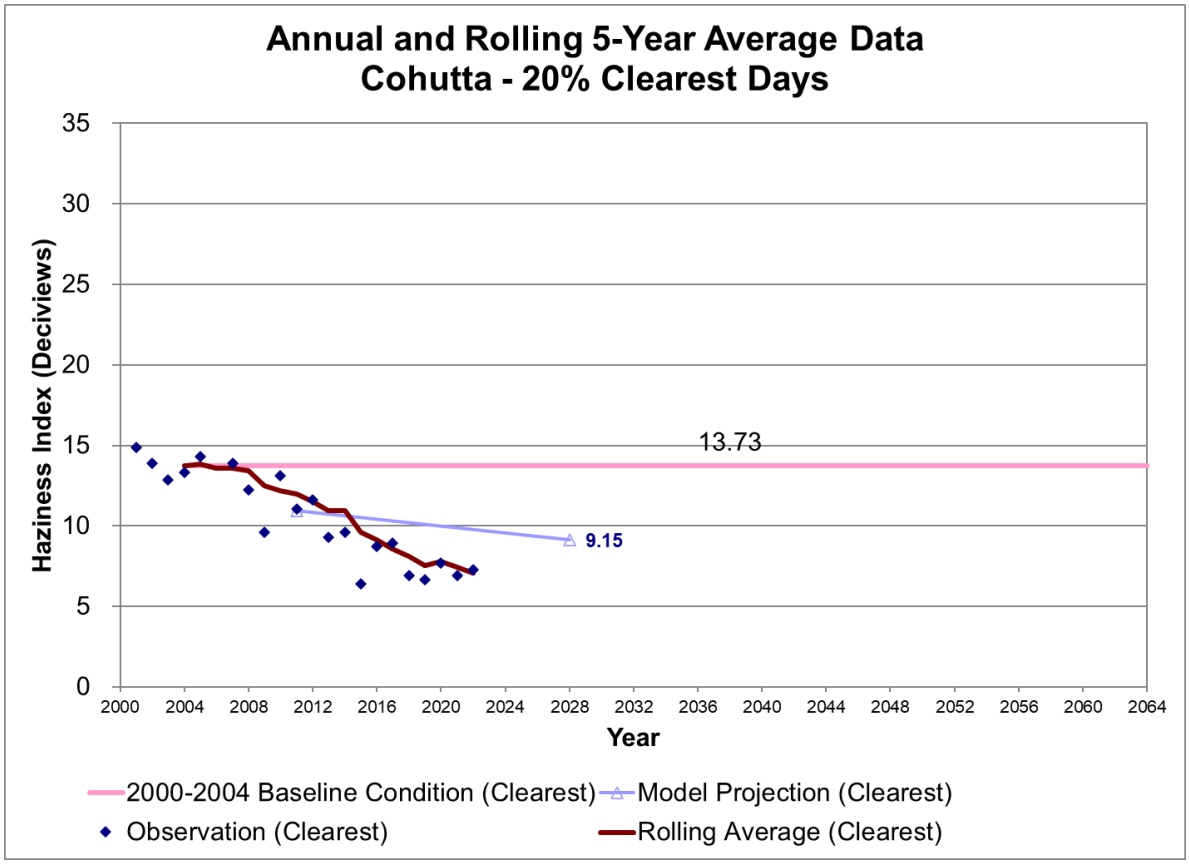


Figure 4-2: Cohutta Wilderness Area Visibility Impairment on the 20% Clearest Days and Natural Conditions

Figure 4-3 shows the URP towards natural background for the 20% most impaired days and observed visibility impairment for the 20% most impaired days in Okefenokee National Wilderness Area, as well as the associated glide slope and the predicted impairment from the regional haze SIP. The 2028 RPG is included in the graph. The observed five-year average impairment for 2022 is below both the glide path and the predicted impairment.

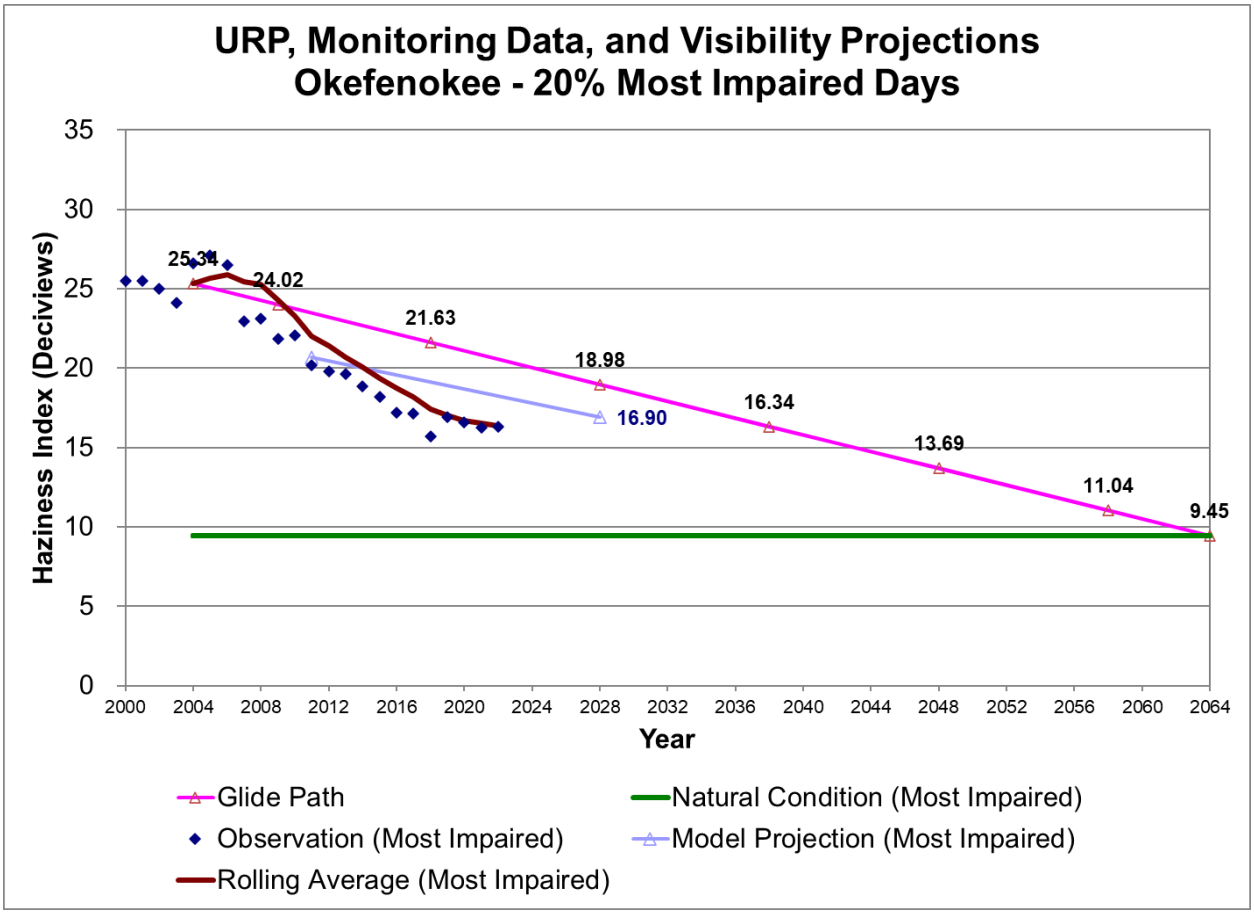


Figure 4-3: Okefenokee National Wilderness Area Visibility Impairment on the 20% Most Impaired Days, Glide Path, and 2028 RPG

Figure 4-4 shows the observed five-year average impairment values for the 20% clearest days in Okefenokee National Wilderness Area, as well as the predicted impairment from the regional haze SIP. The observed five-year average impairment for the 20% clearest days for 2022 is below both the baseline and the predicted impairment.

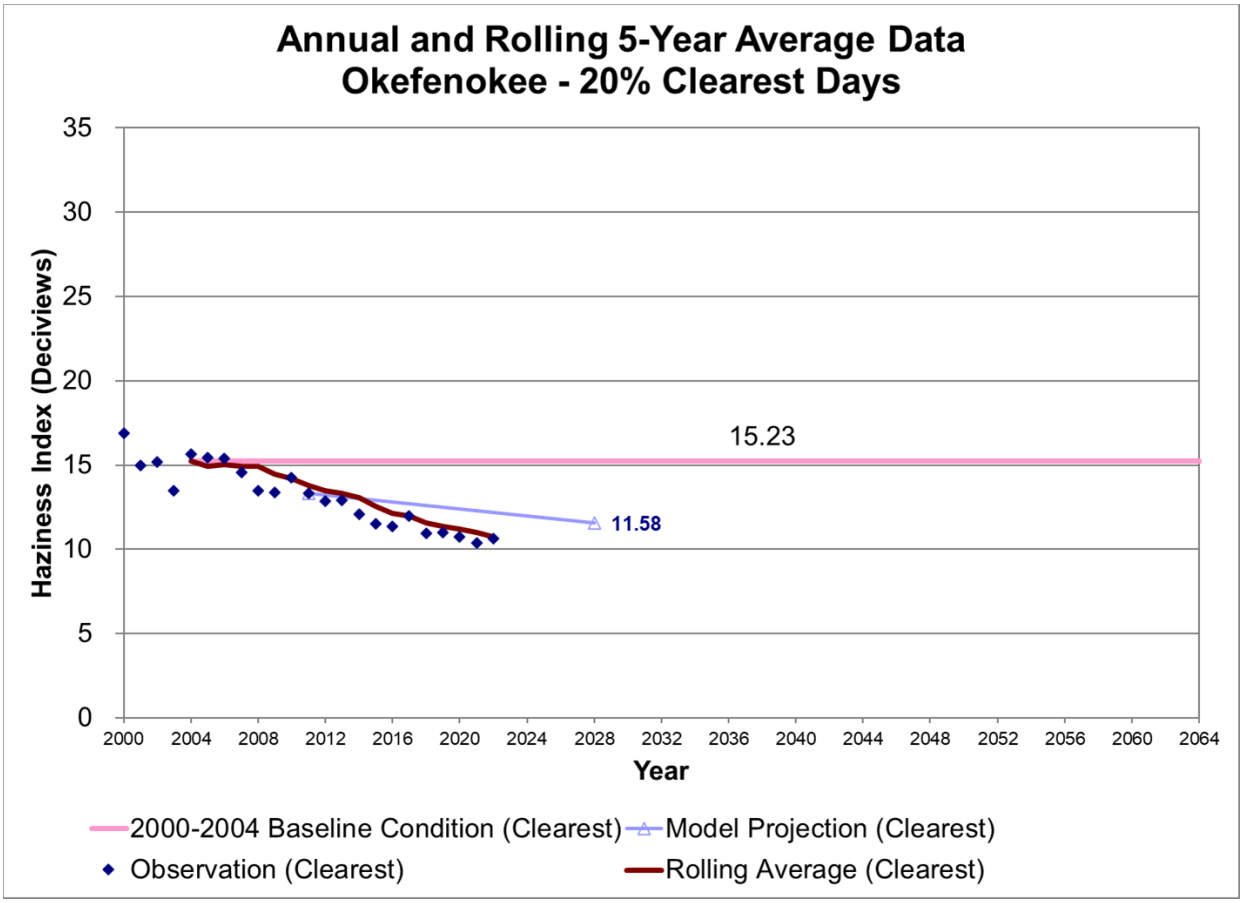


Figure 4-4: Okefenokee National Wilderness Area Visibility Impairment on the 20% Clearest Days and Natural Conditions

