



## 40 CFR Part 52

### [EPA-R04-OAR-2022-0367; FRL-10406-01-R4]

#### **Air Plan Approval; South Carolina; Second Planning Period Regional Haze Plan**

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Proposed rule.

**SUMMARY:** The Environmental Protection Agency (EPA) is proposing to approve a regional haze State Implementation Plan (SIP) revision submitted by the South Carolina Department of Health and Environmental Control (DHEC) dated March 3, 2022, as satisfying the applicable requirements under the Clean Air Act (CAA or Act) and EPA's Regional Haze Rule (RHR) for the program's second planning period. South Carolina's SIP submission addresses the requirement that states must periodically revise their long-term strategies for making reasonable progress toward the national goal of preventing any future, and remedying any existing, anthropogenic impairment of visibility, including regional haze, in mandatory Class I Federal areas. The SIP submission also addresses other applicable requirements for the second planning period of the regional haze program. EPA is proposing this action pursuant to sections 110 and 169A of the Act.

**DATES:** Written comments must be received on or before **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

**ADDRESSES:** Submit your comments, identified by Docket ID No. EPA-R04-OAR-2022-0367, at <https://www.regulations.gov>. Follow the online instructions for submitting comments. Once submitted, comments cannot be edited or removed from Regulations.gov. EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment

and should include discussion of all points you wish to make. EPA will generally not consider comments or comment contents located outside of the primary submission (*i.e.*, on the web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit <http://www.epa.gov/dockets/commenting-epa-dockets>.

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### **I. What Action is EPA Proposing?**

On March 3, 2022, South Carolina DHEC<sup>1</sup> submitted a revision to its SIP to address regional haze for the second planning period (Haze Plan). South Carolina DHEC made the SIP submission to satisfy the requirements of the CAA’s regional haze program pursuant to CAA sections 169A and 169B and 40 CFR 51.308. EPA is proposing to approve South Carolina’s Haze Plan as satisfying applicable statutory and regulatory requirements.<sup>2</sup>

## **II. Background and Requirements for Regional Haze Plans**

A detailed history and background of the regional haze program is provided in prior EPA proposal actions.<sup>3</sup> For additional background on the 2017 RHR revisions, please refer to Section III. Overview of Visibility Protection Statutory Authority, Regulation, and Implementation of “Protection of Visibility: Amendments to Requirements for State Plans” of the 2017 RHR.<sup>4</sup> The following is an abbreviated history and background of the regional haze program and 2017 RHR as it applies to the current proposed action.

### *A. Regional Haze Background*

In the 1977 CAA Amendments, Congress created a program for protecting visibility in the nation’s mandatory Class I Federal areas, which include certain national parks and wilderness areas.<sup>5</sup> *See* CAA section 169A. The CAA establishes 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.” *See* CAA section 169A(a)(1).

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<sup>1</sup> On July 1, 2024, DHEC was restructured into a health agency, the Department of Public Health, and an environmental agency, the Department of Environmental Services (DES). In a letter dated June 20, 2024, South Carolina represented to EPA that all the functions, powers, and duties of the environmental divisions, offices, and programs of DHEC, including the authority to administer and enforce state implementation plans, are retained and continued in full force and effect under DES. The letter is in the docket for this proposed rulemaking. The state agency will simply be referred to as the State or South Carolina for the remainder of this document.

<sup>2</sup> In a letter dated August 15, 2022, EPA found that South Carolina’s Haze Plan meets the completeness criteria outlined in 40 CFR Part 51, Appendix V. A completeness determination does not constitute a finding on the merits of the submission or whether it meets the relevant criteria for SIP approval. The August 15, 2022, letter is included in the docket for this rulemaking.

<sup>3</sup> *See* 90 FR 13516 (March 24, 2025).

<sup>4</sup> *See* 82 FR 3078 (January 10, 2017), located at [www.federalregister.gov/documents/2017/01/10/2017-00268/protection-of-visibility-amendments-to-requirements-for-State-plans#h-16](http://www.federalregister.gov/documents/2017/01/10/2017-00268/protection-of-visibility-amendments-to-requirements-for-State-plans#h-16).

<sup>5</sup> Areas statutorily designated as mandatory Class I Federal areas consist of national parks exceeding 6,000 acres, wilderness areas and national memorial parks exceeding 5,000 acres, and all international parks that were in existence on August 7, 1977. *See* CAA section 162(a). There are 156 mandatory Class I areas. The list of areas to which the requirements of the visibility protection program apply is in 40 CFR part 81, subpart D.

Regional haze is visibility impairment that is produced by a multitude of anthropogenic sources and activities which are located across a broad geographic area and that emit pollutants that impair visibility. Visibility impairing pollutants include fine and coarse particulate matter (PM) (*e.g.*, sulfates, nitrates, organic carbon, elemental carbon, and soil dust) and their precursors (*e.g.*, sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), and, in some cases, volatile organic compounds (VOC) and ammonia (NH<sub>3</sub>)). Fine particle precursors react in the atmosphere to form fine particulate matter (particles less than or equal to 2.5 micrometers (µm) in diameter, PM<sub>2.5</sub>), which impairs visibility by scattering and absorbing light. Visibility impairment reduces the perception of clarity and color, as well as visible distance.<sup>6</sup>

To address regional haze visibility impairment, the 1999 RHR established an iterative planning process that requires both states in which Class I areas are located and states “the emissions from which may reasonably be anticipated to cause or contribute to any impairment of visibility” in a Class I area to periodically submit SIP revisions to address such impairment. *See* CAA section 169A(b)(2);<sup>7</sup> *see also* 40 CFR 51.308(b), (f) (establishing submission dates for iterative regional haze SIP revisions); 64 FR at 35768 (July 1, 1999).

On January 10, 2017, EPA promulgated revisions to the RHR (82 FR 3078) that apply for the second and subsequent planning periods. The reasonable progress requirements as revised in the 2017 rulemaking (referred to here as the 2017 RHR Revisions) are codified at 40 CFR 51.308(f).

#### *B. Roles of Agencies in Addressing Regional Haze*

Because the air pollutants and pollution affecting visibility in Class I areas can be

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<sup>6</sup> There are several ways to measure the amount of visibility impairment, *i.e.*, haze. One such measurement is the deciview, which is the principal metric defined and used by the RHR. Under many circumstances, a change in one deciview will be perceived by the human eye to be the same on both clear and hazy days. The deciview is unitless. It is proportional to the logarithm of the atmospheric extinction of light, which is the perceived dimming of light due to its being scattered and absorbed as it passes through the atmosphere. Atmospheric light extinction ( $b^{ext}$ ) is a metric used for expressing visibility and is measured in inverse megameters (Mm<sup>-1</sup>). The formula for the deciview is  $10 \ln(b^{ext}/10 \text{ Mm}^{-1})$ . *See* 40 CFR 51.301.

<sup>7</sup> The RHR expresses the statutory requirement for states to submit plans addressing out-of-state Class I areas by providing that states must address visibility impairment “in each mandatory Class I Federal area located outside the State that may be affected by emissions from within the State.” *See* 40 CFR 51.308(d), (f).

transported over long distances, successful implementation of the regional haze program requires long-term, regional coordination among multiple jurisdictions and agencies that have responsibility for Class I areas and the emissions that impact visibility in those areas. To address regional haze, states need to develop strategies in coordination with one another, considering the effect of emissions from one jurisdiction on the air quality in another. Five regional planning organizations (RPOs),<sup>8</sup> which include representation from state and Tribal governments, EPA, and FLMs, were developed in the lead-up to the first planning period to address regional haze. RPOs evaluate technical information to better understand how emissions from state and Tribal land impact Class I areas across the country, pursue the development of regional strategies to reduce emissions of PM and other pollutants leading to regional haze, and help states meet the consultation requirements of the RHR.

The Southeastern States Air Resource Managers, Inc. (SESARM), one of the five RPOs described above, is a collaborative effort of state and local agencies and Tribal governments established to initiate and coordinate activities associated with the management of regional haze, visibility, and other air quality issues in the Southeast. SESARM's coalition to conduct regional haze work is referred to as Visibility Improvement State and Tribal Association of the Southeast (VISTAS).<sup>9</sup> The member states, local air agencies, and Tribal governments of VISTAS are Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia; the local air agencies, represented by the President of Metro 4 or designee;<sup>10</sup> and the Tribes located within the VISTAS region, represented by the Eastern Band of the Cherokee Indians. The Federal partner members of VISTAS are EPA, the U.S. National Park Service (NPS), the U.S. Fish and Wildlife Service (FWS), and the U.S. Forest Service

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<sup>8</sup> RPOs are sometimes also referred to as "multi-jurisdictional organizations," or MJOs.

<sup>9</sup> The technical analyses for the development of the Haze Plan were conducted by VISTAS under SESARM and they are available at this website: <https://www.metro4-sesarm.org/content/vistas-regional-haze-program>.

<sup>10</sup> Metro 4 is a Tennessee corporation which represents the local air pollution control agencies in EPA's Region 4 in the Southeast. See <https://www.metro4-sesarm.org/content/metro-4-about-us>.

(USFS).<sup>11</sup>

### **III. Requirements for Regional Haze Plans for the Second Planning Period**

Under the CAA and EPA’s regulations, all 50 states, the District of Columbia, and the U.S. Virgin Islands are required to submit regional haze SIPs satisfying the applicable requirements for the second planning period of the regional haze program by July 31, 2021. Each state’s SIP must contain a long-term strategy (LTS) for making reasonable progress toward meeting the national goal of remedying any existing and preventing any future anthropogenic visibility impairment in Class I areas. *See* CAA section 169A(b)(2)(B). To this end, 40 CFR 51.308(f) lays out the process by which states determine what constitutes their LTSs, with the order of the requirements in 40 CFR 51.308(f)(1) through (f)(3) generally mirroring the order of the steps in the reasonable progress analysis<sup>12</sup> and (f)(4) through (f)(6) containing additional related requirements.

Broadly speaking, a state first must identify the Class I areas within the state and determine the Class I areas outside the state in which visibility may be affected by emissions from the state. These are the Class I areas that must be addressed in the state’s LTS. *See* 40 CFR 51.308(f), (f)(2). For each Class I area within its borders, a state must then calculate the baseline (five-year average period of 2000-2004, current), and natural visibility conditions (*i.e.*, visibility conditions without anthropogenic visibility impairment) for that area, as well as the visibility improvement made to date and the “uniform rate of progress” (URP). The URP is the linear rate of progress needed to attain natural visibility conditions, assuming a starting point of baseline visibility conditions in 2004 and ending with natural conditions in 2064. This linear interpolation is used as a tracking metric to help states assess the amount of progress they are making towards the national visibility goal over time in each Class I area. *See* 40 CFR

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<sup>11</sup> The NPS, FWS, and USFS are collectively referred to as the “Federal Land Managers” or “FLMs” throughout this document.

<sup>12</sup> EPA explained in the 2017 RHR Revisions that the Agency was adopting new regulatory language in 40 CFR 51.308(f) that, unlike the structure in 51.308(d), “tracked the actual planning sequence.” *See* 82 FR 3091 (January 10, 2017).

51.308(f)(1). Each state having a Class I area and/or emissions that may affect visibility in a Class I area must then develop an LTS that includes the enforceable emission limitations, compliance schedules, and other measures that are necessary to make reasonable progress in such areas. A reasonable progress determination is based on applying the four factors in CAA section 169A(g)(1) to sources of visibility impairing pollutants that the state has selected to assess for controls for the second planning period.

Additionally, as further explained below, the RHR at 40 CFR 51.3108(f)(2)(iv) separately provides five “additional factors”<sup>13</sup> that states must consider in developing their long-term strategies. *See* 40 CFR 51.308(f)(2). A state evaluates potential emission reduction measures for those selected sources and determines which are necessary to make reasonable progress. Those measures are then incorporated into the state’s LTS. After a state has developed its LTS, it then establishes RPGs for each Class I area within its borders by modeling the visibility impacts of all reasonable progress controls at the end of the second planning period, *i.e.*, in 2028, as well as the impacts of other requirements of the CAA. The RPGs include reasonable progress controls not only for sources in the state in which the Class I area is located, but also for sources in other states that contribute to visibility impairment in that area. The RPGs are then compared to the baseline visibility conditions and the URP to ensure that progress is being made towards the statutory goal of preventing any future and remedying any existing anthropogenic visibility impairment in Class I areas. *See* 40 CFR 51.308(f)(2) and (3). There are additional requirements in the rule, including FLM consultation, that apply to all visibility protection SIPs and SIP revisions. *See e.g.*, 40 CFR 51.308(i).

*A. Long-Term Strategy (LTS) for Regional Haze*

While states have discretion to choose any source selection methodology that is reasonable, whatever choices they make should be reasonably explained. To this end, 40 CFR

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<sup>13</sup> The five “additional factors” for consideration in 40 CFR 51.308(f)(2)(iv) are distinct from the four factors listed in CAA section 169A(g)(1) and 40 CFR 51.308(f)(2)(i) that states must consider and apply to sources in determining reasonable progress.

51.308(f)(2)(i) requires that a state’s SIP submission include “a description of the criteria it used to determine which sources or groups of sources it evaluated.” The technical basis for source selection, which may include methods for quantifying potential visibility impacts such as emissions divided by distance metrics, trajectory analyses, residence time analyses, and/or photochemical modeling, must also be appropriately documented, as required by 40 CFR 51.308(f)(2)(iii).

Once a state has selected the set of sources, the next step is to determine the emissions reduction measures for those sources that are necessary to make reasonable progress for the second planning period.<sup>14</sup> This is accomplished by considering the four factors—“the costs of compliance, the time necessary for compliance, and the energy and nonair quality environmental impacts of compliance, and the remaining useful life of any existing source subject to such requirements.” *See* CAA section 169A(g)(1). EPA has explained that the four-factor analysis (FFA) is an assessment of potential emission reduction measures (*i.e.*, control options) for sources; “use of the terms ‘compliance’ and ‘subject to such requirements’ in CAA section 169A(g)(1) strongly indicates that Congress intended the relevant determination to be the requirements with which sources would have to comply in order to satisfy the CAA’s reasonable progress mandate.” *See* 82 FR at 3091. Thus, for each source a state has selected for an FFA,<sup>15</sup> it must consider a “meaningful set” of technically feasible control options for reducing emissions of visibility impairing pollutants. *Id.* at 3088.

EPA has also explained that, in addition to the four statutory factors, states have flexibility under the CAA and RHR to reasonably consider visibility benefits as an additional

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<sup>14</sup> The CAA provides that, “[i]n determining reasonable progress there shall be taken into consideration” the four statutory factors. *See* CAA section 169A(g)(1). However, in addition to four-factor analyses for selected sources, groups of sources, or source categories, a state may also consider additional emission reduction measures for inclusion in its LTS, *e.g.*, from other newly adopted, on-the-books, or on-the-way rules and measures for sources not selected for FFA for the second planning period.

