

(3) * * * Paragraphs (g)(3)(ii) and (iii) and (g)(4)(iii) of this section apply to taxable years of controlled foreign corporations ending on or after [DATE OF PUBLICATION OF FINAL RULE]. For taxable years of controlled foreign corporations ending before [DATE OF PUBLICATION OF FINAL RULE], see § 1.954–2(g)(3)(ii) and (iii) and (g)(4)(iii) as in effect and contained in 26 CFR part 1, as revised April 1, 2024.

Par. 3. Section 1.988–7, as proposed to be added at 82 FR 60143 (December 19, 2017), is amended by adding paragraphs (c) through (e) to read as follows:

§ 1.988–7 Election to mark-to-market foreign currency gain or loss on section 988 transactions.

* * * * *

(c) *Time and manner of election*—(1) *In general.* Except as otherwise provided in this paragraph (c), a taxpayer makes the election under paragraph (a) of this section by filing a statement that clearly indicates that the election has been made with the taxpayer's timely-filed (excluding extensions) original Federal income tax return for the taxable year immediately preceding the year for which the election is made.

(2) *New taxpayers.* In the case of a taxpayer for which no Federal income tax return was required to be filed for the taxable year immediately preceding the year for which the election is made, the taxpayer makes the election under paragraph (a) of this section by preparing a statement that clearly indicates the election has been made and:

(i) Placing the statement in the taxpayer's books and records by no later than 2 months and 15 days after the first day of the year for which the election is made; and

(ii) Filing the statement with the taxpayer's original Federal income tax return for the taxable year for which the election is made.

(3) *Elections on behalf of CFCs.* In the case of a controlled foreign corporation, the controlling United States shareholders (as defined in § 1.964–1(c)(5)(i)) make the election under paragraph (a) of this section on behalf of the controlled foreign corporation by preparing a statement that clearly indicates the election has been made and:

(i) Placing the statement in the controlled foreign corporation's books and records by no later than 2 months and 15 days after the first day of the year of the controlled foreign corporation for which the election is made; and

(ii) Filing the statement with their original Federal income tax returns for the taxable year of the United States shareholders in which or with which the taxable year of the controlled foreign corporation for which the election is made ends.

(d) *Revocation.* An election under paragraph (a) of this section is effective for the taxable year for which it is made and all subsequent taxable years unless the election is revoked with the consent of the Commissioner.

(e) *Applicability dates.* This section applies to taxable years of taxpayers ending on or after [DATE OF PUBLICATION OF FINAL RULE]. Paragraph (c)(3) of this section applies to taxable years of controlled foreign corporations ending on or after [DATE OF PUBLICATION OF FINAL RULE], and to taxable years of United States shareholders in which or with which the taxable years of those controlled foreign corporations end.

Heather C. Maloy,

Acting Deputy Commissioner.

[FR Doc. 2024–18281 Filed 8–19–24; 8:45 am]

BILLING CODE 4830–01–P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA–R04–OAR–2022–0786; FRL–10405–01–R4]

Air Plan Approval; North Carolina; Second Period Regional Haze Plan

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The Environmental Protection Agency (EPA) is proposing to approve in part and conditionally approve in part a regional haze State Implementation Plan (SIP) revision submitted by the North Carolina Department of Environmental Quality, Division of Air Quality (DAQ), dated April 4, 2022 (“Haze Plan” or “2022 Plan”) under the Clean Air Act (CAA or Act) and EPA’s Regional Haze Rule (RHR) for the regional haze program’s second planning period. North Carolina’s 2022 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 taking this action pursuant to sections 110 and 169A of the Act.

DATES: Written comments must be received on or before September 19, 2024.

ADDRESSES: Submit your comments, identified by Docket ID No. EPA–R04–OAR–2022–0786, at <http://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>.

FOR FURTHER INFORMATION CONTACT: Michele Notarianni, Multi-Air Pollutant Coordination Section, Air Planning and Implementation Branch, Air and Radiation Division, U.S. Environmental Protection Agency, Region 4, 61 Forsyth Street SW, Atlanta, Georgia 30303–8960. Ms. Notarianni can be reached via telephone at (404) 562–9031 or electronic mail at notarianni.michele@epa.gov.

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I. What action is EPA proposing?

On April 4, 2022, the North Carolina DAQ submitted a revision to its SIP to address regional haze for the second planning period. DAQ made this SIP submission to satisfy the requirements of the CAA's regional haze program pursuant to CAA sections 169A and 169B and 40 CFR 51.308.¹ EPA is proposing to approve in part and conditionally approve in part North Carolina's Haze Plan. For the reasons discussed in this document, EPA is proposing to approve the sections of the Haze Plan addressing the requirements of 40 CFR 51.308(f)(1), (f)(4) through(6), and (g)(1) through(5). EPA is proposing to conditionally approve the sections of the Haze Plan addressing the requirements of 40 CFR 51.308(f)(2), (f)(3), and (i)(2) through(4) due to concerns with the legal and practicable enforceability of certain permit conditions identified in the Haze Plan for incorporation into the SIP.