5. Emissions Analysis

40 CFR 51.308(g)(4), of the RHR requires: *An analysis tracking the change over the period since the period addressed in the most recent plan required under paragraph (f) of this section in emissions of pollutants contributing to visibility impairment from all sources and activities within the State. Emissions changes should be identified by type of source or activity. With respect to all sources and activities, the analysis must extend at least through the most recent year for which the state has submitted emission inventory information to the Administrator in compliance with the triennial reporting requirements of subpart A of this part as of a date 6 months preceding the required date of the progress report. With respect to sources that report directly to a centralized emissions data system operated by the Administrator, the analysis must extend through the most recent year for which the Administrator has provided a State-level summary of such reported data or an internet-based tool by which the State may obtain such a summary as of a date 6 months preceding the required date of the progress report. The State is not required to backcast previously reported emissions to be consistent with more recent emissions estimation procedures, and may draw attention to actual or possible inconsistencies created by changes in estimation procedures.*

This section includes an analysis tracking the change since 2019 in emissions of pollutants contributing to visibility impairment from all sources and activities within the state, as required by 40 CFR 51.308(g)(4). Because SO_2 was the significant pollutant contributing to visibility impairment during the second implementation period, the emissions analysis will focus mostly on SO_2 emissions. This section also includes an assessment of changes in anthropogenic emissions since 2018, as required by 40 CFR 51.308(g)(5).

5.1. Change in $PM_{2.5}$, NO_X, SO_2, Emissions from All Source Categories

This analysis categorizes emissions into eight categories: agricultural burning, stationary point, non-point (area), non-road mobile, onroad mobile, prescribed burns, wildfires, and biogenic sources.

- Agricultural burning includes emissions from field burning for various crop production, such as corn, wheat, soybean, citrus, beans, and sugar cane. Emissions estimates from agricultural burning are available on a countywide level.
- Stationary point sources are those sources that emit greater than a specified tonnage per year, with data provided at the facility level. Electricity generating utilities and industrial sources are the major categories for stationary point sources.
- Nonpoint sources, sometimes called stationary area sources, are those sources whose individual emissions are relatively small, but due to the large number of these sources, the collective emissions from the source category could be significant. These types of emissions are estimated on a countywide level.
- Non-road mobile sources are equipment that can move, but do not use the roadways (i.e., lawn mowers, construction equipment, marine vessels, railroad locomotives, aircraft). The emissions from these sources, like stationary area sources, are estimated on a countywide level.
- Onroad mobile sources are automobiles, trucks, and motorcycles that use the roadway system. The emissions from these sources are estimated by vehicle type and road type and are summed to the countywide level.
- Wildfire emissions include smoldering and flaming emissions from unplanned, unwanted fire burning in a natural area, such as a forest, grassland, or prairies. These emissions may be summed to a countywide level or reported as a point source.
- Prescribed fire emissions include smoldering and flaming emissions from fire land treatment, under controlled conditions, to accomplish natural resource management objectives. Use of prescribed fire can reduce the likelihood of catastrophic wildfires.
- Biogenic sources are natural sources like trees, crops, grasses and natural decay of plants. The biogenic emissions are not included in this review since they were held constant as part of the original regional haze SIP modeling and are not controllable emissions.

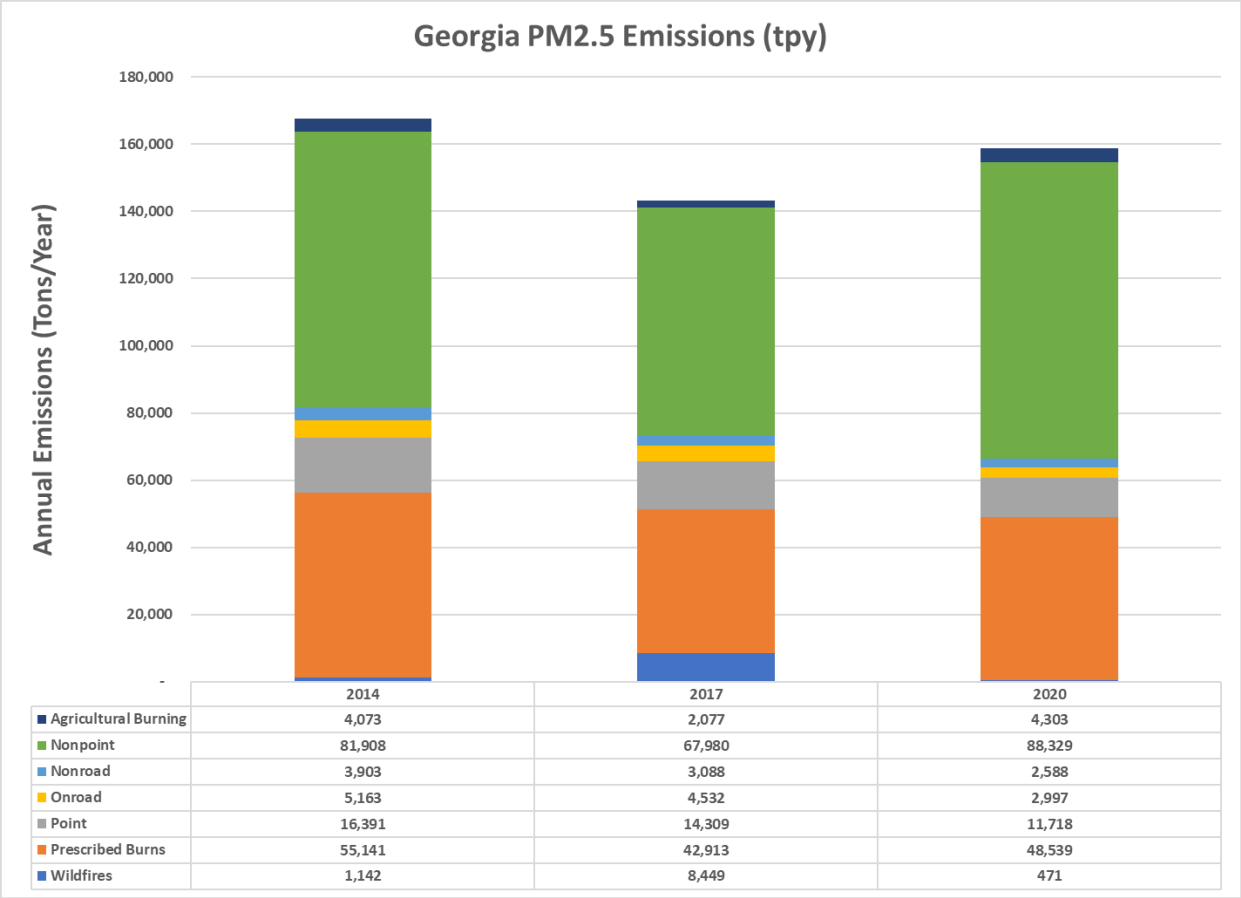
For the purpose of evaluating recent emissions changes and progress, GA EPD used the 2014 NEI[9], the 2017 NEI,[10] the 2020 NEI,[11] and Georgia's point source emissions inventory data collected each year. When available, data after 2020 is also used. For comparison purposes, the tables below include the 2028 emissions projected by VISTAS[12] in the second regional haze SIP.

Table 5-1 and Figure 5-1 show how $PM_{2.5}$ emissions for each source category have changed. Total $PM_{2.5}$ emissions in Georgia have decreased by 5.2% since 2014.