<sup>15</sup> “Each source” or “particular source” is used here as shorthand. While a source-specific analysis is one way of applying the four factors, neither the statute nor the RHR requires states to evaluate individual sources. Rather, states have “the flexibility to conduct four-factor analyses for specific sources, groups of sources or even entire source categories, depending on state policy preferences and the specific circumstances of each state.” *See* 82 FR at 3088.

factor alongside the four statutory factors.<sup>16</sup> Ultimately, while states have discretion to reasonably weigh the factors and to determine what level of control is needed, 40 CFR 51.308(f)(2)(i) provides that a state “must include in its implementation plan a description of how the four factors were taken into consideration in selecting the measure for inclusion in its long-term strategy.”

As explained above, 40 CFR 51.308(f)(2)(i) requires states to determine the emission reduction measures for sources that are necessary to make reasonable progress by considering the four factors. Pursuant to 40 CFR 51.308(f)(2), measures that are necessary to make reasonable progress toward the national visibility goal must be included in a state’s LTS and in its SIP. If the outcome of an FFA is that an emissions reduction measure is necessary to make reasonable progress towards remedying existing or preventing future anthropogenic visibility impairment, that measure must be included in the SIP.

The characterization of information on each of the factors is also subject to the documentation requirement in 40 CFR 51.308(f)(2)(iii). The reasonable progress analysis is a technically complex exercise, but also a flexible one that provides states with bounded discretion to design and implement approaches appropriate to their circumstances. Given this flexibility, 40 CFR 51.308(f)(2)(iii) plays an important function in requiring a state to document the technical basis for its decision making so that the public and EPA can comprehend and evaluate the information and analysis the state relied upon to determine what emission reduction measures must be in place to make reasonable progress. The technical documentation must include the modeling, monitoring, cost, engineering, and emissions information on which the state relied to determine the measures necessary to make reasonable progress. Additionally, the RHR at 40 CFR 51.3108(f)(2)(iv) separately provides five “additional factors”<sup>17</sup> that states must consider in

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<sup>16</sup> See, e.g., Responses to Comments on Protection of Visibility: Amendments to Requirements for State Plans; Proposed Rule (81 FR 26942, May 4, 2016) (December 2016), Docket Number EPA-HQ-OAR-2015-0531, U.S. Environmental Protection Agency at 186, available at [www.regulations.gov](http://www.regulations.gov).

<sup>17</sup> The five “additional factors” for consideration in section 51.308(f)(2)(iv) are distinct from the four factors listed in CAA section 169A(g)(1) and 40 CFR 51.308(f)(2)(i) that states must consider and apply to sources in determining reasonable progress.

developing their LTSs: (1) emission reductions due to ongoing air pollution control programs, including measures to address reasonably attributable visibility impairment; (2) measures to reduce the impacts of construction activities; (3) source retirement and replacement schedules; (4) basic smoke management practices for prescribed fire used for agricultural and wildland vegetation management purposes and smoke management programs; and (5) the anticipated net effect on visibility due to projected changes in point, area, and mobile source emissions over the period addressed by the LTS.

Because the air pollution that causes regional haze crosses state boundaries, 40 CFR 51.308(f)(2)(ii) requires a state to consult with other states that also have emissions that are reasonably anticipated to contribute to visibility impairment in a given Class I area. If a state, pursuant to consultation, agrees that certain measures (*e.g.*, a certain emission limitation) are necessary to make reasonable progress at a Class I area, it must include those measures in its SIP. *See* 40 CFR 51.308(f)(2)(ii)(A). Additionally, the RHR requires that states that contribute to visibility impairment at the same Class I area consider the emission reduction measures the other contributing states have identified as being necessary to make reasonable progress for their own sources. *See* 40 CFR 51.308(f)(2)(ii)(B). If a state has been asked to consider or adopt certain emission reduction measures, but ultimately determines those measures are not necessary to make reasonable progress, that state must document in its SIP the actions taken to resolve the disagreement. *See* 40 CFR 51.308(f)(2)(ii)(C). Under all circumstances, a state must document in its SIP submission all substantive consultations with other contributing states. *See* 40 CFR 51.308(f)(2)(ii)(C).

*B. Reasonable Progress Goals (RPGs)*

RPGs “measure the progress that is projected to be achieved by the control measures states have determined are necessary to make reasonable progress based on a four-factor analysis.” *See* 82 FR at 3091. For the second planning period, the RPGs are set for 2028. RPGs are not enforceable targets, 40 CFR 51.308(f)(3)(iii). While states are not legally obligated to

achieve the visibility conditions described in their RPGs, 40 CFR 51.308(f)(3)(i) requires that “[t]he long-term strategy and the reasonable progress goals must provide for an improvement in visibility for the most impaired days since the baseline period and ensure no degradation in visibility for the clearest days since the baseline period.”

RPGs may also serve as a metric for assessing the amount of progress a state is making toward the national visibility goal. To support this approach, the RHR requires states with Class I areas to compare the 2028 RPG for the most impaired days to the corresponding point on the URP line (representing visibility conditions in 2028 if visibility were to improve at a linear rate from conditions in the baseline period of 2000–2004 to natural visibility conditions in 2064). If the most impaired days RPG in 2028 is above the URP (*i.e.*, if visibility conditions are improving more slowly than the rate described by the URP), each state that contributes to visibility impairment in the Class I area must demonstrate, based on the FFA required under 40 CFR 51.308(f)(2)(i), that no additional emission reduction measures would be reasonable to include in its LTS. *See* 40 CFR 51.308(f)(3)(ii). To this end, 40 CFR 51.308(f)(3)(ii) requires that each state contributing to visibility impairment in a Class I area that is projected to improve more slowly than the URP provide “a robust demonstration, including documenting the criteria used to determine which sources or groups [of] sources were evaluated and how the four factors required by paragraph (f)(2)(i) were taken into consideration in selecting the measures for inclusion in its long-term strategy.”

### *C. Monitoring Strategy and Other State Implementation Plan Requirements*

Section 51.308(f)(6) requires states to have certain strategies and elements in place for assessing and reporting on visibility. Individual requirements under this section apply either to states with Class I areas within their borders, states with no Class I areas but that are reasonably anticipated to cause or contribute to visibility impairment in any Class I area, or both.

Compliance with the monitoring strategy requirement may be met through a state’s participation in the Interagency Monitoring of Protected Visual Environments (IMPROVE) monitoring

network, which is used to measure visibility impairment caused by air pollution at the 156 Class I areas covered by the visibility program. *See* 40 CFR 51.308(f)(6), (f)(6)(i), (f)(6)(iv).

All states' SIPs must provide for procedures by which monitoring data and other information are used to determine the contribution of emissions from within the state to regional haze visibility impairment in affected Class I areas, as well as a statewide inventory documenting such emissions. *See* 40 CFR 51.308(f)(6)(ii), (iii), (v). All states' SIPs must also provide for any other elements, including reporting, recordkeeping, and other measures, that are necessary for states to assess and report on visibility. *See* 40 CFR 51.308(f)(6)(vi).

*D. Requirements for Periodic Reports Describing Progress Toward the RPGs*

Section 51.308(f)(5) requires a state's regional haze SIP revision to address the requirements of paragraphs 40 CFR 51.308(g)(1) through (5) so that the plan revision due in 2021 will serve also as a progress report addressing the period since submission of the progress report for the first planning period. The regional haze progress report requirement is designed to inform the public and EPA about a state's implementation of its existing LTS and whether such implementation is in fact resulting in the expected visibility improvement. *See* 81 FR 26942, 26950 (May 4, 2016), 82 FR 3119 (January 10, 2017). To this end, every state's implementation plan revision for the second planning period is required to assess changes in visibility conditions and describe the status of implementation of all measures included in the state's LTS, including BART and reasonable progress emission reduction measures from the first planning period, and the resulting emissions reductions. *See* 40 CFR 51.308(g)(1) and (2).

*E. Requirements for State and Federal Land Manager (FLM) Coordination*

CAA section 169A(d) requires that before a state holds a public hearing on a proposed regional haze SIP revision, it must consult with the appropriate FLM or FLMs; pursuant to that consultation, the state must include a summary of the FLMs' conclusions and recommendations in the notice to the public. Consistent with this statutory requirement, the RHR also requires that states "provide the [FLM] with an opportunity for consultation, in person and at a point early

enough in the State’s policy analyses of its long-term strategy emission reduction obligation so that information and recommendations provided by the [FLM] can meaningfully inform the State’s decisions on the long-term strategy.” *See* 40 CFR 51.308(i)(2). For EPA to evaluate whether FLM consultation meeting the requirements of the RHR has occurred, the SIP submission should include documentation of the timing and content of such consultation. The SIP revision submitted to EPA must also describe how the state addressed any comments provided by the FLMs. *See* 40 CFR 51.308(i)(3). Finally, a SIP revision must provide procedures for continuing consultation between the state and FLMs regarding the state’s visibility protection program, including development and review of SIP revisions, five-year progress reports, and the implementation of other programs having the potential to contribute to impairment of visibility in Class I areas. *See* 40 CFR 51.308(i)(4).

#### **IV. EPA’s Evaluation of South Carolina’s Regional Haze Submission for the Second Planning Period**

On March 3, 2022, South Carolina submitted a revision to the South Carolina SIP to address the State’s regional haze obligations for the second planning period, which runs through 2028, in accordance with CAA section 169A and the RHR at 40 CFR 51.308(f).<sup>18</sup> The following sections contain EPA’s evaluation of South Carolina’s Haze Plan with respect to the requirements of the CAA and RHR for the second planning period of the regional haze program.

South Carolina has one Class I area, Cape Romain National Wilderness Area (Cape Romain). The following sections describe South Carolina’s Haze Plan, including analyses conducted by VISTAS and South Carolina’s determinations based on those analyses, South Carolina’s assessment of progress made since the first planning period in reducing emissions of

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<sup>18</sup> On June 28, 2012, EPA finalized a limited approval of South Carolina’s first planning period regional haze plan submitted to EPA dated December 17, 2007 (77 FR 38509). On June 7, 2012, EPA finalized a limited disapproval of the State’s December 17, 2007, submission and promulgated a FIP to replace reliance on the Clean Air Interstate Rule (CAIR) with reliance on the Cross-State Air Pollution Rule (CSAPR) (77 FR 33642). On September 24, 2018, EPA converted the limited approval/limited disapproval of South Carolina’s first period regional haze plan, as amended on September 5, 2017, to a full approval and removed the FIP for South Carolina which replaced reliance on CAIR with reliance on CSAPR (83 FR 48237). On October 12, 2017 (82 FR 47385), EPA approved South Carolina’s progress report for the first planning period.

visibility impairing pollutants, and the visibility improvement progress at its Class I area and nearby Class I areas. This document also contains EPA's evaluation of South Carolina's Haze Plan against the requirements of the CAA and RHR for the second planning period of the regional haze program.

*A. Identification of Class I Areas*

*1. RHR Requirement:* Section 169A(b)(2) of the CAA requires each state in which any Class I area is located or "the emissions from which may reasonably be anticipated to cause or contribute to any impairment of visibility" in a Class I area to have a plan for making reasonable progress toward the national visibility goal. The RHR implements this statutory requirement at 40 CFR 51.308(f), which provides that each state's plan "must address regional haze in each mandatory Class I Federal area located within the State and in each mandatory Class I Federal area located outside the State that may be affected by emissions from within the State," and 40 CFR 51.308(f)(2), which requires each state's plan to include an LTS that addresses regional haze in such Class I areas. To develop a state's LTS, a state must first determine which Class I areas may be affected by its own emissions. Out-of-state Class I area visibility impacts on a statewide basis are discussed in Section IV.A.2 below and impacts on a source-specific basis are discussed in Section IV.C.2 below.

*2. State Assessment:* To address 40 CFR 51.308(f), South Carolina identified Class I areas affected by South Carolina's statewide emissions of the visibility impairing pollutants<sup>19</sup> and then consulted with states with Class I areas affected by South Carolina statewide emissions. Specifically, South Carolina presented the results of Particulate Matter Source Apportionment Technology (PSAT)<sup>20</sup> modeling which VISTAS conducted to estimate the projected impact of

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<sup>19</sup> The primary visibility impairing pollutants are SO<sub>2</sub>, NO<sub>x</sub>, and direct PM. Anthropogenic sources of VOC and NH<sub>3</sub> do not contribute significantly to regional haze in Class I areas affected by the VISTAS states, including South Carolina.

<sup>20</sup> PSAT is Particulate Matter Source Apportionment Technology, which is an option in the photochemical visibility impact modeling performed by VISTAS that is a methodology to track the fate of both primary and secondary PM. PSAT allows emissions to be tracked ("tagged") for individual facilities as well as various combinations of sectors and geographic areas (e.g., by state). The PSAT results provide the modeled contribution of each of the tagged sources or groups of sources to the total visibility impacts.

statewide SO<sub>2</sub> and NO<sub>x</sub> emissions across all emissions sectors in 2028 on total light extinction for the 20 percent most impaired days in all Class I areas in the VISTAS modeling domain.<sup>21</sup> In Table 10-3 of the Haze Plan, South Carolina identified the top 10 Class I areas outside of South Carolina impacted by the State's projected 2028 emissions of SO<sub>2</sub> and NO<sub>x</sub>, provided South Carolina's percent contributions to each Class I area, and ranked the areas by absolute impact in Mm<sup>-1</sup>.<sup>22</sup> South Carolina's top three highest sulfate plus nitrate impairment impacts to out-of-state Class I areas are: Wolf Island National Wilderness Area (Wolf Island) (1.38 Mm<sup>-1</sup>); Okefenokee National Wilderness Area (Okefenokee) (1.15 Mm<sup>-1</sup>); and Cohutta National Wilderness Area (Cohutta) (0.59 Mm<sup>-1</sup>) in Georgia.

Regarding South Carolina's consultation with the states whose Class I areas are identified in Table 10-3, South Carolina consulted with all the VISTAS states throughout the SIP development process. In addition, Georgia consulted with South Carolina regarding two facilities, Santee Cooper Cross Generating Station (Cross) and WestRock Charleston Kraft, LLC (WestRock-Charleston),<sup>23</sup> that potentially impact Wolf Island and Okefenokee in Georgia.

3. *EPA Evaluation:* EPA proposes to find that South Carolina adequately addressed the elements of 40 CFR 51.308(f) regarding identification of its statewide visibility impacts to Class I areas outside of the State and consultation with states with Class I areas which may reasonably be anticipated to cause or contribute to any impairment of visibility due to South Carolina's emissions. The State's approach of focusing on SO<sub>2</sub> and NO<sub>x</sub> impacts from South Carolina is reasonable on the basis that for current visibility conditions evaluated for the 2014-2018 period, ammonium sulfate is the dominant visibility impairing pollutant at most of the VISTAS Class I

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<sup>21</sup> South Carolina did not include primary PM (directly emitted) data in this analysis because the PSAT analyses performed by VISTAS tagged statewide emissions of SO<sub>2</sub> and NO<sub>x</sub> and did not tag primary PM emissions in the analysis after concluding that emissions of the PM precursors SO<sub>2</sub> and NO<sub>x</sub>, particularly from point sources, are projected to have the largest impact on visibility impairment in 2028 and that SO<sub>2</sub> and NO<sub>x</sub> are the most significant visibility impairing pollutants from controllable anthropogenic sources.

