Infrastructure SIP Element [§ 110(a)(2)(D)(i)] For the 2010 1-Hour SO_2 NAAQS

Interstate Transport [§110(a)(2)(D)] of the Clean Air Act

Section 110(a)(2)(D)(i) of the CAAA requires that Georgia's SIP for the 2010 SO_2 NAAQS "contain adequate provisions-

(i) prohibiting, consistent with the provisions of this subchapter, any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will-

(I) contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard…"

The nonattainment portion is named "Prong 1" by EPA and the maintenance portion is named "Prong 2".

Georgia's Authority for Subsection (2)(D)(i)(I) is detailed below

The Georgia Air Quality Act 12-9-5(b)(10) states:

- In the performance of its duties, the Board of Natural Resources shall have and may exercise the power to:

  (1) Establish, review, or modify emission limitations, emission control standards, or control measures for stationary sources or facilities in areas of the state where such sources or facilities significantly contribute to nonattainment of an ambient air quality standard or significantly contribute to a significant deterioration of air quality in the state, an area of the state, or another state; provided, however, that no requirement under this paragraph shall be less stringent than the requirements for such source or facility under this article and the rules and regulations promulgated pursuant to this article;

Georgia EPD also has permitting requirements under Georgia Rule 391-3-1-.03 and Nonattainment New Source Review regulations under Georgia Rule 391-3-1-.03(8), specifically under the following SIP approved rules.

SIP approved rules:

- Georgia Rules for Air Quality Control 391-3-1-.03. - "Permits. Amended" including: requirements for a Construction Permit under Georgia Rules for Air Quality 391-3-1-.03(1).

- Georgia Rules for Air Quality Control 391-3-1-.03. - "Permits. Amended" including: requirements for an Operating Permit under Georgia Rules for Air Quality 391-3-1-.03(2).

- Georgia Rules for Air Quality Control 391-3-1-.03. - "Permits. Amended" including: requirements for New Source Review under Georgia Rules for Air Quality 391-3-1-.03(8)(c) and (g).

- Georgia Rules for Air Quality Control 391-3-1-.03. - "Permits. Amended" including: requirements for Permit by Rule under Georgia Rules for Air Quality 391-3-1-.03(11).

- Georgia Rules for Air Quality Control 391-3-1-.03. - "Permits. Amended" including: requirements for Generic Permits under Georgia Rules for Air Quality 391-3-1-.03(12).

PSD requirements under SIP approved Georgia Rules for Air Quality Control 391-3-1-.02(7).

- All new major sources and major modifications in Georgia, including major sources of SO_2, are currently subject to Prevention of Significant Deterioration (PSD) under Georgia Rules for Air Quality Control 391-3-1-.02(7). There are no nonattainment areas subject to Nonattainment New Source Review for the 2010 SO_2 NAAQS

In addition to the above mentioned permitting and PSD requirements, Georgia has in place the following state rules and program measures, which further prevent Georgia from significantly contributing to nonattainment in, or interfering with maintenance by, any other state with respect to the 2010 1-hour SO_2 NAAQS. These measures target reductions of SO_2 emissions:

SIP approved rules:

- Georgia Rules for Air Quality Control 391-3-1-.02(2)(g) - Sulfur Dioxide

- Georgia Rules for Air Quality Control 391-3-1-.02(13) - Cross State Air Pollution Rule SO_2 Annual Trading Program

State enforceable only:

- Georgia Rules for Air Quality Control 391-3-1-.02(2)(sss) - Multipollutant Control for Electric Utility Steam Generating Units

- Georgia Rules for Air Quality Control 391-3-1-.02(2)(uuu) - SO_2 Emissions from Electric Utility Steam Generating Units

110(a)(2)(D)(i)(I) Demonstration

Although EPA's 2011 guidance memo titled "Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard" was written for 1-hour NO_2 NAAQS analyses, Georgia EPD believes that this guidance memo can be applied to 1-hour SO_2 analyses. From page 16 of this memo:

> *Even accounting for some terrain influences on the location and gradients of maximum 1-hour concentrations, these considerations suggest that the emphasis on determining which nearby sources to include in the modeling analysis should focus on the area within about 10 kilometers of the project location in most cases. The routine inclusion of all sources within 50 kilometers of the project location, the nominal distance for which AERMOD is applicable, is likely to produce an overly conservative result in most cases.*

Also, Georgia EPD's in-house modeling for the 2010 1-hour SO_2 Data Requirements Rule (DRR) showed the highest impacts from sources are typically within 2-5 km from the source and the impacts past 10 km are insignificant. Based on EPA's guidance memo and Georgia EPD's in-house SO_2 modeling, Georgia EPD feels that an appropriate transport distance from Georgia to neighboring states is 10 km. However, Georgia EPD will use an extremely conservative transport distance of 50 km in this demonstration to match the distance for which AERMOD is applicable.