Table 5-1: $PM_{2.5}$ Emissions (tons) for the 2014 NEI, 2017 NEI, and 2020 NEI

$PM_{2.5}$ Sector	NEI 2014 (tpy)	NEI 2017 (tpy)	NEI 2020 (tpy)
Point	16,391	14,309	11,718
Nonpoint	81,908	67,980	88,329
Onroad	5,163	4,532	2,997
Non-Road	3,903	3,088	2,588
Wildfires	1,142	8,449	471
Prescribed Fires	55,141	42,913	48,539
Agricultural Fires	4,073	2,077	4,303
Total	167,721	143,348	158,945

[9] https://www.epa.gov/air-emissions-inventories/2014-national-emissions-inventory-nei-data
[10] https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data
[11] https://www.epa.gov/air-emissions-inventories/2020-national-emissions-inventory-nei-data
[12] https://www.metro4-sesarm.org/content/task-2-emission-inventory-updates



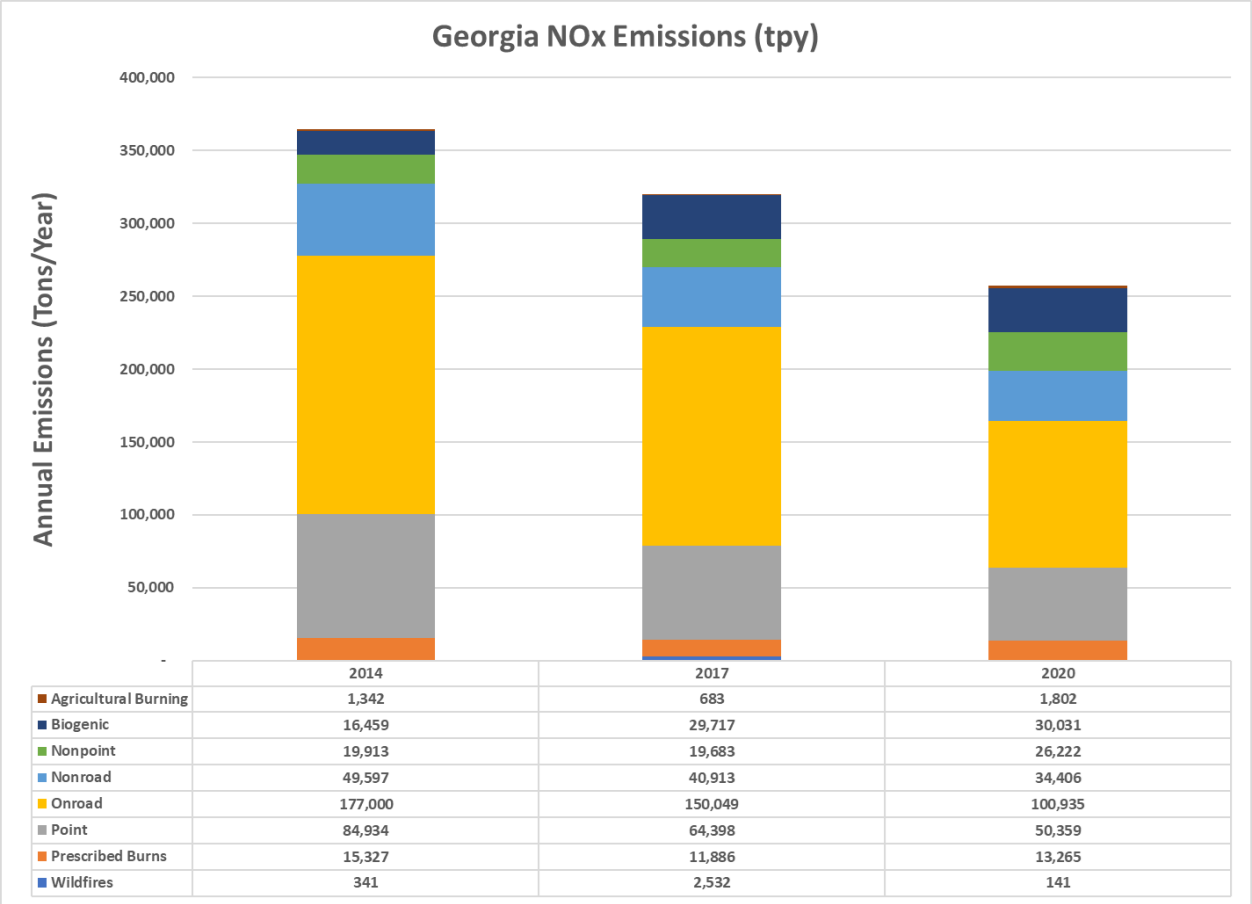
	2014	2017	2020
Agricultural Burning	4,073	2,077	4,303
Nonpoint	81,908	67,980	88,329
Nonroad	3,903	3,088	2,588
Onroad	5,163	4,532	2,997
Point	16,391	14,309	11,718
Prescribed Burns	55,141	42,913	48,539
Wildfires	1,142	8,449	471

Figure 5-1: $PM_{2.5}$ Emissions (tons) for Georgia by Category

Table 5-2 and Figure 5-2 show how NO_X emissions in Georgia for each source category have changed. Total NO_X emissions in Georgia have decreased by 21.7% from 2017 to 2020.

Table 5-2: NO_X Emissions (tons) for the 2014 NEI, 2017 NEI, and 2020 NEI

NO_X Sector	NEI 2014 (tpy)	NEI 2017 (tpy)	NEI 2020 (tpy)
Point	84,934	64,398	50,359
Nonpoint	19,913	19,683	26,222
Onroad	177,000	150,049	100,935
Non-Road	49,597	40,913	34,406
Wildfires	341	2,532	141
Prescribed Fires	15,327	11,886	13,265
Agricultural Fires	1,342	683	1,802
Total	348,454	290,144	227,130



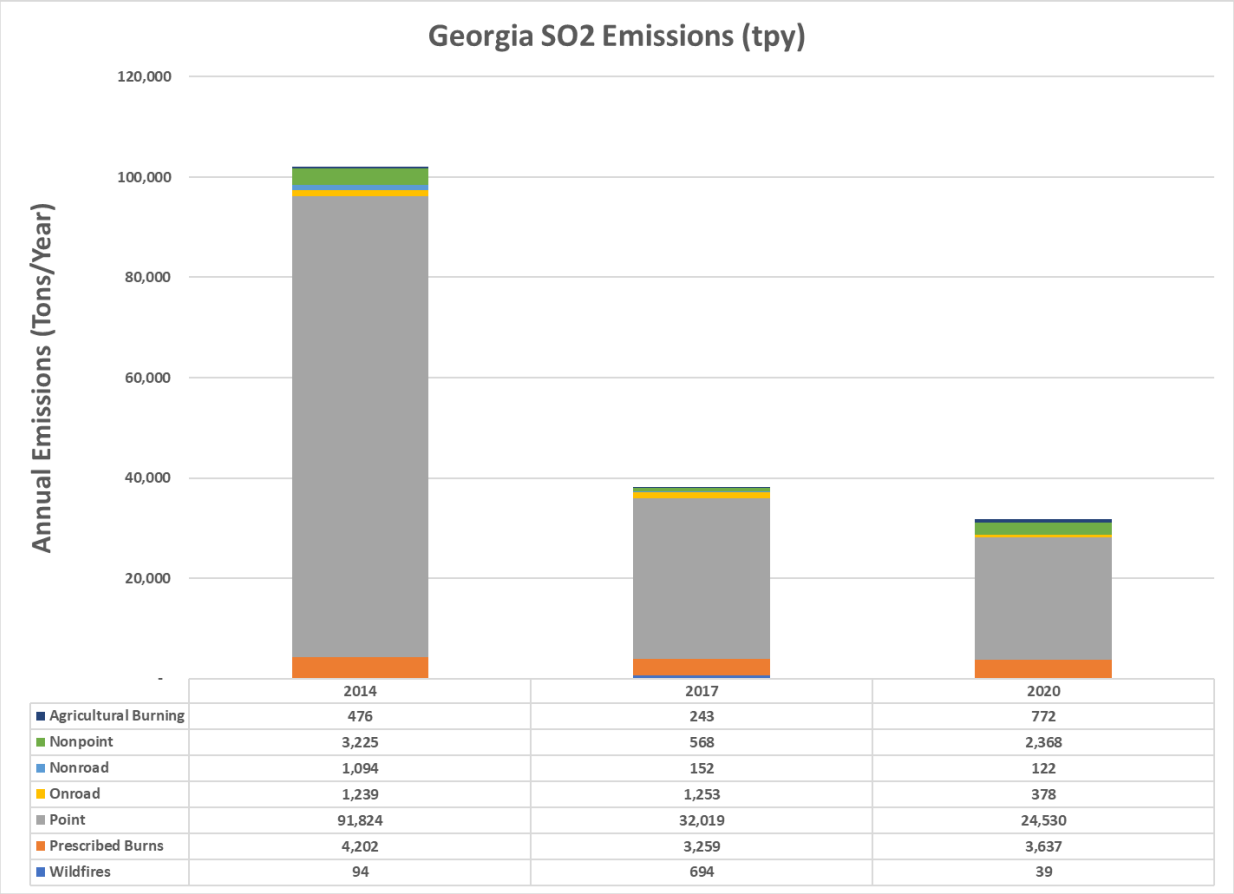
	2014	2017	2020
Agricultural Burning	1,342	683	1,802
Biogenic	16,459	29,717	30,031
Nonpoint	19,913	19,683	26,222
Nonroad	49,597	40,913	34,406
Onroad	177,000	150,049	100,935
Point	84,934	64,398	50,359
Prescribed Burns	15,327	11,886	13,265
Wildfires	341	2,532	141

Figure 5-2: NOx Emissions (tons) for Georgia by Category

Table 5-3 and Figure 5-3 show how SO_2 emissions in Georgia for each source category have changed. Total SO_2 emissions in Georgia have decreased by 16.6% from 2017 to 2020.

Table 5-3: SO_2 Emissions (tons) for the 2014 NEI, 2017 NEI, and 2020 NEI

SO_2 Sector	NEI 2014 (tpy)	NEI 2017 (tpy)	NEI 2020 (tpy)
Point	91,824	32,019	24,530
Nonpoint	3,225	568	2,368
Onroad	1,239	1,253	378
Non-Road	1,094	152	122
Wildfires	94	694	39
Prescribed Fires	4,202	3,259	3,637
Agricultural Fires	476	243	772
Total	102,154	38,188	31,846



	2014	2017	2020
Agricultural Burning	476	243	772
Nonpoint	3,225	568	2,368
Nonroad	1,094	152	122
Onroad	1,239	1,253	378
Point	91,824	32,019	24,530
Prescribed Burns	4,202	3,259	3,637
Wildfires	94	694	39

Figure 5-3: SO_2 Emissions (tons) for Georgia by Category

Actual emissions reductions from the EGU sector have continued to decrease significantly due to installation of scrubbers and other controls on some of the larger power generation sources in Georgia. Repowering or shifting to natural gas, as well as some reduced utilization of coal EGUs and increased utilization of natural gas EGUs and renewable energy has also reduced emissions of SO_2. Table 5-4 shows the Clean Air Markets Program Data (CAMPD)[13] SO_2 and NO_X emissions from 2015 to 2023.

Table 5-4: Georgia EGU SO_2 and NO_X Emissions for CAMPD (2015-2023)

Year	SO_2 Emissions (tpy)	NO_X Emissions (tpy)
2015	31,818	29,396
2016	18,387	25,835
2017	13,855	24,572
2018	13,930	25,617
2019	12,406	21,285
2020	6,968	13,399
2021	8,567	15,588

[13] https://campd.epa.gov/

Year	SO_2 Emissions (tpy)	NO_X Emissions (tpy)
2022	7,291	16,722
2023	7,988	15,184

Figure 5-4 and Figure 5-5 below depicts the trends for units that report annual emissions to Clean Air Markets Division (CAMD) and are located in Georgia.