<sup>22</sup> See Table 10-3 on p. 211 of the Haze Plan. Table 10-3 includes South Carolina's statewide impacts on the State's Class I area for comparison only. See also Figure 10-1 on p. 212 of the Haze Plan providing the 2028 projected relative contribution to sulfate and nitrate visibility impairment from SO<sub>2</sub> and NO<sub>x</sub> emissions from all anthropogenic and natural sources for Class I areas in and outside of the VISTAS region.

<sup>23</sup> WestRock-Charleston was formerly known as Kapstone Charleston Kraft, LLC.

areas followed by organic carbon and ammonium nitrate (depending on the area).<sup>24</sup> VISTAS focused on controllable emissions from point sources, and thus, initially considered impacts from sulfates and nitrates on regional haze at Class I areas affected by VISTAS states. EPA finds that South Carolina adequately identified Class I areas outside of South Carolina that may be affected by emissions from within the State and consulted with affected states because the State analyzed its statewide sulfate and nitrate contributions to total visibility impairment at out-of-state Class I areas in Table 10-3 of the Haze Plan; all of the Class I areas identified in Table 10-3 have 2028 RPGs on the 20 percent most impaired days below the URP; and the State completed consultation with VISTAS via the RPO processes and, in some cases, on a state-to-state basis and documented those consultations.

*B. Calculations of Baseline, Current, and Natural Visibility Conditions; Progress to Date; and the URP*

*1. RHR Requirement:* Section 51.308(f)(1) requires states to determine the following for “each mandatory Class I Federal area located within the State”: baseline visibility conditions for the clearest days and most impaired days, natural visibility conditions for clearest days and most impaired days, progress to date for the clearest days and most impaired days, the differences between current visibility conditions and natural visibility conditions, and the URP. This section also provides the option for states to propose adjustments to the URP line for a Class I area to account for visibility impacts from anthropogenic sources outside the United States and/or the impacts from wildland prescribed fires that were conducted for certain, specified objectives. *See* 40 CFR 51.308(f)(1)(vi)(B).

*2. State Assessment:* In the Haze Plan, South Carolina presents the baseline visibility conditions (2000–2004) in Table 2-3; current visibility conditions (2014–2018) in Table 2-5; and natural visibility conditions in Table 2-2 for the 20 percent clearest days and 20 percent most

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<sup>24</sup> *See* Figures 2-8 and 2-9 of the Haze Plan for the VISTAS Class I areas. *See* also Sections IV.C.2.a and IV.C.3.a of this document including Table 6.

impaired days in deciviews for Cape Romain, as shown in Table 1 below, and surrounding Class I areas.

<b>Class I Area</b>	<b>Baseline Clearest 20%</b>	<b>Baseline Most Impaired 20%</b>	<b>Current Clearest 20%</b>	<b>Current Most Impaired 20%</b>	<b>Natural Clearest 20%</b>	<b>Natural Most Impaired 20%</b>
Cape Romain	14.29	25.25	11.80	17.67	5.93	9.79

South Carolina also calculated the actual progress made for Cape Romain toward natural visibility conditions since the baseline period (current minus baseline), and the additional progress needed to reach natural visibility conditions from current conditions (natural minus current), in deciviews, as shown in Table 2-6 (for the 20 percent most impaired days) and Table 2-7 (for the 20 percent clearest days) for Cape Romain. *See* Table 2, below.

<b>Class I Area</b>	<b>Current minus Baseline for Clearest 20%</b>	<b>Current minus Baseline for Most Impaired 20%</b>	<b>Natural minus Current for Clearest 20%</b>	<b>Natural minus Current for Most Impaired 20%</b>
Cape Romain	-2.49	-7.58	-5.87	-7.88

Additionally, Figure 3-1 of the Haze Plan provides the URP on the 20 percent most impaired days for Cape Romain. The URP was developed using EPA guidance<sup>25</sup> and used data collected from the IMPROVE monitoring network which is used to measure visibility impairment caused by air pollution at the 156 Class I areas covered by the visibility program. Cape Romain is projected to be below the 2028 URP value for the second planning period based on modeling done by VISTAS.

3. *EPA Evaluation:* EPA is proposing to find that South Carolina’s Haze Plan meets the

<sup>25</sup> “Technical Guidance on Tracking Visibility Progress for the Second Implementation Period of the Regional Haze Program.” EPA Office of Air Quality Planning and Standards, Research Triangle Park (December 20, 2018), available at: [https://www.epa.gov/sites/default/files/2018-12/documents/technical\\_guidance\\_tracking\\_visibility\\_progress.pdf](https://www.epa.gov/sites/default/files/2018-12/documents/technical_guidance_tracking_visibility_progress.pdf) and [https://www.epa.gov/sites/default/files/2020-06/documents/memo\\_data\\_for\\_regional\\_haze\\_technical\\_addendum.pdf](https://www.epa.gov/sites/default/files/2020-06/documents/memo_data_for_regional_haze_technical_addendum.pdf).

requirements of 40 CFR 51.308(f)(1) because the State provided for Cape Romain: baseline, current, and natural visibility conditions for the 20 percent clearest days and most impaired days; progress to date for the 20 percent clearest days and most impaired days; differences between the current visibility conditions and natural visibility conditions; and the URP.

*C. LTS for Regional Haze*

*1. RHR Requirement:* Each state having a Class I area within its borders or emissions that may affect visibility in a Class I area must develop an LTS for making reasonable progress toward the national visibility goal. *See* CAA section 169A(b)(2)(B). After considering the four statutory factors, all measures that are determined to be necessary to make reasonable progress must be in the LTS. In developing its LTS, a state must also consider the five additional factors in 40 CFR 51.308(f)(2)(iv). As part of its reasonable progress determinations, the state must describe the criteria used to determine which sources or group of sources were evaluated (*i.e.*, subjected to FFA) for the second planning period and how the four factors were taken into consideration in selecting the emission reduction measures for inclusion in the LTS. *See* 40 CFR 51.308(f)(2)(iii).

States may rely on technical information developed by the RPOs of which they are members to select sources for FFAs and to satisfy the documentation requirements under 40 CFR 51.308(f). Where an RPO has performed source selection and/or FFAs (or considered the five additional factors in 40 CFR 51.308(f)(2)(iv)) for its member states, those states may rely on the RPO's analyses for the purpose of satisfying the requirements of 40 CFR 51.308(f)(2)(i) so long as the states have a reasonable basis to do so and all state participants in the RPO process have approved the technical analyses. *See* 40 CFR 51.308(f)(2)(iii). States may also satisfy the requirement of 40 CFR 51.308(f)(2)(ii) to engage in interstate consultation with other states that have emissions that are reasonably anticipated to contribute to visibility impairment in a given Class I area under the auspices of intra- and inter-RPO engagement.

The consultation requirements of 40 CFR 51.308(f)(2)(ii) provide that states must consult

with other states that are reasonably anticipated to contribute to visibility impairment in a Class I area to develop coordinated emission management strategies containing the emission reductions measures that are necessary to make reasonable progress. Sections 51.308(f)(2)(ii)(A) and (B) require states to consider the emission reduction measures identified by other states as necessary for reasonable progress and to include agreed upon measures in their SIPs, respectively. Section 51.308(f)(2)(ii)(C) speaks to what happens if states cannot agree on what measures are necessary to make reasonable progress. The documentation requirement of 40 CFR 51.308(f)(2)(iii) provides that states may meet their obligations to document the technical bases on which they are relying to determine the emission reductions measures that are necessary to make reasonable progress through an RPO, as long as the process has been “approved by all State participants.”

Section 51.308(f)(2)(iii) also requires that the emissions information considered to determine the measures that are necessary to make reasonable progress include information on emissions for the most recent year for which the state has submitted triennial emissions data to EPA (or a more recent year), with a 12-month exemption period for newly submitted data.

2. *State Assessment:* To develop South Carolina’s LTS, the State set criteria to identify sources to evaluate for potential controls using the four factors outlined in Section III.A, selected sources based on those criteria, considered the four factors for the selected sources, and evaluated the five additional factors at 40 CFR 51.308(f)(2)(iv).

a. *Source Selection Criteria:* With respect to 40 CFR 51.308(f)(2)(i), South Carolina, through VISTAS, used a two-step source selection process: 1) Area of Influence (AoI) analysis, and 2) PSAT<sup>26</sup> modeling. Both sulfates and nitrates were considered in the source selection process. Sources that met the State’s AoI threshold<sup>27</sup> were tagged for PSAT modeling. Sources

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<sup>26</sup> PSAT modeling is a type of photochemical modeling which quantifies individual facility visibility impacts to an area. See footnote 20. South Carolina applied its PSAT threshold by facility whereas in the first planning period, the State applied the threshold by emissions unit at selected facilities.

<sup>27</sup> The AoI represents the geographical area around a Class I area in which emissions sources located in the AoI have the potential to contribute to visibility impairment at that Class I area. Emissions data from sources in the AoI is then evaluated to determine which of those sources are most likely contributing to visibility impairment at that Class I area. VISTAS used AoI analysis for all point source facilities in the VISTAS modeling domain to determine the

that met the State's PSAT threshold were then selected for an emissions control analysis.

To identify sources having the most impact on visibility at Class I areas for PSAT modeling, South Carolina used an AoI threshold of greater than or equal to three percent for nitrate or greater than or equal to two percent for sulfate at Cape Romain. South Carolina also used an AoI threshold of four percent for sulfate plus nitrate for all sources outside of the State, but it did not identify any sources above this threshold.<sup>28</sup> Sources in South Carolina selected at the AoI screening step for PSAT modeling are listed in Table 7-15 of the Haze Plan.

South Carolina, in coordination with the other VISTAS states, set a PSAT threshold of greater than or equal to one percent for sulfate or nitrate. Sources both within and outside of South Carolina that were selected for an emissions control analysis based on the State's PSAT threshold are listed in Tables 7-16, 7-17, and 7-18 of the Haze Plan. Nine sources exceeded the PSAT threshold, five of which are located in South Carolina: Century Aluminum of South Carolina Inc. (Century), International Paper – Georgetown Mill (IP-Georgetown), Cross, Santee Cooper Winyah Generating Station (Winyah), and WestRock-Charleston.<sup>29</sup>

South Carolina states that the VISTAS model projections demonstrate that ammonium sulfate is expected to remain the dominant visibility impairing pollutant through 2028 at Cape Romain and other VISTAS Class I areas.<sup>30</sup> In Section 7.4 of the Haze Plan, South Carolina explains the VISTAS analyses relied upon to support the State's focus on SO<sub>2</sub> control evaluations. Additionally, Section 10.4.2 and Appendix H-1 provide the State's responses to FLM comments regarding the exclusion of NO<sub>x</sub> control evaluations from the FFAs.

Although ammonium nitrate contributions to light extinction have increased in recent

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relative visibility impairment impacts at each Class I area associated with sulfate and nitrate. The results of the facility-level AoI analyses were then used to rank and prioritize facilities for further evaluation via PSAT.

<sup>28</sup> Section 7.6.1 of the Haze Plan describes South Carolina's AoI thresholds.

<sup>29</sup> Century is an aluminum smelter in Goose Creek, South Carolina. IP-Georgetown and Westrock-Charleston are pulp and paper mills in Georgetown, South Carolina, and North Charleston, South Carolina, respectively. Cross and Winyah are power plants in Berkeley County, South Carolina, and Georgetown, South Carolina, respectively.

<sup>30</sup> See Figures 2-7, 2-8, 2-9, 10-2, and 10-3. Figures 2-4 through 2-3 provide 2009–2013 speciated PM data for South Carolina's and surrounding states' Class I areas showing that ammonium sulfate is the dominant visibility impairing pollutant. Figure 10-2 provides speciated PM data for Cape Romain from 2010-2018 and Figure 10-3 compares ammonium sulfate and ammonium nitrate for the 2009–2013 vs. 2015–2019 periods for the 20 percent most impaired days at VISTAS Class I areas.

years (2016–2018), South Carolina states that sulfate is still the highest contributor to visibility impairment in the VISTAS Class I areas. The State provided light extinction data on the 20 percent most impaired and 20 percent clearest days for the VISTAS (including Cape Romain) and neighboring Class I areas for the 2009–2013 modeling base period and the 2014–2018 current conditions period and stated that ammonium sulfate continues to be the dominant visibility impairing pollutant on the 20 percent most impaired visibility days during the 2009–2013 period and 2014–2018 period.<sup>31</sup>

*b. Consideration of the Four Factors:* South Carolina considered each of the four CAA factors for Century, Cross, and IP-Georgetown and described how the four factors were taken into consideration in evaluating potential emission reduction measures. For Winyah, South Carolina determined that there are no technically feasible control measures beyond the existing measures to further reduce SO<sub>2</sub> emissions, and thus, no new measures were evaluated using the four factors. The following subsections summarize the State’s evaluation of these facilities. WestRock-Charleston permanently shut down after South Carolina submitted its Haze Plan; therefore, the State’s FFA for this source is no longer relevant.<sup>32</sup>

*i. Century:* The Century FFA evaluated technically feasible SO<sub>2</sub> emissions controls for the Bake Oven (Unit 01) and four Potrooms (Units 02, 03, 04, 05) at Century, as these emissions units constitute 99.95 percent of Century’s permitted SO<sub>2</sub> emissions. The remaining emissions units at the facility were excluded from the FFA because, combined, they contribute only 0.05 percent to the facility’s total SO<sub>2</sub> emissions. Regarding the baseline emissions used in the FFA cost calculations, Century used estimated annual SO<sub>2</sub> emissions in 2028 for the Bake Oven (294 tons per year (tpy)) and the four Potrooms 02, 03, 04, and 05 (864 tpy each) for a total of 3,750 tpy SO<sub>2</sub> for these units combined.<sup>33</sup>

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<sup>31</sup> See Section 2.5.2 of the Haze Plan; see also Figures 2-1 through 2-3 and Figures 2-7 through 2-9.

<sup>32</sup> On November 14, 2024, South Carolina sent an e-mail to EPA Region 4 containing a letter of air permit rescission dated April 15, 2024, for all permitted sources at the WestRock-Charleston facility except for the Wastewater Treatment System. The November 14, 2024, e-mail and the April 14, 2024, permit rescission letter are in the docket for this proposed rulemaking.

<sup>33</sup> See Table 7-21 on p. 164 of the Haze Plan.