Georgia does not contribute significantly to nonattainment in, or interfere with maintenance by any other states with respect to the 2010 SO_2 NAAQS. This argument is supported by EPA's recent Round 3 SO_2 attainment designations where all counties within 50 km of Georgia's border (except Haywood County in NC and a small portion of Nassau County, FL) were designated Attainment/Unclassifiable (Figure 1). In addition, all SO_2 monitors in Georgia and all monitors within 50 km of Georgia's border have 2017 design values (DVs) of 52 ppb or less (Table 1).

Haywood County in NC will be designated in Round 4. The only SO_2 source in Georgia within 50 km of this county is Multitrade Rabun Gap, LLC (AIRS No. 24100018) located in Rabun County (Figure 2). The 2014 SO_2 emissions from this facility were 25.1 TYP. Due to the small size of these emissions and the large distance from Haywood County, Georgia EPD has concluded that this source will not contribute significantly to nonattainment in, or interfere with maintenance of the 2010 SO_2 NAAQS in Haywood County, NC.

On August 5, 2013 (effective October 4, 2013), EPA designated an area in Nassau County, Florida "nonattainment" for SO_2 based on ambient SO_2 monitoring data in the area over the three-year period 2009-2011. The Florida Department of Environmental Protection (FL DEP) submitted a nonattainment area (NAA) SIP demonstration for Nassau County, FL on April 3, 2015. EPA fully approved their NAA SIP on July 3, 2017. In addition, the SO_2 monitor located in Nassau County is showing a 3-year average (2015-2017) SO_2 DV of 43 ppb, which is significantly lower than the 2010 SO_2 NAAQS. On April 26, 2018, FL DEP submitted a redesignation request and maintenance plan for the Nassau County SO_2 nonattainment area. Since Nassau County currently has a 3-year design value well below the SO_2 NAAQS and is in the process of being redesignated to attainment for the SO_2 NAAQS, it is clear that SO_2 emission sources in Georgia do not contribute significantly to nonattainment in, or interfere with maintenance of the 2010 SO_2 NAAQS in Nassau County, FL.