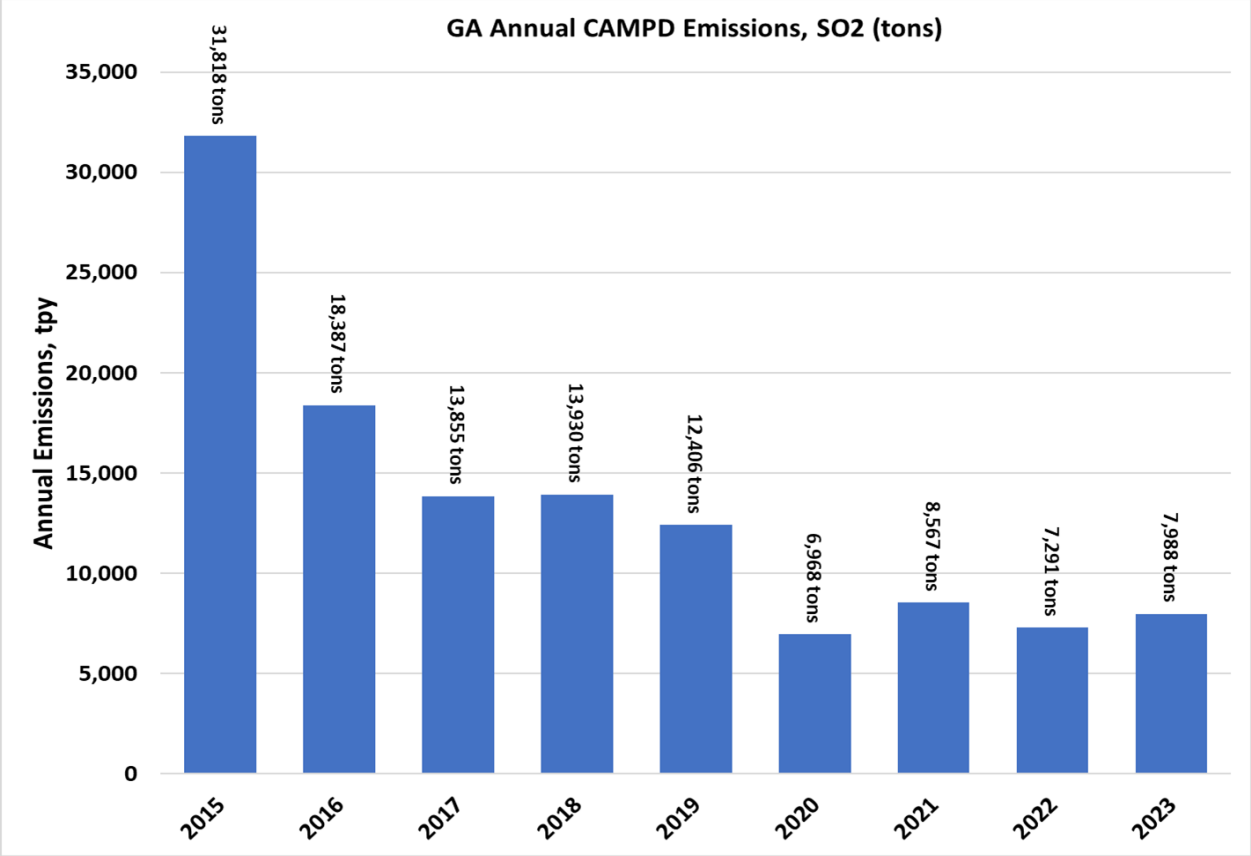


Figure 5-4: Georgia CAMPD Emissions ***(Source: EPA CAMD Database)***

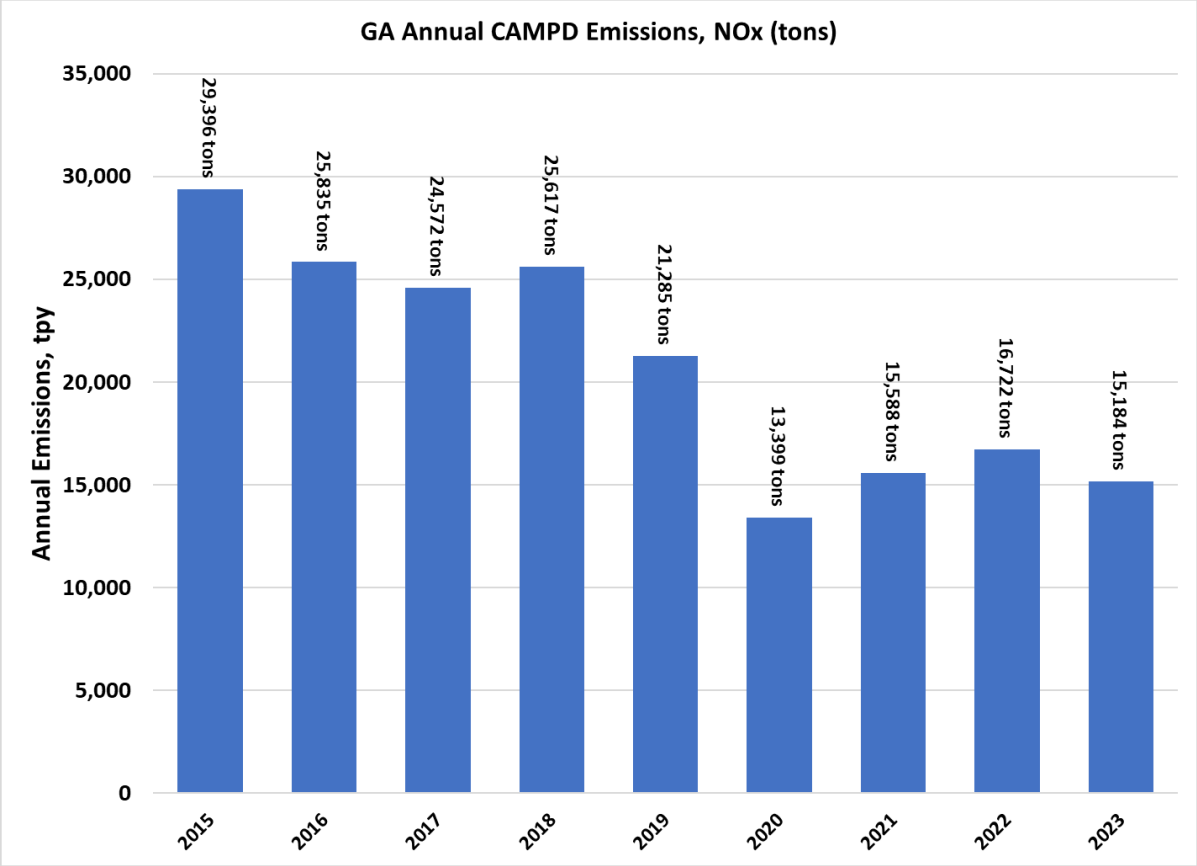
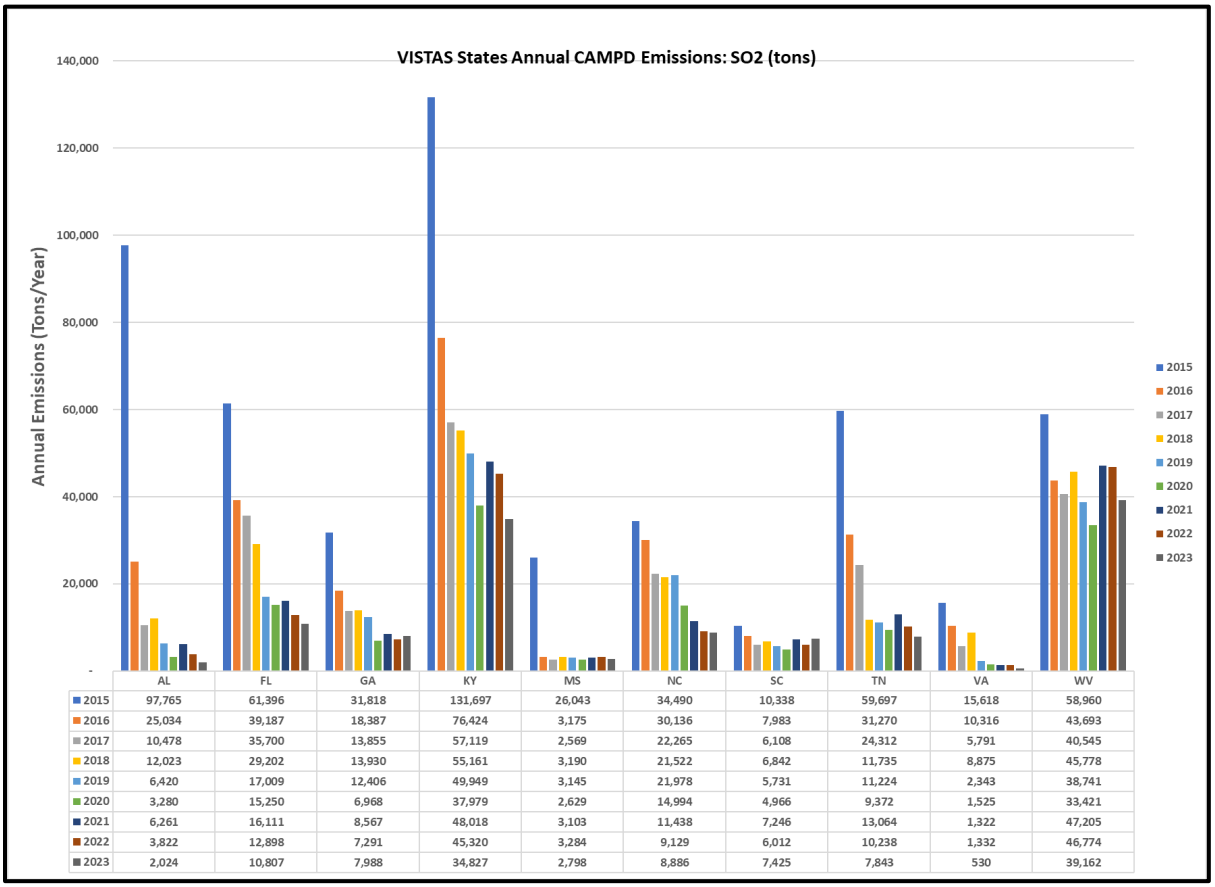