The Century FFA evaluated wet scrubbers and dry sorbent injection (DSI) as potential SO<sub>2</sub> emissions controls applicable to the Bake Oven and the four Potrooms. Both control systems were considered technically feasible. As shown in Table 3 below, the cost/ton of the wet scrubber and DSI was calculated to be \$7,485/ton and \$10,323/ton, respectively. These control costs are based on an interest rate of five percent for the wet scrubber option and 5.5 percent for the DSI option.<sup>34</sup> Regarding the control efficiency assumed for each control, Century assumed a 99 percent SO<sub>2</sub> control efficiency for the wet scrubber option and a 90 percent SO<sub>2</sub> control efficiency for the DSI option.<sup>35</sup>

**Table 3: Century FFA Control Evaluation Summary**

<b>Emissions Units</b>	<b>Control Technology (SO<sub>2</sub> Control Efficiency)</b>	<b>SO<sub>2</sub> Emissions Reductions (tpy)</b>	<b>Cost Effectiveness (\$/ton)</b>
Bake Oven, Potrooms 02-05	DSI (90%)	3,379	\$10,323
Bake Oven, Potrooms 02-05	Wet Scrubber (99%)	3,716	\$7,485

Regarding energy and non-air quality environmental impacts of compliance, the use of a wet scrubber and DSI would require electricity and consumable reagent to operate and create waste products.<sup>36</sup> A wet scrubber system increases energy usage, water usage, wastewater generation, and solid waste generation and requires chemicals. Non-air environmental impacts include solid, liquid, and hazardous waste generation. A wet scrubber system generates wastewater and sludge that must be treated and/or disposed of. A wastewater system would need to be constructed at Century to collect, convey, and treat wet scrubber blowdown wastewaters, which are a byproduct of the scrubbing process, prior to discharge to the local publicly owned treatment works. DSI generates solid waste that must be collected by PM control devices and

<sup>34</sup> Century initially calculated the control costs using an interest rate of 5.5 percent and an equipment life of 20 years; however, based on comments from the State, revised the interest rate to five percent for the wet scrubber option and used an equipment life of 30 years for the wet scrubber. See p. 164 of the Haze Plan.

<sup>35</sup> Century initially assumed a 93 percent control efficiency for the wet scrubber. Based on comments from the State requesting use of a 98 percent control efficiency, Century revised the FFA with a 99 percent control efficiency.

<sup>36</sup> The reference to Appendix II on p. 165 of the Haze Plan refers to Appendix II, *Cost Analysis Supporting Information*, of the FFA contained in Appendix G-2 of the 2022 Haze Plan.

disposed of at a landfill.

Century used an equipment life of 30 years for the wet scrubber and 20 years for DSI. The remaining useful life of the Bake Oven and Potrooms 02-05 is assumed to be longer than 30 years.

Regarding the time necessary to comply, Century states that sources are generally given between two and five years to implement changes for compliance with new regulations and provides several examples. Affected sources would require time to design, purchase, and install selected control options in addition to the time needed to obtain an air construction permit for the control equipment. Century states that a compliance timeframe of four to five years is needed to comply with any new control measures. This includes a year to obtain construction permits (both air and wastewater construction permits would be required) and three to four years to contract, design, fabricate, deliver, construct, and make operational the control equipment and ancillary wastewater treatment plant. Century also notes that this timeframe is consistent with the compliance timeframes allowed for in the majority of first planning period regional haze SIPs.<sup>37</sup>

For Century, South Carolina determined that the Bake Oven (Unit 1) and the four Potline Potrooms (Units 2, 3, 4, 5) are well controlled and additional controls are not needed for the purpose of remedying any existing anthropogenic visibility impairment at Cape Romain.<sup>38</sup>

*ii. Cross:* The Cross FFA evaluated switching from the use of coal with a sulfur content of 2.65 percent to coal with a one percent sulfur content for the four coal-fired electric generating units (EGUs), Units 1–4, as a technically feasible control measure where the percent sulfur in coal is decreased from 2.65 percent to one percent. Units 1–4 are equipped with wet scrubbers and subject to the limit of 0.20 pound (lb) of SO<sub>2</sub> per million British thermal units (MMBtu)

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<sup>37</sup> First period regional haze plans included BART measures. Each source subject to BART is required under the RHR to install and operate BART as expeditiously as practicable, but in no event later than five years after approval of the implementation plan revision. *See* 40 CFR 51.308(e)(1)(iv).

<sup>38</sup> The Anode Forming Equipment and various natural gas-fired fuel burning sources are inconsequential sources of SO<sub>2</sub> emissions at Century.

(lb/MMBtu) in the Mercury and Air Toxics Standards (MATS) rule.<sup>39</sup> The wet scrubber systems on Units 1, 3, and 4 are required to achieve a 30-day rolling average removal efficiency for SO<sub>2</sub> of at least 95 percent.<sup>40</sup> The wet scrubber on Unit 2 is designed to achieve a 91 percent SO<sub>2</sub> removal efficiency and is required to maintain at least an 87 percent SO<sub>2</sub> removal efficiency.<sup>41</sup> Compliance is measured with a SO<sub>2</sub> continuous emissions monitoring system (CEMS) certified under 40 CFR part 75. Based on this information and considering that Cross is meeting the MATS 0.2 lb/MMBtu emission limit for SO<sub>2</sub>, South Carolina stated that it is unlikely an analysis of control measures (other than a sulfur content fuel switch) for these emission units would conclude that more stringent control of SO<sub>2</sub> is necessary to make reasonable progress.<sup>42</sup>

The cost/ton of the fuel sulfur control option for Units 1–4 was calculated to be \$31,451/ton with estimated emissions reductions of 2,434 tpy SO<sub>2</sub>. Regarding the baseline emissions used in the FFA cost calculations, Cross used 2018 actual monthly SO<sub>2</sub> emissions (annualized by unit) equal to a total of 3,910 tpy SO<sub>2</sub> for Units 1–4.<sup>43</sup> The control effectiveness of fuel sulfur control is estimated to be 62 percent resulting in a cost effectiveness of \$31,451/ton.

Regarding the other statutory factors, the State addresses the remaining useful life of Units 1-4 by stating that the units are expected to operate through at least 2039. The equipment life for a switch to lower sulfur fuels is the same as the source/unit's life. Regarding energy and non-air quality environmental impacts of compliance, the State notes that use of lower sulfur coal adds minimal power demand and has similar environmental impacts to the coal that Cross currently uses. For the time necessary to comply, the State proposes that a compliance timeframe of two years from the effective date of an EPA determination that a switch to lower

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<sup>39</sup> 40 CFR 63, Subpart UUUUU, National Emission Standards for Hazardous Air Pollutants for Electric Generating Units, also known as MATS.

<sup>40</sup> See Haze Plan at p. 182.

<sup>41</sup> *Id.*

<sup>42</sup> See Table 7-26 on p. 182 of the Haze Plan. South Carolina relied on EPA's Clean Air Markets Program Data (CAMPD) from 2016-2020 to demonstrate that Cross is meeting the 0.2 lb/MMBtu emission limit for SO<sub>2</sub>.

<sup>43</sup> See Table 2-2 on page 2-4 of the Cross FFA in Appendix G-2 of the Haze Plan.

sulfur coal would be required because Cross has coal contracts in place and is required to honor the timeframes for these contracts.

For Cross, the State determined that Cross 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.

*iii. IP-Georgetown:* The IP-Georgetown FFA evaluated emissions controls for the following emissions units as the primary sources of SO<sub>2</sub>: No. 1 and 2 Power Boilers and No. 1 Recovery Boiler. Units exempted from the FFA include: a) the No. 1 and No. 2 Lime Kilns because in 2011 they emitted 1.19 tpy SO<sub>2</sub> and 1.59 tpy SO<sub>2</sub>, respectively, and b) No. 1 and No. 2 Smelt Dissolving Tanks because they emitted 2.15 tpy SO<sub>2</sub> and 1.66 tpy SO<sub>2</sub>, respectively. Regarding the baseline emissions used in the FFA cost calculations, the State requested that the facility use 2011 actual emissions in the cost analysis for all emissions units. The FFA notes that emissions reductions have occurred since 2011, and therefore, also presents 2019 emissions as more representative of actual current emissions. Thus, both 2011 and 2019 emissions were used for the cost analyses for the No. 1 and No. 2 Power Boilers for evaluating wet and dry scrubbers.<sup>44</sup> Only 2019 emissions were used for the No. 1 Recovery Boiler cost analysis because 2011 emissions are not considered representative for this unit. Table 4, below, provides the 2011 and 2019 actual emissions of the units evaluated.

<b>Emissions Unit</b>	<b>2011 Emissions</b>	<b>2019 Emissions</b>	<b>2028 Projected Emissions</b>
No. 1 Power Boiler	921.01	480.54	951.42
No. 2 Power Boiler	947.01	479.09	1137.32
No. 1 Recovery Boiler	680.05	76.56	637.96
No. 2 Recovery Boiler	68.26	65.98	32.50

Regarding the No. 1 and No. 2 Power Boilers, wet flue gas desulfurization (wet FGD or WFGD) and dry FGD (spray dryer absorber system (SDA) and DSI) were evaluated. Currently these power boilers have no add-on existing SO<sub>2</sub> emission controls; however, certain operational

<sup>44</sup> See Table 7-23 of the Haze Plan for the 2011, 2019, and 2028 projected SO<sub>2</sub> emissions for the IP-Georgetown units.

practices, namely their exclusion from South Carolina Regulation 61-62.96, *Nitrogen Oxides (NOx) Budget Program*, limit fossil fuel use in the boilers which is kept to less than 50 percent on an annual heat input basis.<sup>45</sup> Additionally, wood/bark is the primary fuel used in the power boilers which also helps control SO<sub>2</sub> emissions while use of coal has been replaced with natural gas in recent years. In 2011, the No. 1 and 2 Power Boilers combined burned approximately 28,000 tons of coal whereas in 2019, the two boilers burned only 1,760 tons of coal. Regarding the No. 1 Recovery Boiler, South Carolina evaluated a wet scrubber (*i.e.*, WFGD) control option.<sup>46</sup> The FFA states that there currently is no add-on scrubber used to control SO<sub>2</sub> emissions from recovery boilers at paper mills and that, while the technology is technically feasible, it may not perform at an optimal control efficiency given the limitations of the processes at the facility.

IP-Georgetown used a 5.5 percent interest rate in the cost calculations in the September 23, 2020, FFA.<sup>47</sup> The State inquired why the bank prime interest rate (at that time in 2020) of 3.25 percent was not used in the FFA. IP-Georgetown stated that the higher interest rate is more representative of the opportunity cost of capital and returns on real estate that may be not otherwise be realized. The State concurs with IP-Georgetown's justification for the 5.5 percent interest rate. The cost analyses for the wet and dry FGD control options for the No. 1 and 2 Power Boilers and the wet FGD for the No. 1 Recovery Boiler used an interest rate of 5.5 percent, an SO<sub>2</sub> control efficiency of 98 percent, and an equipment life of 30 years. Table 5, below, compares the cost effectiveness values of all SO<sub>2</sub> control options evaluated using 2011 and 2019 emissions in the cost calculations.

<b>Table 5: IP-Georgetown Cost Effectiveness Values for 2011 and 2019</b>
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<sup>45</sup> See p. 170 of the Haze Plan.

<sup>46</sup> No additional control analysis was conducted on No. 2 Recovery Boiler because the State determined that it is already well controlled. See Haze Plan at pp.168-169.

<sup>47</sup> See Haze Plan at Appendix G. The final cost analyses are contained in the Revision 1 dated March 31, 2021, located in Appendix G-2 of the Haze Plan. The State summarizes the results of these revised cost analyses in Table 7-24 of the Haze Plan.

<b>Emissions Units</b>	<b>SO<sub>2</sub> Control Technology</b>	<b>Cost Effectiveness Using 2011 Emissions (\$/ton)</b>	<b>Cost Effectiveness Using 2019 Emissions (\$/ton)</b>	<b>Tons SO<sub>2</sub> Removed (tpy) (2011 Emissions)</b>	<b>Tons SO<sub>2</sub> Removed (tpy) (2019 Emissions)</b>
No. 1, 2 Power Boilers	Wet FGD	\$7,700	\$14,400	1,831	941
No. 1, 2 Power Boilers	SDA (dry FGD)	\$7,400	\$13,800	1,831	941
No. 1, 2 Power Boilers	DSI (dry FGD)	\$5,200	\$7,900	1,831	941
No. 1 Recovery Boiler	Wet FGD	\$3,100	\$19,200	N/A	75.5

Regarding energy and non-air quality environmental impacts of compliance, the State noted that additional costs will be incurred to provide electricity to wet scrubbers and there is freshwater usage. Additionally, wet scrubbers will incur costs associated with wastewater disposal and dry scrubbers will require disposal of dry sorbent (*e.g.*, spent lime).

The remaining useful life for the No.1 and 2 Power Boilers is assumed to be 30 years because no retirement date has been set. Both of these boilers were commissioned in 1982 and are over 40 years old. The remaining useful life for the No. 1 Recovery Boiler is assumed to be 30 years. This boiler was installed in 1963 and is over 60 years old. The equipment life used in the cost calculations was 20 years for dry FGD and 30 years for wet FGD.

Regarding the time necessary to comply for the No. 1 and 2 Power Boilers, the FFA states that the time necessary to install a wet or dry FGD system would be at least five years after the effective date of an EPA determination that a wet or dry FGD system is required as time will be needed for design, permitting, procurement, installation, and startup of the control system. If minimal retrofit issues are encountered, a wet or dry FGD system could be installed by 2028.

Regarding the time necessary to comply for the No. 1 Recovery Boiler, the FFA estimates that if a wet FGD were required on the No. 1 Recovery Boiler, it would take

approximately five years to install after the effective date of an EPA determination that a wet FGD system is required, noting that installation by 2028 could be achieved as needed.

For IP-Georgetown, South Carolina concludes that the No. 1 and No. 2 Power Boilers and No. 1 and No. 2 Recovery Boilers at IP-Georgetown are well controlled and additional controls are not needed to address any existing anthropogenic visibility impairment at Cape Romain.