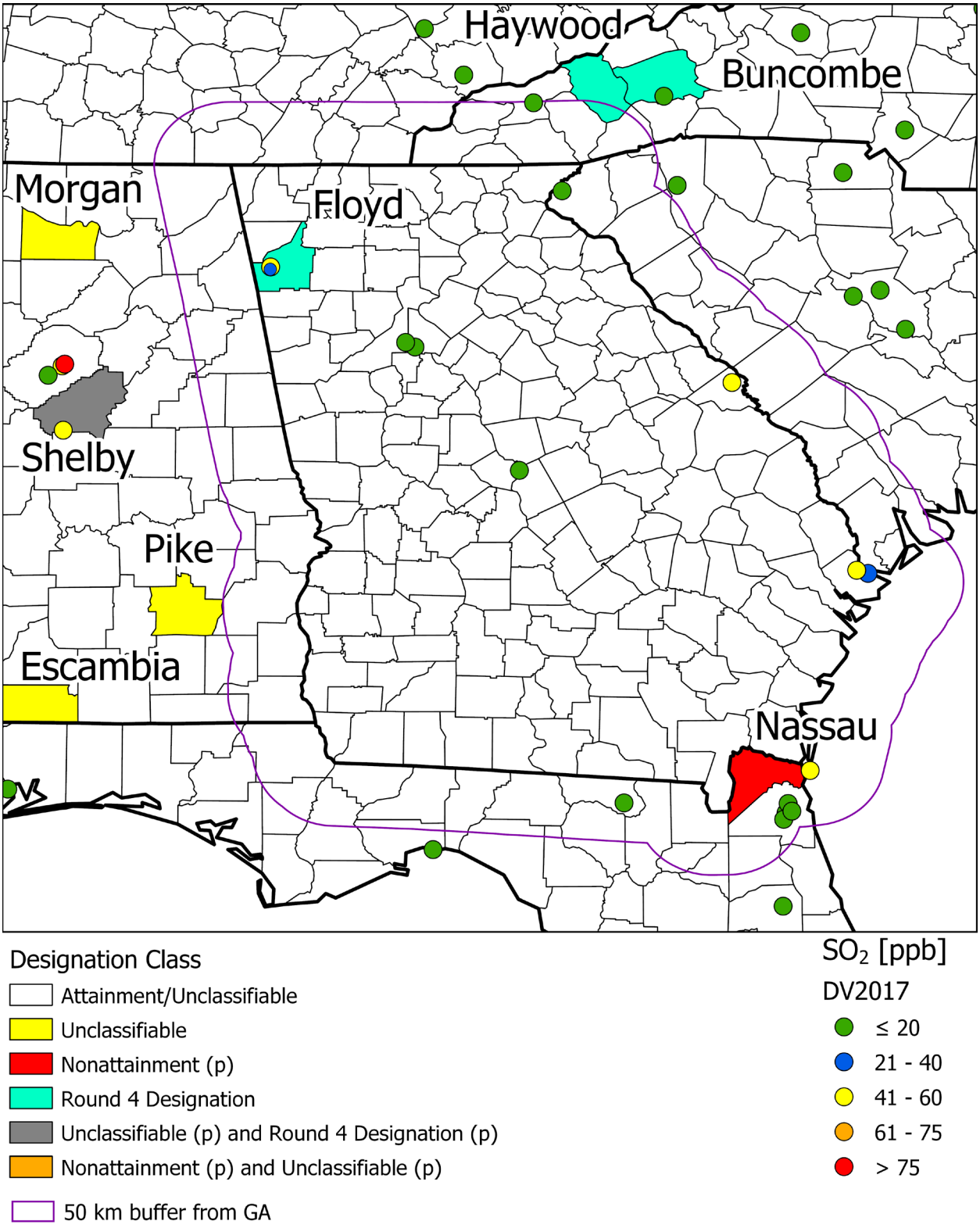

Figure 1. EPA's 2010 1-hour SO_2 NAAQS designation status and 2015-2017 1-hour SO_2 design values at monitors in Georgia and neighboring states.

Table 1. Annual SO_2 99th percentile values (2015, 2016, and 2017) and current design values (2015-2017) at monitors in Georgia and within 50 km of Georgia's border.

State	AQS_Site_ID	2015 (ppm)	2016 (ppm)	2017 (ppm)	2017 Design Value (ppm)	Valid 2017 Design Value?
FL	12-031-0032	12	18	18	16	Yes
FL	12-031-0080	9	12	8	10	Yes
FL	12-031-0081	12	12	12	12	Yes
FL	12-031-0097	21	9	11	14	Yes
FL	12-047-0015			13	13	No
FL	12-089-0005	57	39	32	43	Yes
GA	13-021-0012	8	6	2	5	Yes
GA	13-051-0021	31	29	36	32	Yes
GA	13-051-1002	50	40	53	48	Yes
GA	13-089-0002	4	3	2	3	Yes
GA	13-115-0003	43	49	--	46	No
GA	13-115-0006	--	--	22	22	No
GA	13-121-0055	4	6	7	6	Yes
GA	13-245-0091	63	58	35	52	Yes
SC	45-073-0001	2	3	1	2	Yes
NC	37-173-0002	2	--	--	2	No