Consistent with CAA section 110(k)(3), EPA may approve in part portions of the SIP submittal if those portions meet the all the applicable requirements. Under CAA section 110(k)(4), EPA may conditionally approve a SIP revision based on a commitment from a state to adopt specific enforceable measures by a date certain, but not later than one year from the date of conditional approval of the

¹ In a letter dated August 15, 2022, EPA found that North 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 proposed rulemaking.

plan revision. If the state fails to meet the commitment within one year of the final conditional approval, the conditional approval will be treated as a disapproval. North Carolina submitted a letter, dated July 30, 2024, ("Commitment Letter"), requesting partial conditional approval of its Haze Plan and committing to submit a SIP revision containing specific enforceable measures no later than one year from the effective date of a final conditional approval action, should EPA finalize this partial conditional approval as proposed.² EPA is proposing to conditionally approve the sections of the Haze Plan addressing the requirements of 40 CFR 51.308(f)(2), (f)(3), and (i)(2) through(4). These elements are fully separable from the elements proposed for partial approval. If North Carolina meets its commitment to submit the required SIP revision that adequately addresses the identified concerns related to the enforceability of certain permit conditions by the specified deadline and EPA approves the submission, then the conditional approval will be converted to a full approval. See Section IV.C.3.b of this document for a discussion of the enforceability concerns resulting in the proposed partial conditional approval and the commitments in North Carolina's Commitment Letter.

II. Background and Requirements for Regional Haze Plans

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.³ CAA 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." CAA 169A(a)(1). The CAA further directs EPA to promulgate regulations to assure reasonable progress toward meeting this national goal. CAA 169A(a)(4). On December 2, 1980, EPA promulgated regulations to address visibility impairment in mandatory Class I

² The Commitment Letter is in the docket for this proposed rulemaking.

³ 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. CAA 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.

Federal areas (hereinafter referred to as "Class I areas") that is "reasonably attributable" to a single source or small group of sources. See 45 FR 80084 (December 2, 1980). These regulations, codified at 40 CFR 51.300 through 51.307, represented the first phase of EPA's efforts to address visibility impairment. In 1990, Congress added section 169B to the CAA to further address visibility impairment, specifically, impairment from regional haze. CAA 169B. EPA promulgated the RHR, codified at 40 CFR 51.308,⁴ on July 1, 1999. 64 FR 35714 (July 1, 1999). These regional haze regulations are a central component of EPA's comprehensive visibility protection program for Class I areas.

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 (SO₂), nitrogen oxides (NO_x), and, in some cases, volatile organic compounds (VOC) and ammonia (NH₃)). Precursor pollutants react in the atmosphere to form fine particulate matter (particles less than or equal to 2.5 micrometers (µm) in diameter, PM_{2.5}), which impairs visibility by scattering and absorbing light. Visibility impairment reduces the perception of clarity and color, as well as visible distance.⁵

⁴ In addition to the generally applicable regional haze provisions at 40 CFR 51.308, EPA also promulgated regulations specific to addressing regional haze visibility impairment in Class I areas on the Colorado Plateau at 40 CFR 51.309. The latter regulations are applicable only for specific jurisdictions' regional haze plans submitted no later than December 17, 2007, and thus, are not relevant here.

⁵ 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⁻¹). EPA's "Guidance on Regional Haze State Implementation Plans for the Second Implementation Period" ("2019 Guidance") offers the flexibility for the use of light extinction in certain cases. Light extinction can be simpler to use in calculations than deciviews since it is not a logarithmic function. See, e.g., 2019 Guidance at 16, 19, <https://www.epa.gov/visibility/guidance-regional-haze-state-implementation-plans-second-implementation-period>, EPA Office of Air Quality Planning and Standards, Research

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. CAA 169A(b)(2);⁶ *see also* 40 CFR 51.308(b), (f) (establishing submission dates for iterative regional haze SIP revisions); 64 FR at 35768. Under the CAA, each SIP submission must contain “a long-term (ten to fifteen years) strategy for making reasonable progress toward meeting the national goal,” CAA 169A(b)(2)(B); the initial round of SIP submissions also had to address the statutory requirement that certain older, larger sources of visibility impairing pollutants install and operate the best available retrofit technology (BART). CAA 169A(b)(2)(A); 40 CFR 51.308(d), (e). States’ first regional haze SIPs were due by December 17, 2007, 40 CFR 51.308(b), with subsequent SIP submissions containing updated long-term strategies (LTSs) originally due July 31, 2018, and every ten years thereafter. 64 FR at 35768. EPA established in the 1999 RHR that all states either have Class I areas within their borders or “contain sources whose emissions are reasonably anticipated to contribute to regional haze in a Class I area”; therefore, all states must submit regional haze SIPs.⁷ *Id.* at 35721.