*iv. Winyah:* The State did not perform an FFA for Winyah because it determined that Units 1–4 at the facility have existing, effective controls for SO<sub>2</sub> given that all four units have wet scrubbers which operate year-round, achieve over 90 percent control efficiency, and are subject to and in compliance with the SO<sub>2</sub> limit of 0.20 lb/MMBtu under the MATS rule.<sup>48</sup>

*c. Documentation of Technical Basis:* With respect to emissions information documentation pursuant to 40 CFR 51.308(f)(2)(iii), Section 4 of the Haze Plan explains the State’s use of emissions inventories to develop the plan with additional documentation provided in Appendix B. South Carolina, through VISTAS, developed a 2011 statewide base year emissions inventory in Table 4-1 which was used to project emissions out to 2028, the end of the second planning period. This 2011 statewide emissions inventory was also relied upon to satisfy 40 CFR 51.308(f)(6)(v). South Carolina also evaluated emissions data from 2017, the year of the most recent triennial emissions data available at the time of the development of the Haze Plan.<sup>49</sup> The State also provided annual, statewide anthropogenic SO<sub>2</sub> and NO<sub>x</sub> data from 2011 through 2019 for Table 13-15 and Figures 13-6 (SO<sub>2</sub>) and 13-7 (NO<sub>x</sub>) of the Haze Plan. Table 7-1 of the Haze Plan contains 2011 actual and 2028 emissions projections for select sources in the VISTAS states, including South Carolina, for various pollutants, including: SO<sub>2</sub>, NO<sub>x</sub>, VOC, NH<sub>3</sub>, coarse

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<sup>48</sup> See Table 7-28 on p. 186 of the Haze Plan. South Carolina relied on EPA’s CAMPD data from 2016-2020 to demonstrate that Winyah is meeting the 0.20 lb/MMBtu emission limit for SO<sub>2</sub>.

<sup>49</sup> 2017 emissions data is included in the following tables and figures in the Haze Plan: Table 7-19 (SO<sub>2</sub>) for certain sources in South Carolina; Tables 13-11 (PM<sub>2.5</sub>), 13-12 (NO<sub>x</sub>), and 13-13 (SO<sub>2</sub>) for statewide emissions of these pollutants; Table 13-14 (SO<sub>2</sub>) for units reporting to EPA’s Clean Air Markets Division (CAMD); Table 13-15 (SO<sub>2</sub>, NO<sub>x</sub> for all RPOs); Figure 13-5 (SO<sub>2</sub>, NO<sub>x</sub>, VISTAS CAMD Emissions); and Figures 13-6 and 13-7 (SO<sub>2</sub>, NO<sub>x</sub> for all RPOs and VISTAS states).

PM (PM<sub>10</sub>), and PM<sub>2.5</sub>. Tables 13-11, 13-12, and 13-13 of the Haze Plan provide statewide PM<sub>2.5</sub>, NO<sub>x</sub>, and SO<sub>2</sub> emissions data, respectively, from the 2014 National Emissions Inventory (NEI), 2017 NEI, and projected 2018 emissions inventory for South Carolina from the first period (“VISTAS 2018G4”). The 2028 emissions projections were used to develop the 2028 RPGs for Cape Romain. Table 13-14 provides South Carolina EGU SO<sub>2</sub> emissions data for the years 2014–2019 which show a decline in SO<sub>2</sub> emissions from 26,122 tpy in 2014 to 5,731 tpy in 2019.

With respect to modeling information documentation pursuant to 40 CFR 51.308(f)(2)(iii), Sections 5 and 6 of the Haze Plan describe the modeling methods used to develop the plan with additional documentation provided in Appendix E and results of the RPG modeling in Section 8 of the plan. Appendix D contains AoI analyses documentation.

With respect to cost and engineering information documentation pursuant to 40 CFR 51.308(f)(2)(iii), Section 7.8 of the Haze Plan details the State’s analysis of proposed FFAs for Century, WestRock-Charleston, IP-Georgetown, and Cross. The FFAs proposed by these sources that are located in Appendix G evaluated the four factors, including the cost of compliance factor, and provided detailed cost calculations for potential new control measures assessed as part of the engineering analyses.

With respect to monitoring information documentation pursuant to 40 CFR 51.308(f)(2)(iii), the State assessed baseline (2000-2004), current (2014-2018), and natural visibility conditions for Cape Romain in Section 2 of the Haze Plan with supporting information located in Appendix C.

*d. Assessment of Five Additional Factors in 40 CFR 51.308(f)(2)(iv):* With respect to 40 CFR 51.308(f)(2)(iv), South Carolina considered each of the five additional factors in developing the State’s LTS for the second planning period. With respect to 40 CFR 51.308(f)(2)(iv)(A), South Carolina referenced the State’s emissions inventory development for the base year of 2011 as projected out to 2028 for the requirement to assess emission reductions due to ongoing air

pollution control programs, including measures to address reasonably attributable visibility impairment (RAVI).

With respect to 40 CFR 51.308(f)(2)(iv)(B), South Carolina summarized the State's existing regulations that mitigate the impacts of construction activities in Section 7.10.2 of the Haze Plan. South Carolina explained that fine soils were a relatively minor contributor to visibility impairment at Cape Romain during the baseline period of 2000–2004 and continue to be only a minor contributor to visibility at Cape Romain during the most current period of monitoring data (2014–2018).

With respect to 40 CFR 51.308(f)(2)(iv)(C), South Carolina considered source retirement and replacement schedules in Section 7.2.5 (retirements accounted for in the 2028 inventory/RPGs), and in 7.2.1.2 (MATS Rule) which lists seven facilities which either retired the emissions units or switched the emissions units from coal-fired to natural gas-fired. Planned source retirements are accounted for in the 2028 projected emissions.

With respect to 40 CFR 51.308(f)(2)(iv)(D), South Carolina summarized the State's basic smoke management practices for prescribed fire used for agricultural and wildland vegetation management in Section 7.10.1 of the Haze Plan. The South Carolina Forestry Commission ("SCFC") has developed a Smoke Management Guideline for Vegetative Debris Burning Operations, which serves to regulate vegetative debris burning for forestry, agriculture, and wildlife purposes.<sup>50</sup> South Carolina's Bureau of Air Quality has developed state air pollution control regulations that prohibit open burning except when meeting certain criteria. South Carolina notes that when weighed together, these documents address all sources of fire used for land management purposes within South Carolina and effectively minimize visibility impacts while recognizing the important ecological role that prescribed fires can and do play. With respect to 40 CFR 51.308(f)(2)(iv)(E), South Carolina assessed the anticipated net effect on

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<sup>50</sup> Appendix G-4 of the Haze Plan includes the SCFC Smoke Management Guideline and a memorandum of understanding between the SCFC and DHEC (so named at the time). Appendix G-4 is included for reference only and is not being proposed for adoption into the SIP.

visibility due to projected changes in point, area, and mobile source emissions over the period addressed by the LTS in development of the RPGs for Cape Romain.

*e. Interstate Consultation:* South Carolina consulted with states<sup>51</sup> and RPOs that identified South Carolina sources as impacting those states' (or states within the RPOs') Class I areas, and the State consulted with the three states (Georgia, Ohio, and Pennsylvania) with one or more sources exceeding South Carolina's PSAT threshold at Cape Romain.

*i. State/RPOs Requesting Consultation with South Carolina:* On November 24, 2020, Georgia requested that South Carolina perform a reasonable progress analysis (*i.e.*, FFA) for two facilities, Cross and WestRock-Charleston, to address their potential visibility impacts at Wolf Island and Okefenokee in Georgia. South Carolina honored these requests and sent an email to Georgia providing FFAs of these sources.<sup>52</sup> South Carolina did not find any new measures to be necessary for reasonable progress for Cross or WestRock-Charleston.<sup>53</sup> No other states requested an FFA of South Carolina sources.

*ii. South Carolina's Requests for Consultation with Other States:* Table 10-1 of the Haze Plan provides a summary of the VISTAS and non-VISTAS states to which a letter was sent and identifies the total number of facilities impacting Cape Romain. Table 10-2 of the Haze Plan lists the specific out-of-state facilities which exceed the State's PSAT threshold: Georgia Power Company – Plant Bowen (Plant Bowen) and International Paper – Savannah (IP-Savannah) located in Georgia; Genon NE Mgmt Co/Keystone Station (Keystone) located in Pennsylvania; and General James M. Gavin Power Plant (Gavin Plant) located in Ohio. The documentation of these letters is summarized in Table 10-2 and Appendix F of the Haze Plan. Georgia, Ohio, and Pennsylvania provided FFAs of their respective sources to VISTAS.<sup>54</sup>

On November 5, 2020, South Carolina requested that Georgia provide FFAs of Plant

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<sup>51</sup> Georgia is the only state that requested consultation with South Carolina.

<sup>52</sup> On November 17, 2021, South Carolina sent an e-mail to Georgia providing FFA information for Cross and WestRock-Charleston. The November 17, 2021, e-mail is included in the docket for this proposed rulemaking.

<sup>53</sup> See Section IV.C.2.b.ii of this document regarding the FFA for Cross. WestRock-Charleston has permanently shut down.

<sup>54</sup> See Section 10.1.1 of the Haze Plan. Details of all this correspondence can be found on p. 210 of the Haze Plan.

Bowen and IP-Savannah.<sup>55</sup> At the time of South Carolina's final plan submission in March of 2022, Georgia was in the process of finalizing its conclusions related to these facilities and had not yet issued its proposed haze plan for public comment.<sup>56</sup> Georgia provided a copy of the FFAs for Plant Bowen and IP-Savannah in an email from Georgia to South Carolina dated November 18, 2021.<sup>57</sup>

Regarding the Keystone FFA, on June 22, 2020, VISTAS sent a letter requesting reasonable progress analyses for Pennsylvania sources impacting VISTAS class I areas. On January 11, 2021, Pennsylvania sent to VISTAS the FFA for Keystone concluding that emissions of SO<sub>2</sub> and NO<sub>x</sub> from Units 1 and 2 at the Station are already well controlled by WFGD and selective catalytic reduction.

Regarding the Gavin Plant FFA, on June 22, 2020, VISTAS sent a letter requesting reasonable progress analyses for certain Ohio sources, including the Gavin Plant, impacting visibility at specific VISTAS Class I areas. Cape Romain was identified in this letter as one of the Class I areas impacted by the Gavin Plant in Ohio. On October 29, 2020, Ohio sent a letter to VISTAS which concluded that the two boilers are effectively controlled due to existing FGDs with 95 percent control efficiency.<sup>58</sup>

3. *EPA Evaluation:* EPA has reviewed South Carolina's source selection criteria, consideration of the four factors, determinations of controls necessary for reasonable progress, documentation of technical basis, interstate consultation, and consideration of the five additional factors. Based on this review, EPA proposes to find that the LTS meets the requirements of 40

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<sup>55</sup> Section 10.1.1 of the Haze Plan and Appendix F-1 contain correspondence between South Carolina and Georgia regarding the FFAs for these facilities.

<sup>56</sup> On August 11, 2022, Georgia submitted a final regional haze plan. On June 3, 2024, EPA proposed action on the Georgia Haze Plan. *See* 89 FR 47481. The proposed rule explains that the Plant Bowen Units 1-4 have wet scrubbers and are subject to the MATS SO<sub>2</sub> limit of 0.20 lb/MMBtu. For Plant Bowen's Units 1-4, the State concluded that existing SO<sub>2</sub> measures are necessary for reasonable progress for the second planning period. Georgia determined for IP-Savannah that the removal of coal as a fuel in the No. 13 Power Boiler is a measure necessary for reasonable progress for the second planning period. EPA approved Georgia's regional haze plan on November 21, 2024 (89 FR 92038).

<sup>57</sup> On November 18, 2021, Georgia sent an e-mail to South Carolina providing FFA information for Plant Bowen and IP-Savannah. The November 18, 2021, e-mail is included in the docket for this proposed rulemaking.

<sup>58</sup> *See* Appendix F-2d of the Haze Plan.

CFR 51.308(f)(2)(i) through (iv).

*a. Source Selection Criteria:* EPA proposes to find that South Carolina has satisfied the requirements of 40 CFR 51.308(f)(2)(i) with respect to including a description of the criteria that the State used to determine which sources the State evaluated for emissions controls by providing: Appendix B which details how the State, in conjunction with VISTAS, created emissions inventories relied upon by the State for its Haze Plan; Appendix C which provides monitoring and meteorological data used to support selection of sources; and Appendix D which provides analyses supporting the AoI approach. In addition, the State summarized in the Haze Plan the specific data that South Carolina used for its source selection analyses, including the AoI and PSAT analyses and results.

EPA also proposes to find that South Carolina's selection of in-state sources for analysis under the four statutory factors has satisfied the requirements of 40 CFR 51.308(f)(2). AoI and PSAT are acceptable and well-established methods for selecting sources for a control analysis and they enable the identification of the sources that have the largest impacts on visibility at Class I areas in South Carolina and neighboring states.<sup>59</sup> Using an AoI threshold<sup>60</sup> and a one percent PSAT threshold, the State identified five South Carolina sources for a control evaluation that are projected to have the highest impact on visibility at both in-state and out-of-state Class I areas at the end of the second planning period.<sup>61</sup>

Specific to second planning period visibility improvement, visibility conditions at Cape Romain in 2028 are estimated to improve since the 2014–2018 period by 1.03 deciview. When considered in relation to the amount of visibility improvement needed to reach natural conditions

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<sup>59</sup> The State used the AoI process because it identifies the largest sources with potential visibility impacts to Class I areas and then used sophisticated photochemical source apportionment modeling to identify specific sources for control evaluations.

<sup>60</sup> South Carolina used an AoI threshold of greater than or equal to three percent for nitrate or greater than or equal to two percent for sulfate at Cape Romain. South Carolina also used an AoI threshold of four percent for sulfate plus nitrate for all sources outside of the State.

<sup>61</sup> As discussed above, WestRock – Charleston permanently ceased operations in April 2024. The additional emissions reductions from this shutdown have not been reflected in the 2028 emissions projections and 2028 RPGs. Table 7-19 of the Haze Plan identifies projected 2028 SO<sub>2</sub> emissions from WestRock – Charleston as 1,864 tpy and 2019 SO<sub>2</sub> emissions as 1,145 tpy. See footnote 32 regarding documentation for the shutdown of this facility.

starting from the 2014-2018 period, this projected visibility improvement expected during the second planning period represents approximately a 13.1 percent improvement in progress.<sup>62</sup>

Based upon a comparison of the most recently available 20 percent most impaired days IMPROVE data (2018–2022)<sup>63</sup> to the 20 percent most impaired days data from the end of the first planning period (2014–2018),<sup>64</sup> in the first four years of the second planning period, Cape Romain has already achieved 15.65 percent of additional progress towards natural conditions.<sup>65</sup> Also, South Carolina focused on controlling point source SO<sub>2</sub> emissions based on data showing that ammonium sulfate is the dominant visibility impairing pollutant at Cape Romain and other Class I areas impacted by South Carolina’s sources.<sup>66</sup>

The 2009–2013 IMPROVE data on the 20 percent most impaired visibility days for Cape Romain are: 71 percent sulfate, five percent nitrate, and 13 percent organic carbon. EPA also evaluated 2015–2019 IMPROVE data on the 20 percent most impaired days for Cape Romain in Table 6 below and confirmed that ammonium sulfate is the dominant visibility impairing pollutant at this area during that time period. As indicated in that table, ammonium nitrate contributions to regional haze at the State’s Class I area remain relatively low at eight percent of the total visibility impairment as compared to ammonium sulfate at 56 percent.