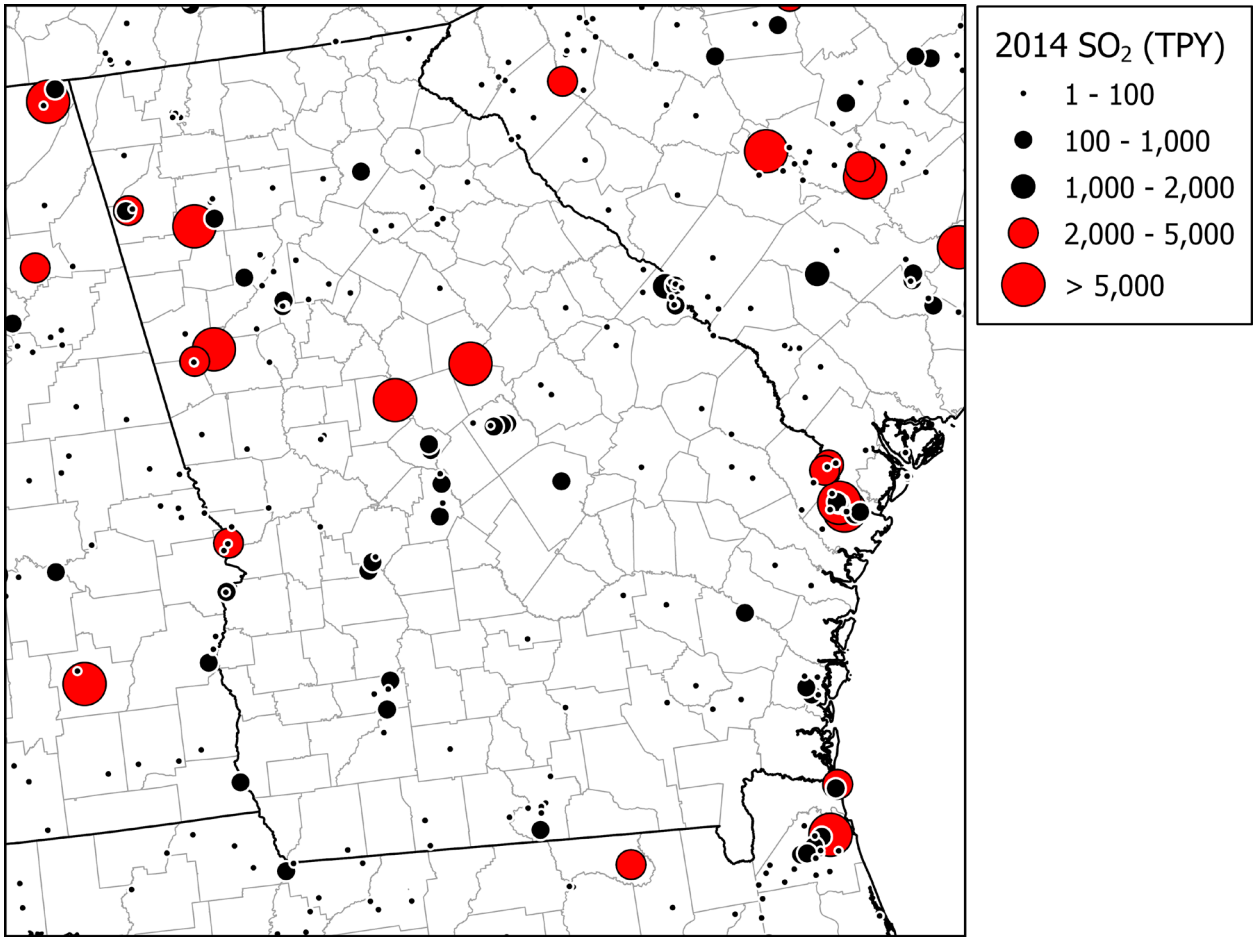

Figure 2. Location of SO_2 sources in Georgia and 2014 NEI SO_2 emissions.

In addition, Georgia EPD examined SO_2 emission trends in Georgia from 1990 to 2017. The data for this analysis was extracted from EPA's website[1]. The Excel spreadsheet "APPENDIX_A_State_Tier1_Caps_90-17_GA.xlsx" (see Appendix A) contains a detailed breakdown of SO_2 emission trends in Georgia from 1990 to 2017 by Tier 1 category and major source category. Major source categories are comprised of single or multiple Tier 1 categories. Figure 3 contains the SO_2 emission trends in Georgia from 1990 to 2017. Since 1990, the SO_2 emissions have decreased by 95%. Table 2 contains a detailed breakdown of 2017 SO_2 emission in Georgia by Tier 1 category and major source category. The most important SO_2 categories are "FUEL COMB. ELEC. UTIL." and "FUEL COMB. INDUSTRIAL".

Next, Georgia EPD examined SO_2 emission trends in adjacent states from 1990 to 2017. The data for this analysis was extracted from EPA's website[1]. The Excel spreadsheet "APPENDIX_A_State_Tier1_Caps_90-17_GA.xlsx" (see Appendix A) contains a detailed breakdown of SO_2 emission trends in Georgia and neighboring states from 1990 to 2017 by Tier 1 category. Figure 4 contains the total SO_2 emission trends in Alabama (AL), Florida (FL), Georgia (GA), North Carolina (NC), South Carolina (SC), and Tennessee (TN) from 1990 to 2017. Significant SO_2 emission reductions have occurred in all six states over the past 10 years.