Figure 5-5: Georgia CAMPD Emissions *(Source: EPA CAMD Database)*

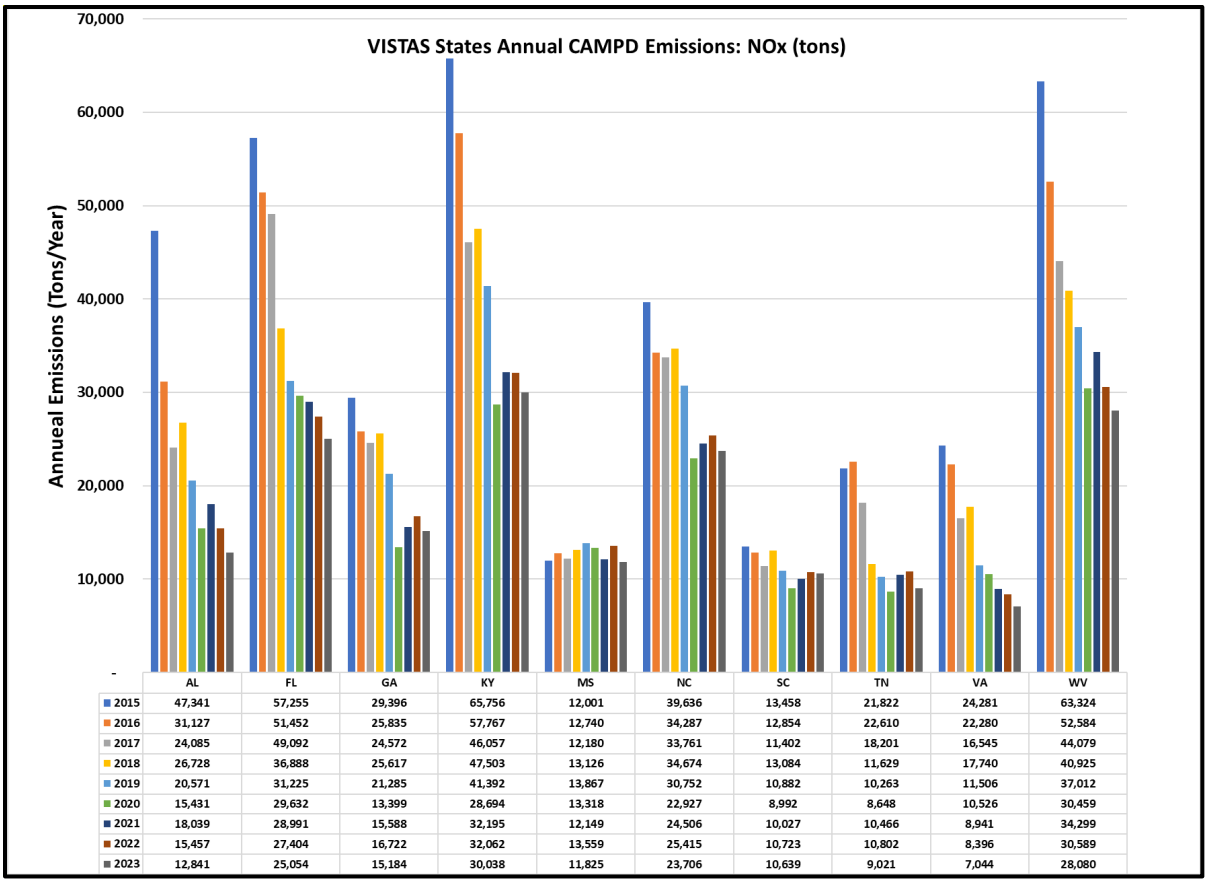
As shown in Figure 5-4, SO_2 emissions from these units decreased from 31,818 tons in 2015 to 7,988 tons in 2023, a decrease of 75%. As shown in Figure 5-5, NO_X emissions decreased from 29,396 tons in 2015 to 15,184 tons in 2023, a decrease of 48%.

Figure 5-6 and Figure 5-7 show the trends for units reporting to CAMD across all VISTAS states.



	AL	FL	GA	KY	MS	NC	SC	TN	VA	WV
2015	97,765	61,396	31,818	131,697	26,043	34,490	10,338	59,697	15,618	58,960
2016	25,034	39,187	18,387	76,424	3,175	30,136	7,983	31,270	10,316	43,693
2017	10,478	35,700	13,855	57,119	2,569	22,265	6,108	24,312	5,791	40,545
2018	12,023	29,202	13,930	55,161	3,190	21,522	6,842	11,735	8,875	45,778
2019	6,420	17,009	12,406	49,949	3,145	21,978	5,731	11,224	2,343	38,741
2020	3,280	15,250	6,968	37,979	2,629	14,994	4,966	9,372	1,525	33,421
2021	6,261	16,111	8,567	48,018	3,103	11,438	7,246	13,064	1,322	47,205
2022	3,822	12,898	7,291	45,320	3,284	9,129	6,012	10,238	1,332	46,774
2023	2,024	10,807	7,988	34,827	2,798	8,886	7,425	7,843	530	39,162

Figure 5-6: VISTAS CAMPD Emissions *(source: EPA CAMD Database)*



	AL	FL	GA	KY	MS	NC	SC	TN	VA	WV
2015	47,341	57,255	29,396	65,756	12,001	39,636	13,458	21,822	24,281	63,324
2016	31,127	51,452	25,835	57,767	12,740	34,287	12,854	22,610	22,280	52,584
2017	24,085	49,092	24,572	46,057	12,180	33,761	11,402	18,201	16,545	44,079
2018	26,728	36,888	25,617	47,503	13,126	34,674	13,084	11,629	17,740	40,925
2019	20,571	31,225	21,285	41,392	13,867	30,752	10,882	10,263	11,506	37,012
2020	15,431	29,632	13,399	28,694	13,318	22,927	8,992	8,648	10,526	30,459
2021	18,039	28,991	15,588	32,195	12,149	24,506	10,027	10,466	8,941	34,299
2022	15,457	27,404	16,722	32,062	13,559	25,415	10,723	10,802	8,396	30,589
2023	12,841	25,054	15,184	30,038	11,825	23,706	10,639	9,021	7,044	28,080

Figure 5-7: VISTAS CAMPD Emissions *(source: EPA CAMD Database)*

As shown in Figure 5-6, the SO_2 emissions decreased from 527,823 tons in 2015 to 122,289 tons in 2023, a decrease of 77%. As shown in Figure 5-7, NO_X emissions decreased from 374,271 tons in 2015 to 173,432 tons in 2023, a drop of 54%.

The figures above reflect the fact that the reductions in SO_2 and NO_X are generally a result of permanent changes at EGUs through the use of control technology and fuel switching, Thus, visibility improvements from reduced sulfate and nitrate contribution should continue into the future even if there are moderate increases in demand for power from these units. In addition, market forces on coal EGUs have shifted these units from baseload operations to load following operations with increased usage of natural gas and renewable energy sources for electricity production.

5.2. Assessments of Changes in Anthropogenic Emissions

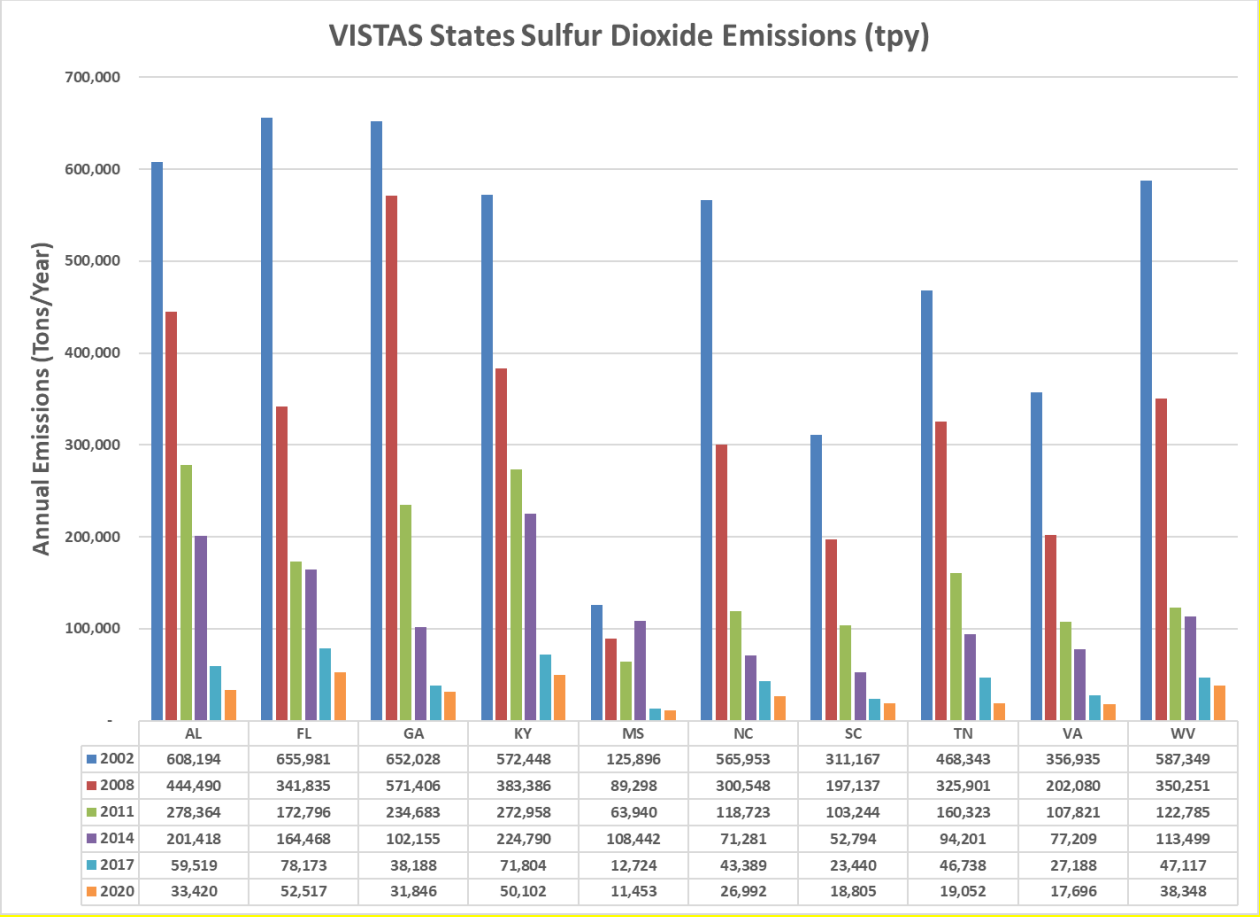
40 CFR 51.308(g)(5), of the RHR requires: *An assessment of any significant changes in anthropogenic emissions within or outside the State that have occurred since the period addressed in the most recent plan required under paragraph (f) of this section including whether or not these*

changes in anthropogenic emissions were anticipated in that most recent plan and whether they have limited or impeded progress in reducing pollutant emissions and improving visibility.