**Table 6: 2015–2019 Speciated IMPROVE Monitoring Data for Cape Romain (%)**

<sup>62</sup> See visibility data for the 20 percent most impaired days data from Tables 2-6 and 8-1 of the Haze Plan. Percentage of progress toward natural conditions =  $\frac{((2014-2018 \text{ IMPROVE data}) - (2028 \text{ RPG}))}{((2014-2018 \text{ IMPROVE data}) - (\text{Natural visibility conditions}))} \times 100$ . Example calculation for Cape Romain  $\frac{(17.67 - 16.64)}{(17.671 - 9.78)} \times 100 = 13.1$  percent.

<sup>63</sup> The 2018–2022 IMPROVE data for the 20 percent most impaired days at Cape Romain was obtained from under the header “Means for Impairment Metric:”. The IMPROVE data includes visibility monitoring data for each Class I area. This data was filtered for each Class I area, listed as “ROMA1” (Cape Romain), (in column “A”, titled “site”). Then data was filtered for the years 2018 through 2022 (using column “B” titled “year”). These data points were then filtered for the 20 percent most impaired days, indicated by “90” (in column “C” titled “impairment\_Group”). The resulting data points for each Cape Romain within the “haze\_dv” column “AK”, corresponding to each of the five years, were averaged to determine the 20 percent most impaired days for the 2018-2022 five-year period which is 16.44 deciviews.

<sup>64</sup> The 2014–2018 IMPROVE data was provided by South Carolina in Table 2-6 of the Haze Plan.

<sup>65</sup> Percentage of progress toward natural conditions =  $\frac{((2014-2018 \text{ IMPROVE data}) - (2018-2022 \text{ IMPROVE data}))}{((2014-2018 \text{ IMPROVE data}) - (\text{Natural visibility conditions}))} \times 100$ . Example calculation for Cape Romain:  $\frac{(17.67 - 16.44)}{(17.67 - 9.78)} \times 100 = 15.65$  percent.

<sup>66</sup> See Figures 2-4 and 2-5 of the Haze Plan.

	<b>Ammonium Sulfate</b>	<b>Ammonium Nitrate</b>	<b>Organic Carbon</b>	<b>Coarse Mass</b>	<b>Elemental Carbon</b>	<b>Fine Sea Salt</b>	<b>Fine Soils</b>
Cape Romain	56	8	19	7	5	3	1

*b. Consideration of the Four CAA Factors:* In this section of the document, EPA evaluates South Carolina’s LTS against the requirements of the CAA and RHR for the second planning period. As detailed further below, EPA proposes to approve South Carolina’s LTS under 40 CFR 51.308(f)(2).

In this proposed action, EPA notes that it is the Agency’s policy, as announced in the recent proposed action for West Virginia’s Regional Haze SIP for the second planning period, that, where visibility conditions for a Class I area impacted by a State are below the URP and the State has evaluated potential control measures and considered the four statutory factors, the State will have presumptively demonstrated reasonable progress for the second planning period for that area.<sup>67, 68</sup> EPA acknowledges that this proposed action reflects a change in policy from current guidance as to how the URP should be used in the evaluation of regional haze second planning period SIPs. EPA has the discretion and authority to change policy. In *FCC v. Fox Television Stations, Inc.*, the U.S. Supreme Court plainly stated that an agency is free to change a prior policy and “need not demonstrate ... that the reasons for the new policy are better than the reasons for the old one; it suffices that the new policy is permissible under the statute, that there are good reasons for it, and that the agency believes it to be better.” 566 U.S. 502, 515 (2009) (referencing *Motor Vehicle Mfrs. Ass’n of United States, Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29 (1983)). See also *Perez v. Mortgage Bankers Assn.*, 135 S. Ct. 1199 (2015). EPA believes that this policy aligns with the purpose of the statute and RHR, which is achieving “reasonable” progress, not maximal progress, toward Congress’ natural visibility goal.

In developing the regulations required by CAA section 169A(b), EPA established the concept of

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<sup>67</sup> See 90 FR 16478, 16483 (April 18, 2025).

<sup>68</sup> See also EPA’s May 14, 2025 proposed action for South Dakota’s Regional Haze SIP for the second planning period (90 FR 20425).

the URP for each Class I area. As discussed above, for each Class I area, there is a regulatory requirement to compare the projected visibility impairment (represented by the RPG) at the end of each planning period to the URP (*e.g.*, in 2028 for the second planning period).<sup>69</sup> In the 2017 RHR Revisions, EPA addressed the role of the URP as it relates to a state’s development of its second planning period SIP. *See* 82 FR 3078 (January 10, 2017). Specifically, in response to comments suggesting that the URP should be considered a “safe harbor” and relieve states of any obligation to consider the four statutory factors, EPA explained that the URP was not intended to be such a safe harbor. EPA summarized such comments as follows: “Some commenters stated a desire for corresponding rule text dealing with situations where RPGs are equal to (“on”) or better than (“below”) the URP or glidepath. Several commenters stated that the URP or glidepath should be a “safe harbor,” opining that states should be permitted to analyze whether projected visibility conditions for the end of the implementation period will be on or below the glidepath based on on-the-books or on-the-way control measures, and that in such cases a four-factor analysis should not be required.”<sup>70</sup>

Other 2017 RHR comments indicated a similar approach, such as “a somewhat narrower entrance to a ‘safe harbor,’ by suggesting that if current visibility conditions are already below the end-of-planning-period point on the URP line, a four-factor analysis should not be required.”<sup>71</sup> EPA was clear in its response: “We do not agree with either of these recommendations.” EPA explained its position as follows: “The CAA requires that each SIP revision contain long-term strategies for making reasonable progress, and that in determining reasonable progress states must consider the four statutory factors. Treating the URP as a safe harbor would be inconsistent with the statutory requirement that states assess the potential to

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<sup>69</sup> EPA notes that RPGs are a regulatory construct that EPA developed to address statutory mandate in CAA section 169B(e)(1), which required our regulations to include “criteria for measuring ‘reasonable progress’ toward the national goal.” Under 40 CFR 51.308(f)(3)(ii), RPGs measure the progress that is projected to be achieved by the control measures a state has determined are necessary to make reasonable progress. Consistent with the 1999 RHR, the RPGs are unenforceable, though they create a benchmark that allows for analytical comparisons to the URP and mid-implementation-period course corrections if necessary. *See* 82 FR at 3091-3092 (January 10, 2017).

<sup>70</sup> 82 FR 3099 (January 10, 2017).

<sup>71</sup> *Id.*

make further reasonable progress towards natural visibility goal in every implementation period.”<sup>72</sup> In EPA’s new policy, if the Class I areas impacted by a state are below the URP and the State considers the four factors, the State will have presumptively demonstrated it has made reasonable progress for the second planning period for that area. Indeed, EPA believes this policy also recognizes the considerable improvements in visibility impairment that have been made by a wide variety of state and federal programs in recent decades.

Applying this new policy in EPA’s evaluation of South Carolina’s SIP and as further detailed in the paragraphs that follow, no additional measures for South Carolina’s LTS are necessary for this planning period to achieve reasonable progress towards natural visibility at Class I areas impacted by emissions from South Carolina sources.<sup>73, 74</sup>

*i. Century:* Regarding Century, South Carolina concluded that no additional SO<sub>2</sub> controls at Century’s Bake Oven (Unit 1) and the four Potline Potrooms Units 2, 3, 4, and 5 are necessary for reasonable progress for the second planning period. The State evaluated available and technically feasible SO<sub>2</sub> controls that were based on, where applicable, estimated values of capital costs, annualized costs, and cost per ton of emission reductions, consistent with recommendations in EPA’s “Air Pollution Control Cost Manual” (Cost Manual).<sup>75</sup> South Carolina reasonably evaluates additional controls and concludes that WFGD and DSI for the

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<sup>72</sup> *Id.*

<sup>73</sup> On June 4, 2025, the State requested that EPA fully approve its Haze Plan pursuant to the new policy, stating that South Carolina considered the four statutory factors, that projected 2028 visibility conditions for Class I areas impacted by emissions from South Carolina sources are all below the URP, and that therefore, under this policy, the Haze Plan meets the requirements of the CAA for demonstrating reasonable progress and no additional or existing measures need to be adopted into the SIP as part of the long-term strategy for this planning period. *See* June 4, 2025 letter from Myra C. Reese, DES to Kevin J. McOmber, EPA Region 4. The letter is in the docket for this proposed rulemaking.

<sup>74</sup> South Carolina’s request in Section 7.9 of the Haze Plan to incorporate permit conditions into the SIP is moot under the new policy because, if the proposed approval is finalized, South Carolina will have demonstrated reasonable progress without the need for additional measures in the LTS. Furthermore, the Haze Plan lacks enforceable measures because the permit conditions in the Haze Plan identified for incorporation into the SIP for IP-Georgetown, Cross, and Winyah are in draft form and because EPA does not have permit conditions for incorporation into the SIP for Century. South Carolina withdrew the permit conditions for Century from the Haze Plan on December 12, 2024. *See* December 12, 2024, letter from Myra C. Reese, DES, to Jeanecanne Gettle, EPA Region 4. The letter is in the docket for this proposed rulemaking. The State does not intend to submit enforceable, final permit conditions to EPA for incorporation into the SIP via a subsequent regional haze SIP revision for these facilities. *See* June 4, 2025 letter from Myra C. Reese, DES to Kevin J. McOmber, EPA Region 4.

<sup>75</sup> EPA’s Cost Manual is available at: <https://www.epa.gov/economic-and-cost-analysis-air-pollution-regulations/cost-reports-and-guidance-air-pollution>.

Bake Oven and the four Potrooms at a cost effectiveness of \$7,485/ton (WFGD) and \$10,323/ton (DSI), respectively, are not necessary to make reasonable progress. Because South Carolina considered the four statutory factors for Century and visibility conditions at all Class I areas to which South Carolina contributes are below the URP, EPA finds that South Carolina has demonstrated that it has made reasonable progress for the second planning period without any additional measures for Century.

*ii. Cross:* Regarding Cross, South Carolina concluded that no additional SO<sub>2</sub> measures at Cross' Units 1–4 are necessary for reasonable progress. The State evaluated available and technically feasible SO<sub>2</sub> controls that were based on, where applicable, estimated values of capital costs, annualized costs, and cost per ton of emission reductions, consistent with recommendations in EPA's Cost Manual. South Carolina's control evaluation concluded that fuel sulfur control for Units 1–4 at a cost effectiveness of \$31,451/ton is not necessary for reasonable progress. These units are subject to the MATS rule alternative SO<sub>2</sub> emission limit of 0.2 lb/MMBtu and are equipped with WFGD that routinely achieve a high SO<sub>2</sub> control effectiveness (approximately 91.6 to 98.3 percent yearly average SO<sub>2</sub> removal efficiencies based on 2017-2023 data during times when coal is one of the fuel sources consumed), with a seven-year average (2017–2023) SO<sub>2</sub> removal efficiency of 97.5 percent.<sup>76</sup> Because South Carolina considered the four statutory factors for Cross and visibility conditions at all Class I areas to which South Carolina contributes are below the URP, EPA finds that South Carolina has demonstrated that it has made reasonable progress for the second planning period without any additional measures for Cross.

*iii. IP-Georgetown:* South Carolina concluded that no additional SO<sub>2</sub> measures at IP-

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<sup>76</sup> Between 2017 to 2023, when coal is one of the fuel sources consumed, the yearly average FGD SO<sub>2</sub> control efficiencies for Cross Unit 1 ranged from 96.8 to 98.1 percent, Unit 2 ranged from 91.6 to 95.5 percent, Unit 3 ranged from 97.2 to 98.3 percent, and Unit 4 ranged from 97.6 to 98.3 percent. See South Carolina Santee Cooper scrubber efficiency data file titled "SC EGU Scrubber Efficiency 2017-2023" that is included in the docket for this proposed action.

Georgetown at the No. 1 and 2 Power Boilers and the No. 1 Recovery Boiler are necessary for reasonable progress. The State evaluated available and technically feasible SO<sub>2</sub> controls that were based on, where applicable, estimated values of capital costs, annualized costs, and cost per ton of emission reductions, consistent with recommendations in EPA's Cost Manual. South Carolina's control evaluation concluded that the cost effectiveness of WFGD at \$14,400/ton, SDA at \$13,800/ton, and DSI at \$7,900/ton for the No.1 and 2 Power Boilers and WFGD at \$19,200/ton for the No. 1 Recovery Boiler are not necessary for reasonable progress. Because South Carolina considered the four statutory factors for IP-Georgetown and visibility conditions at all Class I areas to which South Carolina contributes are below the URP, EPA finds that South Carolina has demonstrated that it has made reasonable progress for the second planning period without any additional measures for IP-Georgetown.

*iv. Winyah:* South Carolina concluded that Winyah's Units 1-4 are effectively controlled for SO<sub>2</sub> because all four units have wet scrubbers which operate year-round, achieve over 90 percent control efficiency, and are subject to and in compliance with the SO<sub>2</sub> limit of 0.20 lb/MMBtu under the MATS rule.<sup>77</sup> These WFGD routinely achieve a high SO<sub>2</sub> control effectiveness (approximately 94.1 to 98.3 percent yearly average SO<sub>2</sub> removal efficiencies during times when coal is one of the fuel sources consumed), with a seven-year average (2017–2023) SO<sub>2</sub> removal efficiency of 96.9 percent.<sup>78</sup> Therefore, EPA finds that South Carolina considered the four statutory factors and has demonstrated that Winyah has adequate existing controls and has made reasonable progress for the second planning period. Because additional measures for Winyah are not necessary, there is no need for South Carolina to conduct a full

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<sup>77</sup> See EPA's "Guidance on Regional Haze State Implementation Plans for the Second Implementation Period" (August 20, 2019) at p. 23 (providing several scenarios in which EPA believes it may be reasonable for a state not to select a particular source for a full four factor analysis, including a coal-fired EGU that has add-on FGD and meets the applicable alternative SO<sub>2</sub> emission limit of 0.20 lb/MMBtu in the MATS rule), available at: <https://www.epa.gov/visibility/guidance-regional-haze-state-implementation-plans-second-implementation-period>.

<sup>78</sup> Between 2017 to 2023, the yearly average FGD SO<sub>2</sub> control efficiencies for Winyah Unit 1 ranged from 96.8 to 98.3 percent, Unit 2 ranged from 95.5 to 98.3 percent, Unit 3 ranged from 94.1 to 96.8 percent, and Unit 4 ranged from 96.3 to 97.9 percent. See South Carolina Santee Cooper scrubber efficiency data file titled "SC EGU Scrubber Efficiency 2017-2023" that is included in the docket for this proposed action.

four-factor analysis of this facility.

*c. Documentation of Technical Basis:* With respect to 40 CFR 51.308(f)(2)(iii), South Carolina's documentation regarding cost, engineering, emissions, modeling, and monitoring information to determine the measures that are necessary to make reasonable progress is adequate for the following reasons. Regarding emissions information, as required by the RHR, the State included the required years of the most recent triennial emissions inventory (2017) and the most recent annual emissions data (2019) at the time of the development of the Haze Plan pursuant to 40 CFR 51.308(f)(2)(iii). South Carolina also provided statewide actual emissions inventory data for 2011, 2014, 2016, 2017, 2018, and 2019 in its Haze Plan. Additionally, the State provided 2028 projected emissions data used in the source selection process.