Much of the focus in the first planning period of the regional haze program, which ran from 2007 through 2018, was on satisfying states’ BART obligations. First planning period SIPs were additionally required to contain LTSs for making reasonable progress toward the national visibility goal, of which BART is one component. The core required elements for the first planning period SIPs (other than BART) are laid out in 40 CFR 51.308(d). Those provisions require that states containing Class I areas establish “reasonable progress goals” (“RPGs”) that are

measured in deciviews and reflect the anticipated visibility conditions at the end of the planning period including from implementation of states’ LTSs. The first planning period RPGs were required to provide for an improvement in visibility for the most impaired days over the period of the implementation plan and ensure no degradation in visibility for the least impaired days over the same period. In establishing the RPGs for any Class I area in a state, the state was required to consider four statutory factors (also referenced herein as “the four factors”): the costs of compliance, the time necessary for compliance, the energy and non-air quality environmental impacts of compliance, and the remaining useful life of any potentially affected sources. *See* CAA 169A(g)(1); 40 CFR 51.308(d)(1).

States were also required to calculate baseline (using the five year period of 2000–2004) and natural visibility conditions (*i.e.*, visibility conditions without anthropogenic visibility impairment) for each Class I area, and to calculate 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 known as the uniform rate of progress (URP) and is used as a tracking metric to help states assess the amount of progress they are making toward the national visibility goal over time in each Class I area.⁸ 40 CFR 51.308(d)(1)(i)(B), and (d)(2). The 1999 RHR also provided that states’ LTSs must include the “enforceable emissions limitations, compliance, schedules, and other measures as necessary to achieve the reasonable progress goals.” *See* 40 CFR 51.308(d)(3). In establishing their LTSs, states are required to consult with other states that also contribute to visibility impairment in a given Class I area and include all measures necessary to obtain

their shares of the emission reductions needed to meet the RPGs. *See* 40 CFR 51.308(d)(3)(i) and (ii). Section 51.308(d) also contains seven additional factors states must consider in formulating their LTSs, 40 CFR 51.308(d)(3)(v), as well as provisions governing monitoring and other implementation plan requirements. *See* 40 CFR 51.308(d)(4). Finally, the 1999 RHR required states to submit periodic progress reports—SIP revisions due every five years that contain information on states’ implementation of their regional haze plans and an assessment of whether anything additional is needed to make reasonable progress, *see* 40 CFR 51.308(g) and (h), and to consult with the Federal Land Manager(s)⁹ (FLMs) responsible for each Class I area according to the requirements in CAA 169A(d) and 40 CFR 51.308(i).

On January 10, 2017, EPA promulgated revisions to the RHR (82 FR 3078) that apply for the second and subsequent planning periods. The 2017 rulemaking made several changes to the requirements for regional haze SIPs to clarify states’ obligations and streamline certain regional haze requirements. The revisions to the regional haze program for the second and subsequent planning periods focused on the requirement that states’ SIPs contain LTSs for making reasonable progress toward the national visibility goal. 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). Among other changes, the 2017 RHR Revisions adjusted the deadline for states to submit their second planning period SIPs from July 31, 2018, to July 31, 2021, clarified the order of analysis and the relationship between RPGs and the LTSs, and focused on making visibility improvements on the days with the most *anthropogenic* visibility impairment, as opposed to the days with the most visibility impairment overall. EPA also revised requirements of the visibility protection program related to periodic progress reports and FLM consultation. The specific requirements applicable to second planning period regional haze SIP submissions are addressed in detail below.

EPA provided guidance to the states for their second planning period SIP submissions in the preamble to the 2017

Triangle Park (August 20, 2019). The formula for the deciview is $10 \ln(b^{ex})/10 \text{ Mm}^{-1}$. *See* 40 CFR 51.301.

⁶ 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).

⁷ In addition to each of the 50 states, EPA also concluded that the Virgin Islands and District of Columbia must also submit regional haze SIPs because they either contain a Class I area or contain sources whose emissions are reasonably anticipated to contribute regional haze in a Class I area. *See* 40 CFR 51.300(b), (d)(3).

⁸ EPA established the URP framework in the 1999 RHR to provide “an equitable analytical approach” to assess the rate of visibility improvement at Class I areas across the country. The start point for the URP analysis is 2004 and the endpoint was calculated based on the amount of visibility improvement that was anticipated to result from implementation of existing CAA programs over the period from the mid-1990s to approximately 2005. Assuming this rate of progress would continue into the future, EPA determined that natural visibility conditions would be reached in 60 years, or 2064 (60 years from the baseline starting point of 2004). However, EPA did not establish 2064 as the year by which the national goal *must* be reached. *See* 64 FR at 35731–32. That is, the URP and the 2064 date are not enforceable targets, but are rather tools that “allow for analytical comparisons between the rate of progress that would be achieved by the state’s chosen set of control measures and the URP.” *See* 82 FR 3078, 3084 (January 10, 2017).