To address this paragraph, GA EPD reviewed anthropogenic SO_2 and NO_X emissions trends for the VISTAS states and each of the RPOs based on emissions included in the 2011, 2014, 2017, and 2020 NEI. The emissions trends are shown in Table 5-5, and the data in this table are presented in bar charts in Figure 5-8 and Figure 5-9 for SO_2 and NO_X emissions, respectively. These data show a significant decline in both SO_2 and NO_X emissions during the 2011 through 2020 period (which includes the 2019-2024 period covered by this progress report) both within Georgia, each VISTAS state, and non-VISTAS states included in the RPOs covering the rest of the U.S.

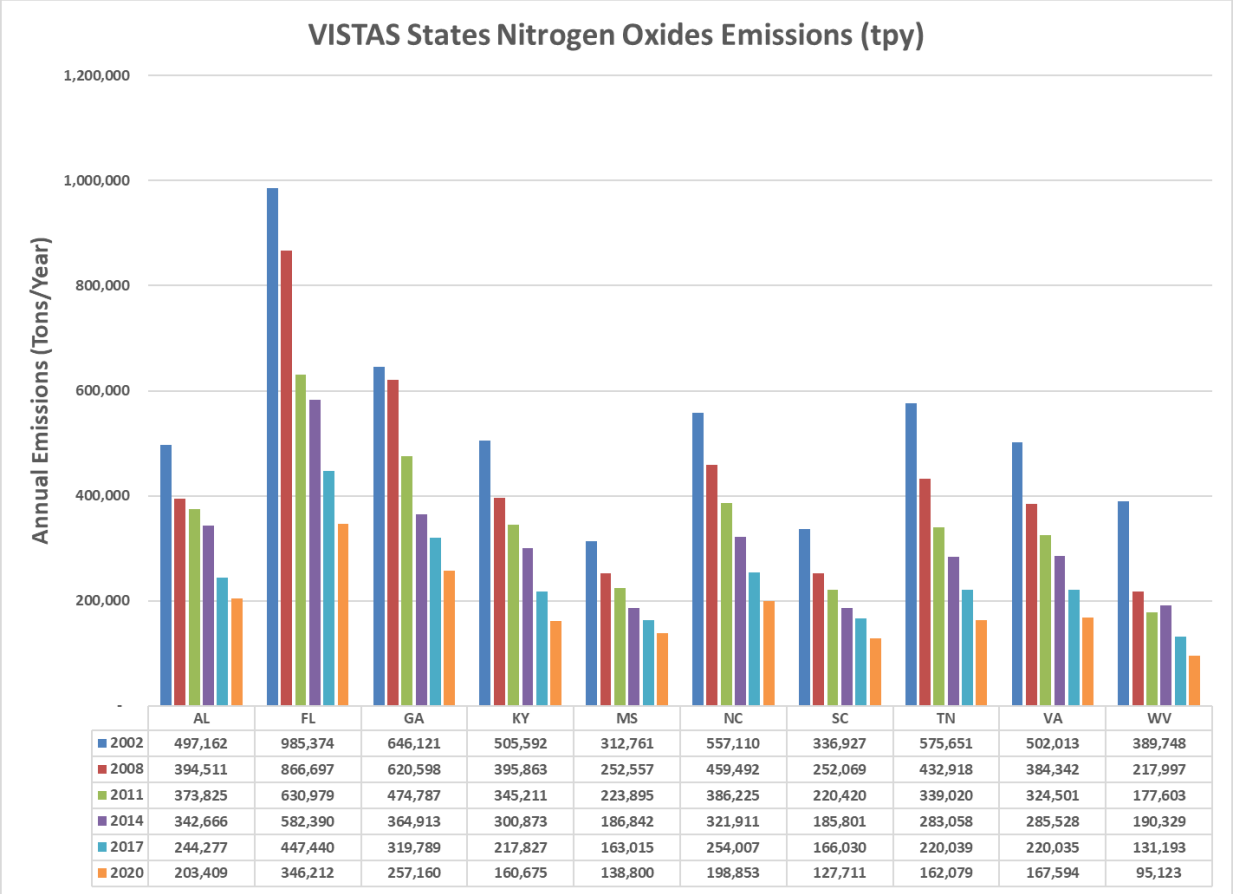
Table 5-5: Annual Anthropogenic SO_2 and NO_X Emissions Trends by RPO and VISTAS States (2011, 2014, 2017, and 2020)

	SO_2 Emissions (TPY)				NO_X Emissions (TPY)			
RPO/State	**2011**	**2014**	**2017**	**2020**	**2011**	**2014**	**2017**	**2020**
CENSARA	1,552,522	1,215,472	966,258	610,656	4,045,719	3,533,785	3,097,671	2,392,637
LADCO	1,885,366	1,240,170	471,368	353,993	2,706,484	2,293,286	1,751,389	1,365,771
MANE-VU	739,180	503,720	169,617	93,635	1,694,698	1,497,530	1,105,379	867,774
VISTAS	1,635,635	1,210,257	448,278	300,230	3,496,466	3,044,311	2,383,651	1,857,616
WESTAR/WRAP	608,768	460,131	460,331	468,003	3,429,383	2,992,736	2,763,218	2,283,084
VISTAS States								
AL	278,364	201,418	59,519	33,420	373,825	342,666	244,277	203,409
FL	172,796	164,468	78,173	52,517	630,979	582,390	447,440	346,212
GA	234,683	102,155	38,188	31,846	474,787	364,913	319,789	257,160
KY	272,958	224,790	71,804	50,102	345,211	300,873	217,827	160,675
MS	63,940	108,442	12,724	11,453	223,895	186,842	163,015	138,800
NC	118,723	71,281	43,389	26,992	386,225	321,911	254,007	198,853
SC	103,244	52,794	23,440	18,805	220,420	185,801	166,030	127,711
TN	160,323	94,201	46,738	19,052	339,020	283,058	220,039	162,079
VA	107,821	77,209	27,188	17,696	324,501	285,528	220,035	167,594
WV	122,785	113,499	47,117	38,348	177,603	190,329	131,193	95,123



	AL	FL	GA	KY	MS	NC	SC	TN	VA	WV
2002	608,194	655,981	652,028	572,448	125,896	565,953	311,167	468,343	356,935	587,349
2008	444,490	341,835	571,406	383,386	89,298	300,548	197,137	325,901	202,080	350,251
2011	278,364	172,796	234,683	272,958	63,940	118,723	103,244	160,323	107,821	122,785
2014	201,418	164,468	102,155	224,790	108,442	71,281	52,794	94,201	77,209	113,499
2017	59,519	78,173	38,188	71,804	12,724	43,389	23,440	46,738	27,188	47,117
2020	33,420	52,517	31,846	50,102	11,453	26,992	18,805	19,052	17,696	38,348

Figure 5-8: Annual Anthropogenic SO_2 Emissions Trends by VISTAS States



	AL	FL	GA	KY	MS	NC	SC	TN	VA	WV
2002	497,162	985,374	646,121	505,592	312,761	557,110	336,927	575,651	502,013	389,748
2008	394,511	866,697	620,598	395,863	252,557	459,492	252,069	432,918	384,342	217,997
2011	373,825	630,979	474,787	345,211	223,895	386,225	220,420	339,020	324,501	177,603
2014	342,666	582,390	364,913	300,873	186,842	321,911	185,801	283,058	285,528	190,329
2017	244,277	447,440	319,789	217,827	163,015	254,007	166,030	220,039	220,035	131,193
2020	203,409	346,212	257,160	160,675	138,800	198,853	127,711	162,079	167,594	95,123

Figure 5-9: Annual Anthropogenic NO_X Emissions Trends by VISTAS States

Figure 5-10 shows the average light extinction for the 20% most impaired days over the 5-year periods 2000 through 2004 and 2018 through 2022 for Cohutta Wilderness Area. Figure 5-11 shows the average light extinction for the 20% most impaired days from 1995 through 2022 for Cohutta Wilderness Area. These figures demonstrate that on the 20% most impaired days at Cohutta Wilderness Area, sulfates (SO_4) continue to be the largest concern during the second planning period, which is formed from the SO_2 emissions from stationary point sources. As shown from above in Figures 5-8 and Figure 5-9, the reduction in SO_2 and NO_X emissions at Cohutta Wilderness Area, as well as neighboring states, has resulted in significant improvements in visible range at Cohutta Wilderness Area, as well as Class I areas in nearby states. Based on these emissions and visibility data, there does not appear to be any significant changes in anthropogenic emissions within or outside Georgia that would have limited or impeded progress in reducing pollutant emissions or improving visibility at the Class I area(s) affected by the State's sources. Georgia anticipated the reduction in pollutant emissions due to all of the federal and state control programs.