Regarding cost and engineering information, the State provided the underlying cost calculations associated with the cost summaries in Section 7.8 of the plan for Century, Cross, IP-Georgetown, and WestRock-Charleston, and the proposed FFAs in Appendix G provide engineering analyses evaluating potential new control measures.

Regarding monitoring data, the State provided IMPROVE data for the modeling base period plus baseline, current (2014-2018), and natural conditions for all VISTAS Class I areas with more detailed data provided for the South Carolina Class I area (Cape Romain).

Regarding modeling information, the State documented the modeling input and outputs and assumptions in the Haze Plan and the results of the modeling related to RPGs and PSAT source impacts at Class I areas.

*d. Assessment of Five Additional Factors in 40 CFR 51.308(f)(2)(iv):* South Carolina satisfied the requirements of 40 CFR 51.308(f)(2)(iv) because the State has considered each of the five additional factors under 40 CFR 51.308(f)(2)(iv) in developing South Carolina's LTS, discussed the measures the State has in place to address each (or discussed why such measures are not needed), and, where relevant, explained how each factor informed VISTAS' technical

analysis for the second planning period.

With respect to 40 CFR 51.308(f)(2)(iv)(A), South Carolina adequately addressed the requirement to assess emission reductions due to ongoing air pollution control programs, including measures to address RAVI, through the State's emissions inventory work for the base year of 2011 as projected out to 2028.

With respect to 40 CFR 51.308(f)(2)(iv)(B), South Carolina adequately addressed this requirement to evaluate measures to mitigate the impacts of construction activities by explaining that fine soils were a relatively minor contributor to visibility impairment at Cape Romain during the 2000-2004 baseline period as demonstrated in Figure 2-2, and that no VISTAS Class I areas experienced significant visibility impairment from soils during the baseline timeframe as demonstrated in Figure 2-3. As demonstrated by Figures 2-7, 2-8, and 2-9, soils continued to be a minor contributor to visibility impairment at Cape Romain and other VISTAS Class I areas through the 2014-2018 time period.

With respect to 40 CFR 51.308(f)(2)(iv)(C), South Carolina adequately addressed source retirement and replacement schedules by describing how the 2028 projected year emissions inventory of visibility impairing pollutants was developed from the base year 2011 by accounting for source retirement and replacements. *See* Section 7.2 of the Haze Plan. For example, in Section 7.2.1.2, South Carolina states that the following facilities either retired the units or switched the units from coal-fired to natural gas-fired: Santee Cooper Grainger, Santee Cooper Jefferies, Progress Energy Robinson, Duke Energy W.S. Lee Steam Station, SCE&G Canadys, SCE&G (now Dominion) McMeekin, and SCE&G (now Dominion) Urquhart.

With respect to 40 CFR 51.308(f)(2)(iv)(D), South Carolina adequately addressed the requirement to consider the State's basic smoke management practices for prescribed fire used for agricultural and wildland vegetation management in Section 7.10.1 of the Haze Plan. In that section, South Carolina states that the SCFC has developed a Smoke Management Guideline for Vegetative Debris Burning Operations, which serves to regulate vegetative debris burning for

forestry, agriculture, and wildlife purposes<sup>79</sup> and that the State's Bureau of Air Quality has developed a state air pollution control regulation that prohibits open burning except when meeting certain criteria. South Carolina states that when weighed together, these two documents address all sources of fire used for land management purposes within South Carolina and effectively minimize visibility impacts while recognizing the important ecological role that prescribed fires can and do play.

With respect to 40 CFR 51.308(f)(2)(iv)(E), South Carolina adequately assessed the anticipated net effect on visibility due to projected changes in point, area, and mobile source emissions over the period addressed by the LTS in development of the 2028 RPGs for South Carolina's Class I area. The State used the 2011 base year emissions inventory to project emissions from various source sectors to 2028, the end of the second planning period. South Carolina, through VISTAS, completed CAMx modeling to estimate visibility impairment in 2028 based on projected 2028 emissions from the 2011 base year inventory and using IMPROVE monitoring data for 2009-2013.<sup>80</sup> For South Carolina, estimated visibility improvements by 2028 at Cape Romain are based on estimated emissions reductions associated with existing Federal and state measures implemented or expected to be implemented during the second planning period.

*e. Interstate Consultation:* With respect to interstate consultation pursuant to 40 CFR 51.308(f)(2)(ii), South Carolina met the requirements to consult with those states with Class I areas that South Carolina emissions impact for visibility and to consult with those states whose sources are impacting South Carolina's Class I areas.

#### *D. RPGs*

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<sup>79</sup> Appendix G-4 of the Haze Plan includes the SCFC Smoke Management Guideline and a memorandum of understanding between the SCFC and the former South Carolina DHEC. Appendix G-4 is included for reference only and is not being proposed for adoption into the SIP.

<sup>80</sup> In preparing the 2028 emissions for point sources, South Carolina started with a 2011 base year inventory which includes emission reductions associated with Federal and state control programs and consent agreements for surrounding states included in the LTS for the first planning period. A summary of these agreements can be found in Section 7.2 of the Haze Plan.

1. *RHR Requirement:* Section 51.308(f)(3) contains the requirements pertaining to RPGs for each Class I area. Section 51.308(f)(3)(i) requires a state in which a Class I area is located to establish RPGs – one each for the most impaired and clearest days – reflecting the visibility conditions that will be achieved at the end of the planning period as a result of the emission limitations, compliance schedules, and other measures required under paragraph (f)(2) to be in states’ LTSs, as well as implementation of other CAA requirements. The LTSs, as reflected by the RPGs, must provide for an improvement in visibility on the most impaired days relative to the baseline period and ensure no degradation on the clearest days relative to the baseline period. Section 51.308(f)(3)(ii) applies in circumstances in which a Class I area’s RPG for the most impaired days represents a slower rate of visibility improvement than the uniform rate of progress calculated under 40 CFR 51.308(f)(1)(vi). Under 40 CFR 51.308(f)(3)(ii)(A), if the state in which a mandatory Class I area is located establishes an RPG for the most impaired days that provides for a slower rate of visibility improvement than the URP, the state must demonstrate that there are no additional emission reduction measures for anthropogenic sources or groups of sources in the state that would be reasonable to include in its LTS. Section 51.308(f)(3)(ii)(B) requires that if a state contains sources that are reasonably anticipated to contribute to visibility impairment in a Class I area in *another* state, and the RPG for the most impaired days in that Class I area is above the URP, the upwind state must provide the same demonstration.

2. *State Assessment:* South Carolina identified 2028 RPGs for Cape Romain in deciviews for the 20 percent most impaired days and the 20 percent clearest days in Tables 8-1 and 8-2, respectively, of the Haze Plan, which are all below the URP. Table 7 summarizes the 2028 RPGs and 2028 URP for Cape Romain.

**Table 7: South Carolina’s Class I Area RPGs for 2028 in Deciviews (dv)**

<b>Class I Area</b>	<b>2028 RPG for 20% Clearest Days</b>	<b>2028 RPG for 20% Most Impaired Days</b>	<b>2028 URP</b>
Cape Romain	11.42	16.64	19.06

Figures 3-1 and 7-9 of the Haze Plan show the URP for the 20 percent most impaired days for Cape Romain. In their Haze Plan, South Carolina provided the top 10 Class I areas affected by the state sources (Table 10-3) and the State further demonstrated that all of these Class I areas are currently below the URP (Figure 7-10).

3. *EPA Evaluation:* South Carolina provided 2028 RPGs for its Class I area for the most impaired and clearest days. The State established 2028 RPGs expressed in deciviews that reflect the visibility conditions that are projected to be achieved by the end of the second planning period as a result of implementation of the LTS and other CAA requirements. South Carolina’s RPGs provide for an improvement in visibility for the 20 percent most impaired days since the baseline period (2000–2004) and demonstrate that there is no degradation in visibility for the 20 percent clearest days since the baseline period. Any additional unanticipated emissions reductions provide further assurances that the State’s Class I area will achieve its 2028 RPGs. For these reasons, the 2028 RPGs for Cape Romain are reasonable. Additionally, South Carolina has adequately demonstrated that all Class I areas both in South Carolina and out-of-state Class I areas to which South Carolina may reasonably be anticipated to cause or contribute to any impairment of visibility are all below the URP. Therefore the “robust demonstration” provisions in 40 CFR 51.308(f)(3)(ii) are not applicable to this action. Therefore, EPA is proposing to determine that South Carolina has satisfied all applicable requirements of 40 CFR 51.308(f)(3).

*E. Monitoring Strategy and Other Implementation Plan Requirements*

1. *RHR Requirement:* Section 51.308(f)(6) specifies that each comprehensive revision of a state’s regional haze SIP must contain or provide for certain elements, including monitoring strategies, emissions inventories, and any reporting, recordkeeping and other measures needed to

assess and report on visibility. A main requirement of this section is for states with Class I areas to submit monitoring strategies for measuring, characterizing, and reporting on visibility impairment. Compliance with this requirement may be met through participation in the IMPROVE network.

Section 51.308(f)(6)(i) requires SIPs to provide for the establishment of any additional monitoring sites or equipment needed to assess whether RPGs to address regional haze for all mandatory Class I areas within the state are being achieved. Section 51.308(f)(6)(ii) requires SIPs to provide for procedures by which monitoring data, and other information are used in determining the contribution of emissions from within the state to regional haze visibility impairment at mandatory Class I areas both within and outside the state. Section 51.308(f)(6)(iii) applies only to states that do not have mandatory Class I areas. Section 51.308(f)(6)(iv) requires the SIP to provide for the reporting of all visibility monitoring data to the Administrator at least annually for each Class I area in the state. Section 51.308(f)(6)(v) requires SIPs to provide for a statewide inventory of emissions of pollutants that are reasonably anticipated to cause or contribute to visibility impairment, including emissions for the most recent year for which data are available and estimates of future projected emissions. It also requires a commitment to update the inventory periodically. Section 51.308(f)(6)(v) also requires states to include estimates of future projected emissions and include a commitment to update the inventory periodically. Under 40 CFR 51.308(f)(4), if EPA or the FLM of an affected Class I area has advised a state that additional monitoring is needed to assess RAVI, the state must include in its SIP revision for the second planning period an appropriate strategy for evaluating such impairment.

2. *State Assessment:* With respect to 40 CFR 51.308(f)(6)(i), South Carolina states that the existing IMPROVE monitor for the State's Class I area is adequate and does not believe any additional monitoring sites or equipment are needed to assess whether the RPGs for Cape Romain are being achieved. With respect to 40 CFR 51.308(f)(6)(ii), data from this IMPROVE

monitor will be used for future haze plans and progress reports. 40 CFR 51.308(f)(6)(iii) does not apply to South Carolina because it has a Class I area. With respect to 40 CFR 51.308(f)(6)(iv), NPS manages and oversees the IMPROVE monitoring network and reviews, verifies, and validates IMPROVE data before its submission to EPA's Air Quality System. With respect to 40 CFR 51.308(f)(6)(v), South Carolina states in the Haze Plan that the requirements of 40 CFR 51.308(f)(6)(v) are addressed in Section 4, Section 7.2.4, and Section 13.1 of the Haze Plan. South Carolina provided a statewide baseline emissions inventory of pollutants for the year 2011 in Table 4-1 of the Haze Plan which includes the following pollutants: carbon monoxide, NH<sub>3</sub>, NO<sub>x</sub>, SO<sub>2</sub>, VOC, PM<sub>2.5</sub>, and PM<sub>10</sub>. In addition, South Carolina provided in Tables 13-11, 13-12, and 13-13 statewide 2014 and 2017 NEI emissions inventory data for PM<sub>2.5</sub>, NO<sub>x</sub>, and SO<sub>2</sub>, respectively, by source category. The State will periodically update its statewide emissions inventories and will continue to participate in SESARM/VISTAS efforts for projecting future emissions and continue to comply with the requirements of the AERR to periodically update emissions inventories.<sup>81</sup> With respect to 40 CFR 51.308(f)(6)(vi), South Carolina affirms that there are no elements, including reporting, recordkeeping, or other measures, necessary to address and report on visibility for Cape Romain or Class I areas outside the State that are affected by sources in South Carolina. With respect to 40 CFR 51.308(f)(4), the State did not include a strategy for evaluating RAVI for any Class I areas because no Federal agency requested additional monitoring to assess RAVI.

3. *EPA Evaluation:* EPA proposes to determine that South Carolina has satisfied the applicable requirements of 40 CFR 51.308(f)(4) and 40 CFR 51.308(f)(6) related to RAVI, visibility monitoring, and emissions inventories. With respect to 40 CFR 51.308(f)(4), EPA proposes to find that this requirement does not apply to South Carolina at this time because neither EPA nor the FLMs requested additional monitoring to assess RAVI at Cape Romain.

EPA proposes to determine that South Carolina satisfied 40 CFR 51.308(f)(6), which is

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<sup>81</sup> See Haze Plan at p. 206.

generally met by the State's continued participation in the IMPROVE monitoring network and the VISTAS RPO, for the following reasons. With respect to 40 CFR 51.308(f)(6)(i), South Carolina stated that the existing IMPROVE monitor relied upon for Cape Romain is adequate, and thus, additional monitoring sites or equipment are not needed to assess whether the RPGs for Cape Romain are being achieved. With respect to 40 CFR 51.308(f)(6)(ii), South Carolina is complying with procedures by which monitoring data and other information are used to determine the contribution of emissions from within the State to regional haze at Class I areas both within and outside the State through South Carolina's continued participation in VISTAS' regional haze work. With respect to 40 CFR 51.308(f)(6)(iii), this provision is applicable for states with no Class I areas and does not apply to South Carolina. Regarding the reporting of visibility monitoring data to EPA at least annually for each Class I area in the State pursuant to 40 CFR 51.308(f)(6)(iv), EPA proposes to find that South Carolina's participation in the IMPROVE Steering Committee and the IMPROVE monitoring network addresses this requirement. With respect to 40 CFR 51.308(f)(6)(v), EPA proposes to find that South Carolina's continued participation in VISTAS' efforts for projecting future emissions and continued compliance with the requirements of the AERR to periodically update emissions inventories satisfies the requirement to provide for an emissions inventory for the most recent year for which data are available. EPA proposes to find that South Carolina adequately documented that no further elements are necessary at this time for the State to assess and report on visibility pursuant to 40 CFR 51.308(f)(6)(vi).