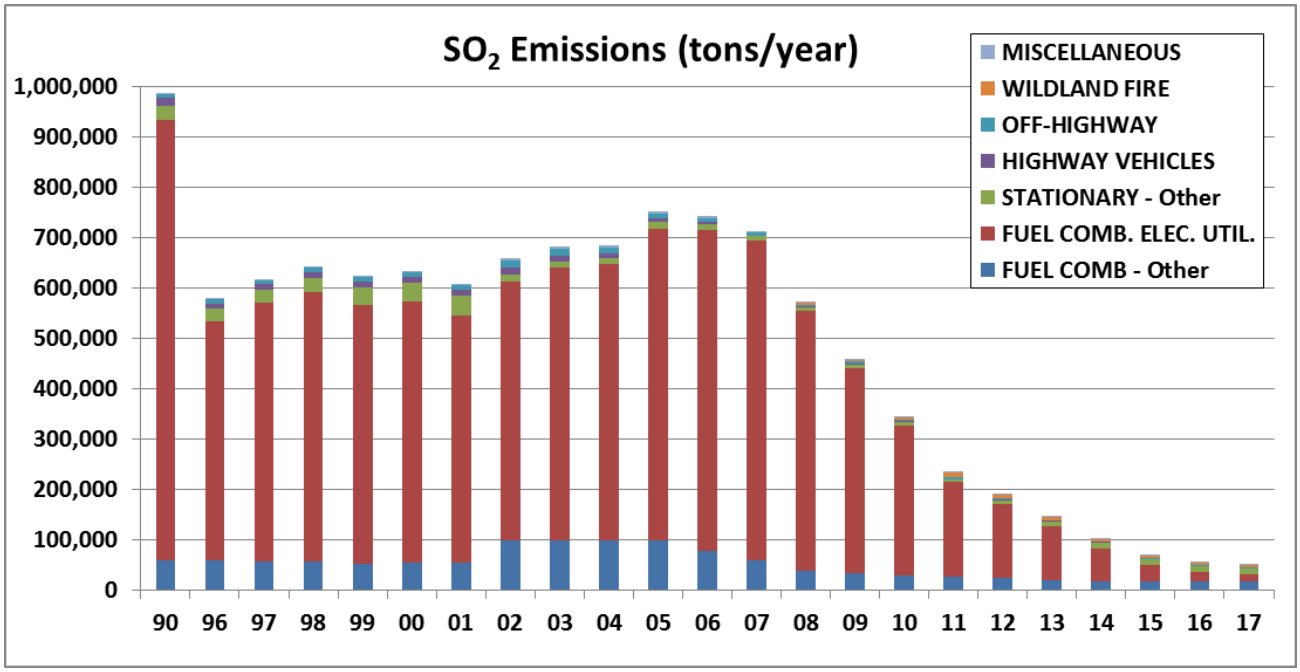

Figure 3. SO_2 emission trends in Georgia from 1990 to 2017.

[1] https://www.epa.gov/air-emissions-inventories/air-pollutant-emissions-trends-data

Table 2. Detailed breakdown of 2017 SO_2 emission in Georgia by Tier 1 category and major source category.

Tier1 Category	Major Source Category	2017 SO_2 Emissions (tons/year)
FUEL COMB. ELEC. UTIL.	FUEL COMB. ELEC. UTIL.	13,794
FUEL COMB. INDUSTRIAL	FUEL COMB - Other	14,706
FUEL COMB. OTHER	FUEL COMB - Other	2,972
CHEMICAL & ALLIED PRODUCT MFG	STATIONARY- OTHER	1,057
METALS PROCESSING	STATIONARY- OTHER	82
PETROLEUM & RELATED INDUSTRIES	STATIONARY- OTHER	20
OTHER INDUSTRIAL PROCESSES	STATIONARY- OTHER	9,040
SOLVENT UTILIZATION	STATIONARY- OTHER	0
STORAGE & TRANSPORT	STATIONARY- OTHER	0
WASTE DISPOSAL & RECYCLING	STATIONARY- OTHER	919
MISCELLANEOUS	MISCELLANEOUS	482
WILDFIRES	WILDLAND FIRE	94
PRESCRIBED FIRES	WILDLAND FIRE	4,202
HIGHWAY VEHICLES	HIGHWAY VEHICLES	1,399
OFF-HIGHWAY	OFF-HIGHWAY	1,838