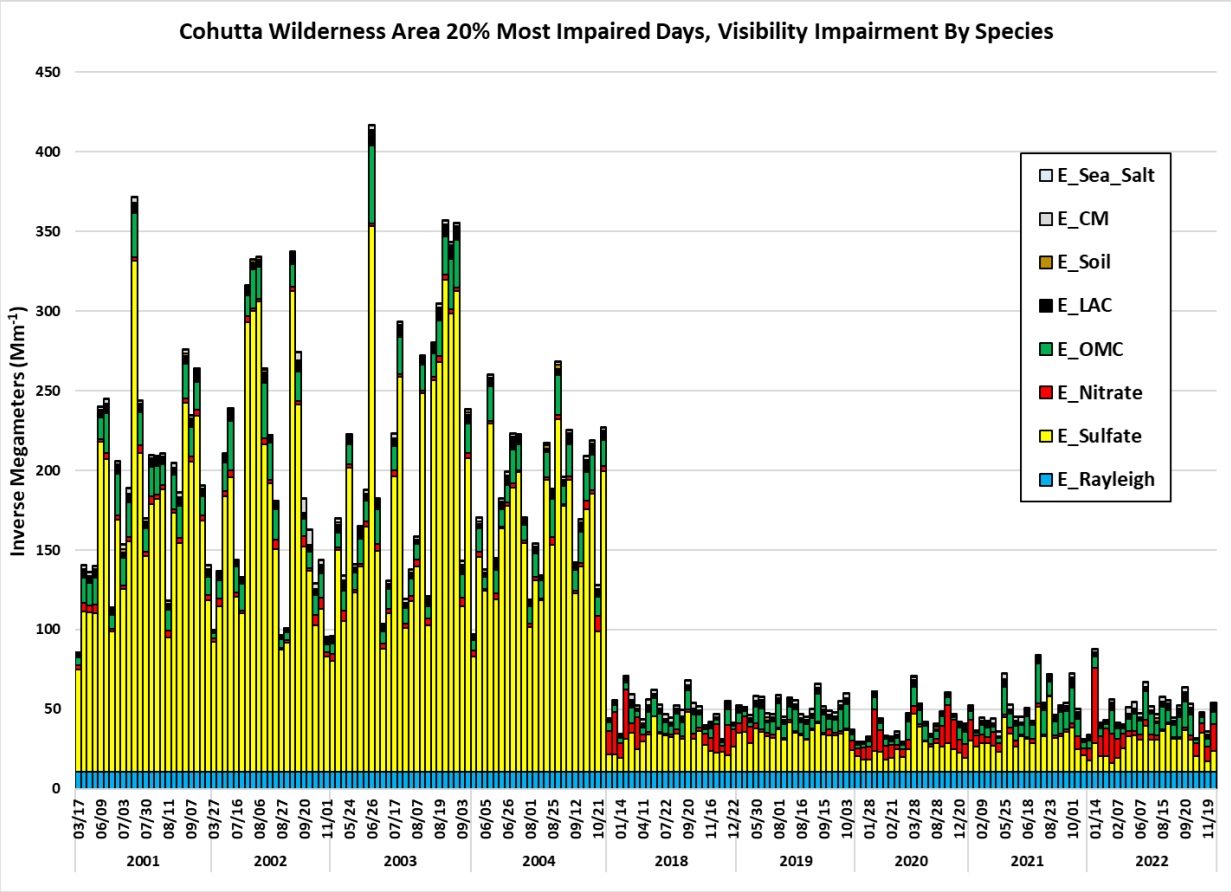


Figure 5-10: Cohutta Wilderness Area 20% Most Impaired Days, Visibility Impairment by Species

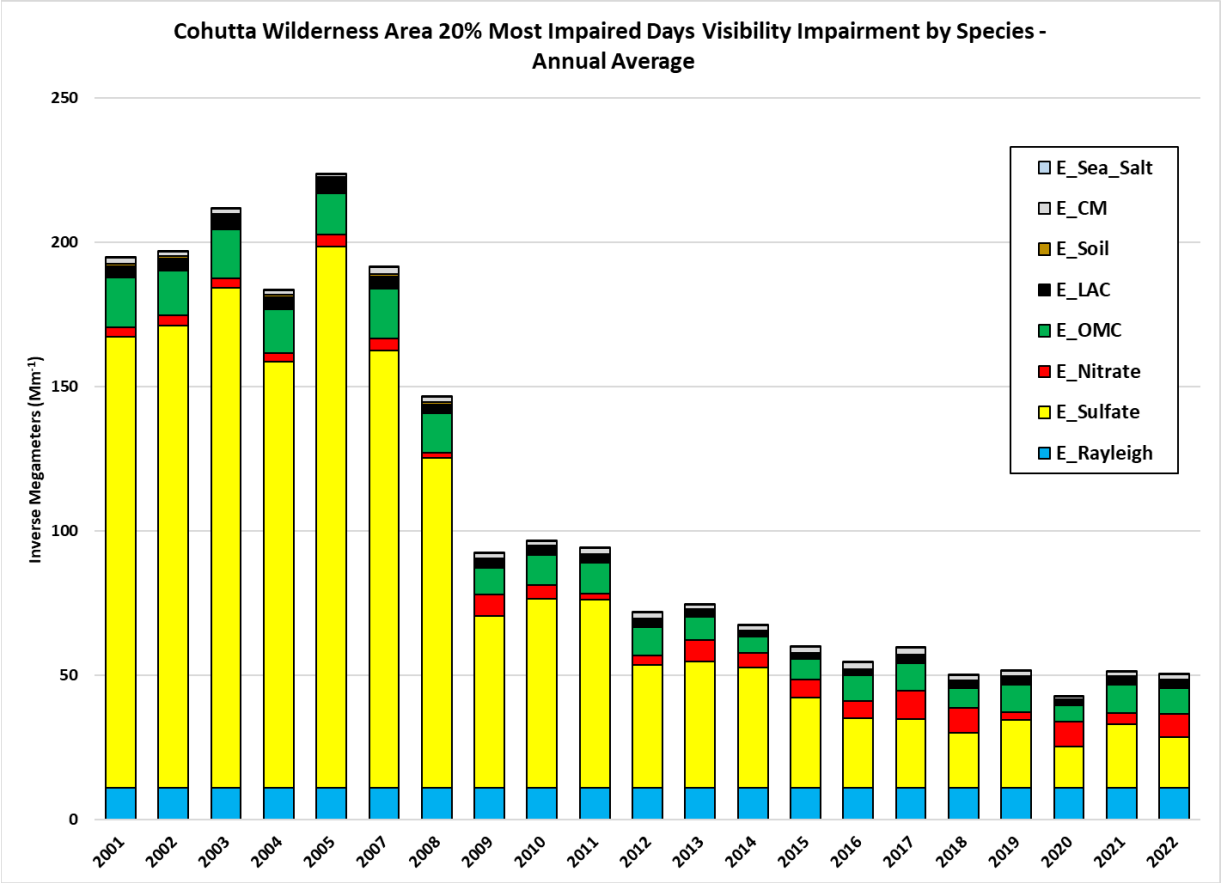


Figure 5-11: Cohutta Wilderness Area 20% Most Impaired Days Visibility Impairment by Species – Annual Average

Figure 5-12 shows the average light extinction for the 20% most impaired days over the 5-year periods 2000 through 2004 and 2018 through 2022 for Okefenokee National Wilderness Area. Figure 5-13 shows the average light extinction for the 20% most impaired days from 1995 through 2022 for Okefenokee National Wilderness Area. These figures demonstrate that on the 20% most impaired days at Okefenokee National Wilderness Area, SO_4 continue to be the largest concern during the second planning period, which is formed from the SO_2 emissions from stationary point sources. As shown from above in Figures 5-8 and Figure 5-9, the reduction in SO_2 and NO_X emissions at Okefenokee National Wilderness Area, as well as neighboring states, has resulted in significant improvements in visible range at Okefenokee National Wilderness Area, as well as Class I areas in nearby states. Based on these emissions and visibility data, there does not appear to be any significant changes in anthropogenic emissions within or outside Georgia that would have limited or impeded progress in reducing pollutant emissions or improving visibility at the Class I area(s) affected by the State's sources. Georgia anticipated the reduction in pollutant emissions due to all of the federal and state control programs.

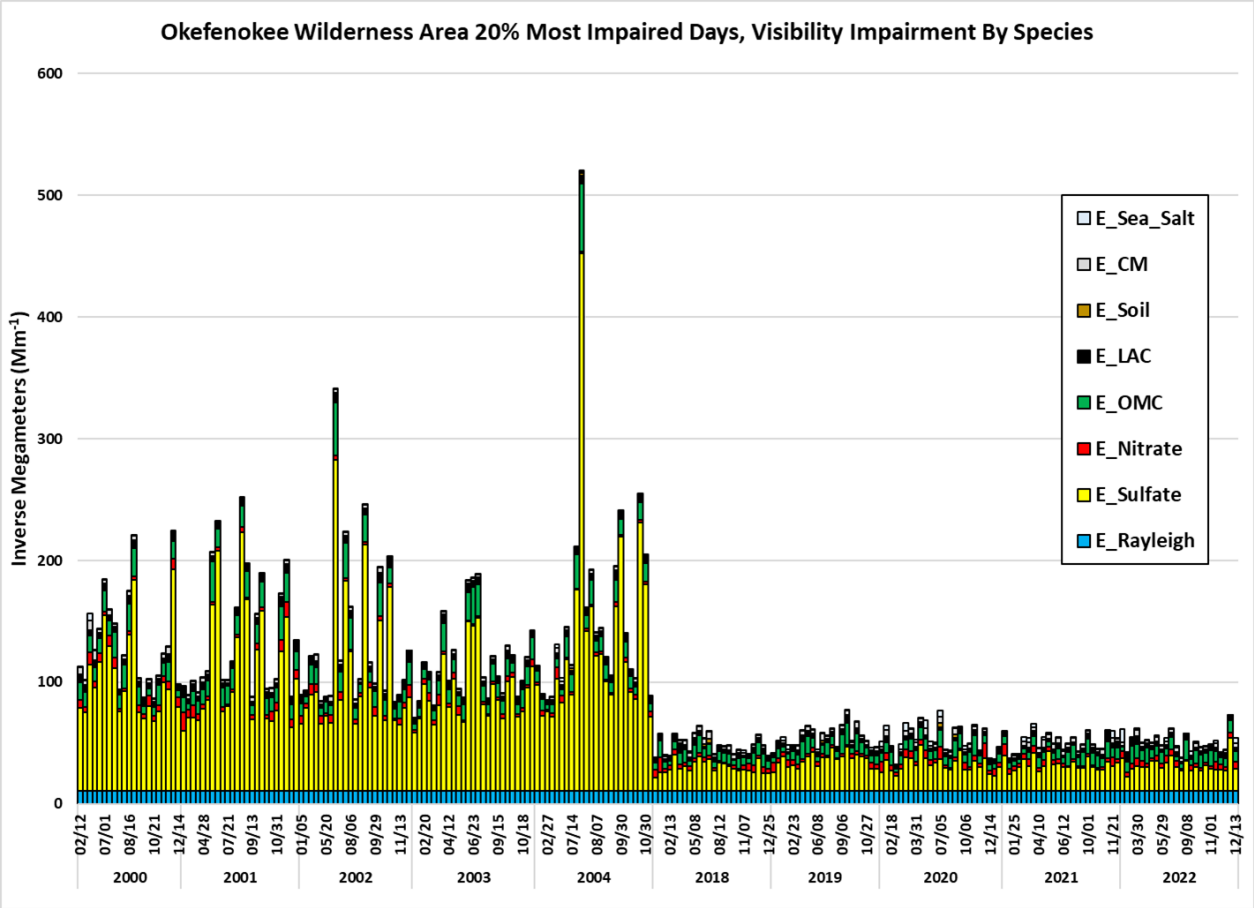


Figure 5-12: Okefenokee National Wilderness Area 20% Most Impaired Days, Visibility Impairment by Species