*F. Requirements for Periodic Reports Describing Progress Toward the RPGs*

*1. RHR Requirement:* Section 51.308(f)(5) requires that periodic comprehensive revisions of states' regional haze plans also address the progress report requirements of 40 CFR 51.308(g)(1) through (5). The purpose of these requirements is to evaluate progress towards the applicable RPGs for each Class I area within the state and each Class I area outside the state that may be affected by emissions from within that state. Sections 51.308(g)(1) and (2) apply to all

states and require a description of the status of implementation of all measures included in a state's first planning period regional haze plan and a summary of the emission reductions achieved through implementation of those measures. Section 51.308(g)(3) applies only to states with Class I areas within their borders and requires such states to assess current visibility conditions, changes in visibility relative to baseline (2000–2004) visibility conditions, and changes in visibility conditions relative to the period addressed in the first planning period progress report. Section 51.308(g)(4) applies to all states and requires an analysis tracking changes in emissions of pollutants contributing to visibility impairment from all sources and sectors since the period addressed by the first planning period progress report. This provision further specifies the year or years through which the analysis must extend depending on the type of source and the platform through which its emission information is reported. Finally, 40 CFR 51.308(g)(5), which also applies to all states, requires an assessment of any significant changes in anthropogenic emissions within or outside the state have occurred since the period addressed by the first planning period progress report, including whether such changes were anticipated and whether they have limited or impeded expected progress towards reducing emissions and improving visibility.

2. *State Assessment:* With respect to the progress report elements pursuant to 40 CFR 51.308(f)(5), the State addressed these elements in Section 13 of the Haze Plan for the end of the first period since 2013, with additional attention given to 2011 and 2012 due to data quality issues in 2013.<sup>82</sup> South Carolina outlines its approach to addressing 40 CFR 51.308(g)(1) through 40 CFR 51.308(g)(5) in Section 13.2 of the Haze Plan.

Regarding 40 CFR 51.308(g)(1) and 40 CFR 51.308(g)(2), the State describes the status of the implementation of the measures of the LTS from the first planning period in Section 13.3.1 of the Haze Plan. Tables 13-4 and 13-5 provide a summary of the emission reductions achieved by implementing those measures.

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<sup>82</sup> South Carolina's first planning period progress report covered the period 2008–2013.

With respect to 40 CFR 51.308(g)(1), the Haze Plan identifies key Federal and state emissions control measures in Section 13.3.1 that the State relied upon for other emission reduction actions included in the LTS of South Carolina’s first regional haze plan submitted on December 17, 2007 (“2007 Haze Plan”). Section 13.3.2 identifies measures that contributed to emission reductions during the first planning period but were not a part of the LTS for the first period.<sup>83</sup> In Section 13.3.1.1 of the Haze Plan, South Carolina summarized Federal and state programs which contributed to reductions of EGU and certain non-EGU SO<sub>2</sub> emissions in South Carolina and surrounding states over the 2013–2018 period. The programs examined include, but are not limited to, the 2005 Clean Air Interstate Rule, the Phase I NO<sub>x</sub> SIP Call, and consent agreements and voluntary agreements with regional EGUs. In Section 13.3.1.2 of the Haze Plan, the State summarized state EGU control measures which contributed to reductions in SO<sub>2</sub> emissions in South Carolina, North Carolina, and Georgia. The programs examined included the 2002 North Carolina Clean Smokestacks Act and the 2007 Georgia Multi-Pollutant Control for Electric Utility Steam Generating Units. Lastly, in Section 13.3.1.3 of the Haze Plan, South Carolina summarized its reasonable progress and BART control measures.

With respect to 40 CFR 51.308(g)(2), South Carolina continued to focus on SO<sub>2</sub> emissions reductions because the State determined that ammonium sulfate was the most important contributor to visibility impairment and fine particle mass on the 20 percent best and 20 percent worst days in the first planning period. South Carolina reported on emission reductions achieved by Federal and state measures relied upon to project the 2018 RPGs for the first period haze plan, including 2007 Heavy-Duty Highway Rule, NO<sub>x</sub> SIP Call, Tier 2 Vehicle and Gasoline Sulfur Program, the North Carolina Clean Smokestacks Act, and the Georgia Multi-Pollutant Control for Electric Utility Steam Generating Units. In addition, the State provided emission reductions for sources evaluated for controls in the first period haze plan as follows.

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<sup>83</sup> For the first planning period, visibility conditions were determined for the average of the 20 percent most impaired visibility days (referred to as the “worst” days) and the 20 percent least impaired visibility days (referred to as the “best” days).

Table 13-4 of the Haze Plan lists the facilities that had units for which a reasonable progress determination was made and the current status of emissions. Table 13-5 lists the recent emissions of sources for which a BART control determination was made.

Regarding 40 CFR 51.308(g)(3), South Carolina addressed the visibility conditions at Cape Romain and summarized these results in Tables 13-6 and 13-7. Specifically, the State identified current visibility conditions (2014–2018); the difference between current visibility conditions compared to the baseline; and the change in visibility impairment for the most and least impaired days over the period from 2014-2018. South Carolina concluded that IMPROVE monitoring data for 2014–2018 shows that Cape Romain is below the 2018 RPG for the 20 percent worst days and there is no degradation on the 20 percent best/clearest days which is illustrated in Figures 13-2 and 13-3 of the Haze Plan.

Regarding 40 CFR 51.308(g)(4), in Section 13.5 of the Haze Plan, Tables 13-11, 13-12, and 13-13 address the current status of these measures and the reductions that they have achieved. South Carolina summarized stationary point, area (non-point), non-road mobile, onroad mobile, fires, and sources of PM<sub>2.5</sub>, NO<sub>x</sub>, and SO<sub>2</sub> emissions. Between 2014-2017, statewide emissions were reduced for all three pollutants, including a PM<sub>2.5</sub> reduction from 70,649 tpy to 68,566 tpy (Table 13-11), a NO<sub>x</sub> reduction from 178,086 tpy to 153,314 tpy (Table 13-12), and an SO<sub>2</sub> reduction of 52,794 tpy to 23,440 tpy (Table 13-13). These emissions values remained well below the projected 2018 values from the first planning period of 108,328 tpy of PM<sub>2.5</sub>, 196,821 tpy of NO<sub>x</sub>, and 164,444 tpy of SO<sub>2</sub>. Additionally, in Table 13-14, South Carolina provided yearly 2014-2019 SO<sub>2</sub> emissions from South Carolina EGUs reporting to EPA's CAMPD which shows a general decline through the period. The State elected to compare the 2017 NEI total emissions data to the 2018 emissions projections ("VISTAS 2018G4") from the State's first period haze plan and concluded that statewide emissions of SO<sub>2</sub>, NO<sub>x</sub>, and PM<sub>2.5</sub> are below first period haze plan 2018 projected emissions by 75, 12, and 20 percent, respectively. In addition, the State provided SO<sub>2</sub> emissions trends for South Carolina EGUs

reporting to CAMPD for the 2014-2018 period and included the year 2019 in Table 13-14 which shows a decrease from 26,122 tpy in 2014 to 5,731 tpy in 2019, a decrease of 78 percent. The State also notes that NO<sub>x</sub> emissions decreased from 16,567 tpy in 2014 to 10,909 tpy in 2019, a decrease of 34 percent. Regarding 40 CFR 51.308(g)(5), South Carolina reviewed anthropogenic SO<sub>2</sub> and NO<sub>x</sub> emissions trends based on emissions included in the 2011, 2014, and 2017 NEIs for the VISTAS states and all of the RPOs. The data show a decline in SO<sub>2</sub> and NO<sub>x</sub> emissions from 2011 through 2017 in all regions of the country as shown in Table 13-15 and Figures 13-6 (SO<sub>2</sub>) and 13-7 (NO<sub>x</sub>) of the Haze Plan.

3. *EPA Evaluation:* EPA proposes to find that South Carolina has met the requirements of 40 CFR 51.308(g)(1)–(5) because the Haze Plan adequately describes the status of the measures included in the LTS from the first planning period and the emission reductions achieved from those measures; the visibility conditions and changes at Cape Romain; an analysis tracking the changes in emissions since the first planning period progress report using emissions data for the 2014–2018 reporting period, including the 2017 NEI data which is the most recent triennial emissions inventory submission from South Carolina prior to submission of the Haze Plan; and assessed whether any significant changes in anthropogenic emissions within or outside the State that have occurred since the end of the period addressed by South Carolina’s first planning period progress report, including whether 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. Thus, EPA is proposing to find that South Carolina has met the requirements of 40 CFR 51.308(f)(5).

*G. Requirements for State and FLM Coordination*

1. *RHR Requirement:* Section 169A(d) of the CAA requires states to consult with FLMs before holding the public hearing on a proposed regional haze SIP, and to include a summary of the FLMs’ conclusions and recommendations in the notice to the public. In addition, the FLM consultation provision of 40 CFR 51.308(i)(2) requires a state to provide the FLMs with an

opportunity for consultation that is early enough in the state's policy analyses of its emission reduction obligation so that information and recommendations provided by FLMs can meaningfully inform the state's decisions on its LTS. If the consultation has taken place at least 120 days before a public hearing or public comment period, the opportunity for consultation will be deemed early enough. Regardless, the opportunity for consultation must be provided at least 60 days before a public hearing or public comment period at the state level. Section 51.308(i)(2) also provides two substantive topics on which FLMs must be provided an opportunity to discuss with states: assessment of visibility impairment in any Class I area and recommendations on the development and implementation of strategies to address visibility impairment. Section 51.308(i)(3) requires states, in developing their implementation plans, to include a description of how they addressed FLMs' comments. Section 40 CFR 51.308(i)(4) requires that the regional haze SIP revision provide procedures for continuing consultation between the state and FLMs regarding the state's visibility protection program.

2. *State Assessment:* As required by CAA section 169A(d), South Carolina consulted with the FLMs prior to opening the State public comment period on its proposed Haze Plan. The conclusions and recommendations of the FLMs on the proposed plan are included in Section 10.4 and Appendix H-1.

With respect to 40 CFR 51.308(i)(2), South Carolina offered to the three FLM agencies the opportunity to consult on the draft Haze Plan from July 27, 2021, to September 27, 2021. A summary of this consultation process is discussed and documented in Section 10.4 of the Haze Plan (responses to FLM comments) with supporting information in Appendix H-1 (FLM comments received) and Appendix F. Appendix F-3 contains VISTAS stakeholder materials which include data and analyses for South Carolina that were presented to the FLMs (and EPA). In addition, through VISTAS, South Carolina participated in a series of conference calls where the FLMs and EPA were given the opportunity review and provide feedback regarding technical analyses developed by VISTAS. South Carolina also participated in calls hosted by VISTAS

with other RPOs, FLMs, and EPA to discuss VISTAS' approaches to source selection and other related topics. *See* Appendix F of the Haze Plan.

To address 40 CFR 51.308(i)(3), South Carolina provided responses to comments received from FWS, NPS, and USFS in Section 10.4 and Appendix H of the Haze Plan.

With respect to 40 CFR 51.308(i)(4), South Carolina has established ongoing consultation procedures with the FLMs and “formally commits to follow the FLM consultation procedures as prescribed in 40 CFR 51.308(i) in making these future implementation plan reviews and revisions.” *See* Section 1.6 of the Haze Plan.

3. *EPA Evaluation:* EPA proposes to find that South Carolina addressed all FLM consultation requirements in the CAA and RHR. With respect to CAA section 169A(d), South Carolina consulted with the FLMs prior to the State's public comment period and included a summary of the conclusions and recommendations of the FLMs in the proposed plans issued for public review.<sup>84</sup>

South Carolina fully addressed the requirement for FLM consultation under 40 CFR 51.308(i)(2) because the State offered the draft South Carolina Haze Plan on July 27, 2021, prior to the start of the public comment period which opened on November 26, 2021, and closed on January 5, 2022. EPA proposes to find that South Carolina has met its requirements under 40 CFR 51.308(i)(2) to consult with the FLMs on its Haze Plan for the second planning period. EPA proposes to find that South Carolina satisfied 40 CFR 51.308(i)(3) by providing responses to the FLM comments in Section 10.4 of the Haze Plan.

EPA proposes to find that South Carolina satisfied 40 CFR 51.308(i)(4) by establishing in its Haze Plan continuing consultation procedures as summarized above.

## **V. Proposed Action**

EPA is proposing to approve South Carolina's March 3, 2022, SIP submission as

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<sup>84</sup> A description of South Carolina's response to FLM comments can be found in Section 10.4 and under the public participation section of the Haze Plan.

satisfying the regional haze requirements for the second planning period contained in 40 CFR 51.308(f).

## **VI. Statutory and Executive Order Reviews**

Under the CAA, the Administrator is required to approve a SIP submission that complies with the provisions of the CAA and applicable Federal regulations. *See* 42 U.S.C. 7410(k); 40 CFR 52.02(a). Thus, in reviewing SIP submissions, EPA's role is to approve state choices, provided that they meet the criteria of the CAA. Accordingly, this proposed action merely proposes to approve state law as meeting Federal requirements and does not impose additional requirements beyond those imposed by state law. For that reason, this proposed action:

- Is not a significant regulatory action subject to review by the Office of Management and Budget under Executive Order 12866 (58 FR 51735, October 4, 1993);
- Is not subject to Executive Order 14192 (90 FR 9065, February 6, 2025) because SIP actions are exempt from review under Executive Order 12866;
- Does not impose an information collection burden under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*);
- Is certified as not having a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*);
- Does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Pub. L. 104-4);
- Does not have federalism implications as specified in Executive Order 13132 (64 FR 43255, August 10, 1999);
- Is not subject to Executive Order 13045 (62 FR 19885, April 23, 1997) because it approves a state program;
- Is not a significant regulatory action subject to Executive Order 13211 (66 FR 28355,

May 22, 2001); and

- Is not subject to requirements of section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) because application of those requirements would be inconsistent with the CAA.

Because this Haze Plan merely proposes to approve state law as meeting Federal requirements and does not impose additional requirements beyond those imposed by state law, this Haze Plan for the State of South Carolina does not have Tribal implications as specified by Executive Order 13175 (65 FR 67249, November 9, 2000). Therefore, this proposed action will not impose substantial direct costs on Tribal governments or preempt Tribal law. The Catawba Indian Nation (CIN) Reservation is located within the boundary of York County, South Carolina. Pursuant to the Catawba Indian Claims Settlement Act, S.C. Code Ann. 27-16-120 (Settlement Act), “all state and local environmental laws and regulations apply to the [Catawba Indian Nation] and Reservation and are fully enforceable by all relevant state and local agencies and authorities.” The CIN also retains authority to impose regulations applying higher environmental standards to the Reservation than those imposed by state law or local governing bodies, in accordance with the Settlement Act.

## List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Carbon monoxide, Incorporation by reference, Intergovernmental relations, Nitrogen dioxide, Particulate matter, Reporting and recordkeeping requirements, Sulfur oxides, Volatile organic compounds.

**Authority:** 42 U.S.C. 7401 *et seq.*

Dated: July 18, 2025

**Kevin McOmber,**  
*Regional Administrator,*  
*Region 4.*

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