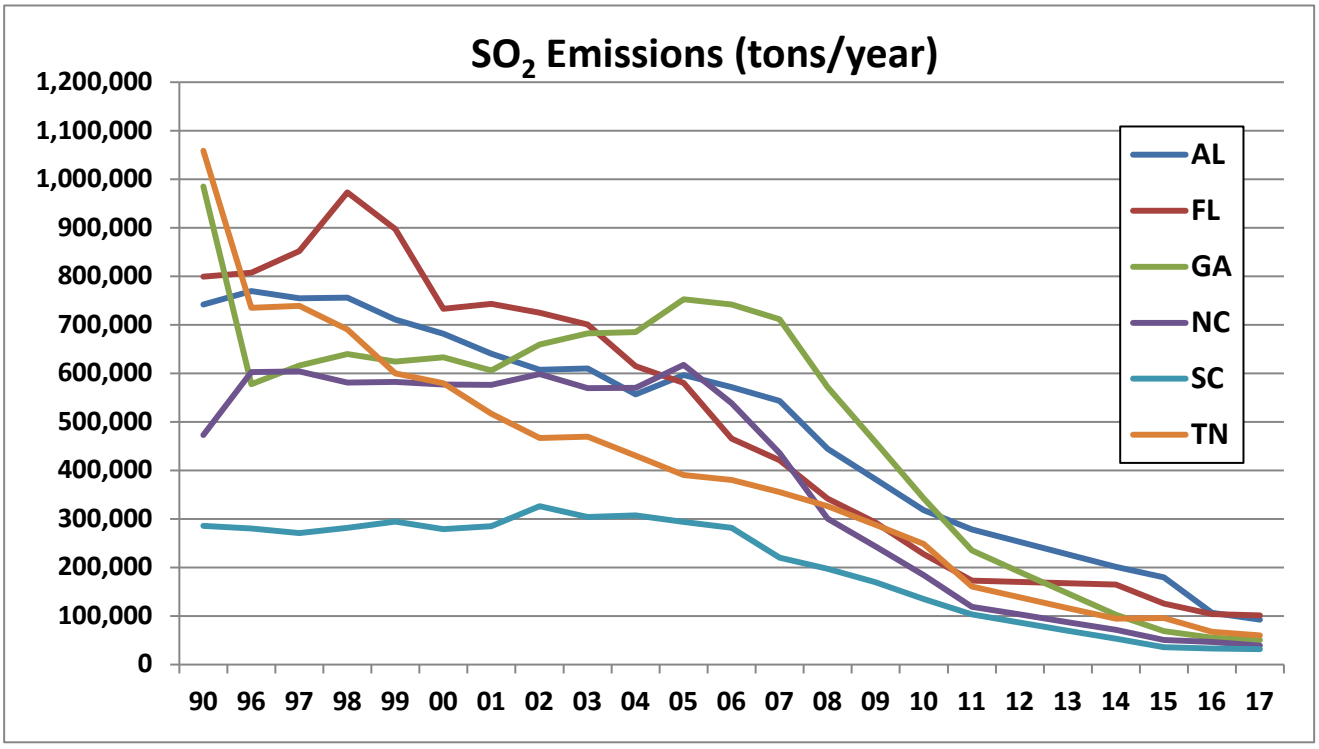

Figure 4. SO_2 emission trends in Georgia (GA) and neighboring states (AL, FL, NC, SC, and TN) from 1990 to 2017.

In summary, all of Georgia's neighboring counties within 50 km of Georgia's border have been designated as Attainment/Unclassifiable for the 2010 1-hour SO_2 NAAQS with the exception of Haywood County, NC and Nassau County, FL. Georgia does not significantly contribute to nonattainment in, or interfere with maintenance in Haywood County, NC or Nassau County, FL. In addition, there has been a significant reduction in SO_2 emissions in Georgia and its neighboring states over the past 10 years.

This 110(a)(2)(D)(i)(I) demonstration and all the above mentioned rules and measures provide evidence supporting Georgia's argument that it does not significantly contribute to nonattainment in (Prong 1), or interfere with maintenance by (Prong 2), any other State with respect to the 2010 1-hour SO_2 NAAQS.