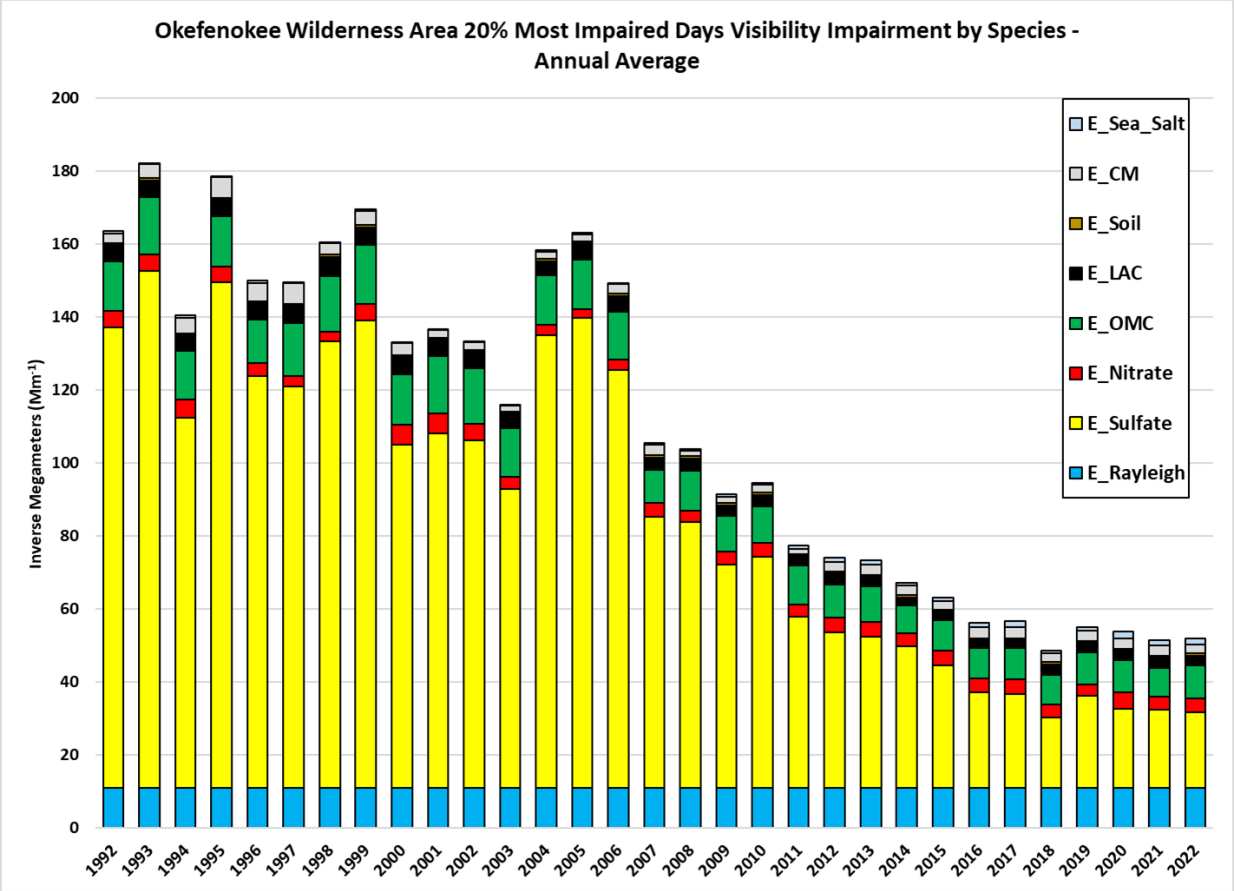


Figure 5-13: Okefenokee National Wilderness Area 20% Most Impaired Days Visibility Impairment by Species – Annual Average

6. Assessment of Current Implementation Plan Elements and Strategies

40 CFR 51.308(g)(6), of the RHR requires an: *Assessment of whether the current implementation plan elements and strategies are sufficient to enable the state, or other states with Class I areas affected by emissions from that state, to meet all established reasonable progress goals.*

The current implementation plan elements and strategies discussed in this report, GA EPD asserts, are sufficient to enable Georgia and other states with Class I areas affected by emissions from the State, to meet all established RPGs. Even though some federal programs have not yet been fully implemented, progress is still being made in reducing emissions to attain the RPGs. For example, in Sections 3 and 5 above, reductions in both EGU and non-EGU emissions have continued to decrease since the 2019 base year. Additionally, tables provided in Section 5 demonstrate the reductions in various source sectors through implementation of controls and changes in operation. Finally, the figures in Section 4 depict the most recent visibility observations at Cohutta Wilderness Area and Okefenokee National Wilderness Area, which are on track to meet the 2028 visibility goals for the 20 percent clearest and 20 percent most impaired days. With the continued

progress of federal programs, it is expected that emissions will only continue to decrease and improve air quality.

In regards to the impacts of Georgia sources on regional Class I areas, consultation documentation with sister states was provided in Appendix F of the Georgia Regional Haze SIP (submitted to EPA on August 11, 2022). As part of this consultation, the review and evaluation of potential interstate impacts was discussed through the Reasonable Progress (RP) analyses. Given the emissions reductions that have occurred in the various source inventories since the baseline date for the second planning period, it is reasonable to assume that no additional consultation is warranted for this progress report.

That said, GA EPD has evaluated the IMPROVE monitoring data, presented in the Second Round Regional Haze SIP and additionally, in this Progress Report for the available 2018-2022 period. For each of these areas, the current trend for those areas is at or below the glidepath. Given the continued reductions expected in the future, these trends are expected to continue.

GA EPD believes the current implementation plan elements and strategies outlined in the Second Round Regional Haze SIP are sufficient to enable Georgia and other neighboring states with mandatory Class I Federal areas affected by emissions from the State to meet all the established RPGs for the period covered by the most recent plan required under 40 CFR 51.308(f) through implementation of facility permits and ongoing federal rules.

7. Determination of Adequacy of the Existing Plan

40 CFR 51.308(h) of the RHR requires the state to take one of the following actions:

- *The state may declare that no further revision of the existing plan is needed at this time. This is commonly referred to as a "negative declaration".*
- *If the plan is or may be inadequate to ensure reasonable progress due to emissions from another state, or states, which participated in a regional planning process, the state must notify EPA and the applicable state(s). The state must collaborate with the state(s) through the regional planning process to develop additional strategies for addressing the plan's deficiencies.*
- *If the plan is or may be inadequate to ensure reasonable progress due to emissions from another country, the state must notify the EPA and provide any available relevant information.*
- *If the plan is or may be inadequate to ensure reasonable progress due to emissions from within the state, then that state must revise its plan within one year to address the deficiencies.*

Sections 5.1 and 5.2 show significant decreases in direct visibility impairing pollutants and precursors in Georgia, other VISTAS states, and states in RPOs near and adjacent to the VISTAS region. This trend started beginning with the initial implementation of the Regional Haze program and has continued into the second planning period. Section 4 shows a similar decrease in visibility

impairment during the 20% most impaired and the 20% clearest days measured at the IMPROVE monitor at Cohutta Wilderness Area and Okefenokee National Wilderness Area. Based on this information, GA EPD declares that no further substantive revision of the existing plan is needed at this time in order to achieve established goals for visibility improvement and emissions reductions.

8. FLM Coordination and Public Comment

8.1. FLM Consultation

GA EPD sent a draft Progress Report to the National Park Service (NPS), Forest Service (FS), and Fish and Wildlife Service (FWS) on November 12, 2024, to start the mandatory consultation required by 40 CFR §51.308(i)(2).

On November 19, 2024, the NPS notified GA EPD that they did not plan on providing consultation feedback on the progress report. On December 12, 2024, the FWS notified GA EPD that they did not plan on providing formal comments on the progress report. The FS did not provide any comments to GA EPD.

Records of GA EPD's FLM consultation correspondence is included in Appendix A.

8.2. Public Comment

On January 28, 2025, Georgia EPD issued a public notice via GovDelivery.com requesting comments on the proposed progress report. The public comment period ended on February 28, 2025. In a letter dated February 24, 2025, EPA notified Georgia EPD that they had no comments on the progress report. EPA's no comment letter is included in Appendix B. No public comments were received during the comment period.

9. Conclusion

This progress report documents that all control measures outlined in Georgia's second period regional haze SIP have been permitted and are on track to be implemented as scheduled and that Georgia is on track to meet all RPGs projected for 2028. Reductions in SO_2 emissions have been significant and greater than VISTAS projected. In spite of significant reductions in SO_2, sulfates continue to play a significant role in visibility impairment, especially for the most anthropogenically impaired days. As SO_2 emissions continue to drop in future planning periods, nitrates may begin to have a larger relative impact on regional haze. The next regional haze SIP revision is due July 31, 2028, and must include a progress report. After that, the next regional haze progress report is due by July 31, 2033, pursuant to 40 CFR 51.308(g).