⁹ EPA’s regulations define “Federal Land Manager” as “the Secretary of the department with authority over the Federal Class I area (or the Secretary’s designee) or, with respect to Roosevelt-Campobello International Park, the Chairman of the Roosevelt-Campobello International Park Commission.” *See* 40 CFR 51.301.

RHR Revisions as well as in subsequent stand-alone guidance documents. In August 2019, EPA issued its 2019 Guidance.¹⁰ On July 8, 2021, EPA issued a memorandum containing “Clarifications Regarding Regional Haze State Implementation Plans for the Second Implementation Period” (“2021 Clarifications Memo”).¹¹ Additionally, EPA had clarified the recommended procedures for processing ambient visibility data and optionally adjusting the URP to account for international anthropogenic and prescribed fire impacts in two technical guidance documents: the December 2018 “Technical Guidance on Tracking Visibility Progress for the Second Implementation Period of the Regional Haze Program” (“2018 Visibility Tracking Guidance”),¹² and the June 2020 “Recommendation for the Use of Patched and Substituted Data and Clarification of Data Completeness for Tracking Visibility Progress for the Second Implementation Period of the Regional Haze Program” and associated Technical Addendum (“2020 Data Completeness Memo”).¹³

As previously explained in the 2021 Clarifications Memo, EPA intends the second planning period of the regional haze program to secure meaningful reductions in visibility impairing pollutants that build on the significant progress states have achieved to date. The Agency also recognizes that analyses regarding reasonable progress are state-specific and that, based on states’ and sources’ individual circumstances, what constitutes reasonable reductions in visibility impairing pollutants will vary from state to state. While there exist many opportunities for states to leverage both ongoing and upcoming emission reductions under other CAA programs,

the Agency expects states to undertake rigorous reasonable progress analyses that identify further opportunities to advance the national visibility goal consistent with the statutory and regulatory requirements. *See, generally*, 2021 Clarifications Memo. This is consistent with Congress’s determination that a visibility protection program is needed in addition to the CAA’s National Ambient Air Quality Standards (NAAQS) and Prevention of Significant Deterioration (PSD) programs, as further emission reductions may be necessary to adequately protect visibility in Class I areas throughout the country.¹⁴

B. Roles of Agencies in Addressing Regional Haze

Because the air pollutants affecting visibility in Class I areas can be 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. In order 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),¹⁵ 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).¹⁶ 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;¹⁷ 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, U.S. National Park Service (NPS), U.S. Fish and Wildlife Service (FWS), and U.S. Forest Service (USFS).¹⁸

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 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. CAA 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 analysis¹⁹ 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

¹⁰ See footnote 5.

¹¹ “Clarifications Regarding Regional Haze State Implementation Plans for the Second Implementation Period.” <https://www.epa.gov/system/files/documents/2021-07/clarifications-regarding-regional-haze-state-implementation-plans-for-the-second-implementation-period.pdf>. EPA Office of Air Quality Planning and Standards, Research Triangle Park (July 8, 2021).

¹² “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). <https://www.epa.gov/visibility/technical-guidance-tracking-visibility-progress-second-implementation-period-regional>.

¹³ “Recommendation for the Use of Patched and Substituted Data and Clarification of Data Completeness for Tracking Visibility Progress for the Second Implementation Period of the Regional Haze Program.” <https://www.epa.gov/visibility/memo-and-technical-addendum-ambient-data-usage-and-completeness-regional-haze-program>. EPA Office of Air Quality Planning and Standards, Research Triangle Park (June 3, 2020).

¹⁴ *See, e.g.*, H.R. Rep. No. 95–294 at 205 (“In determining how to best remedy the growing visibility problem in these areas of great scenic importance, the committee realizes that as a matter of equity, the national ambient air quality standards cannot be revised to adequately protect visibility in all areas of the country.”). (“the mandatory class I increments of [the PSD program] do not adequately protect visibility in class I areas”).

¹⁵ RPOs are sometimes also referred to as “multi-jurisdictional organizations,” or MJOs. For the purposes of this notice, the terms RPO and MJO are synonymous.

¹⁶ The VISTAS technical work under SESARM is described at this website: <https://www.metro4-sesarm.org/content/vistas-regional-haze-program>.

¹⁷ 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>.

¹⁸ The NPS, FWS, and USFS are collectively referred to as the “Federal Land Managers” or “FLMs” throughout this document.

¹⁹ 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.” 82 FR 3091 (January 10, 2017).

calculate the baseline, current, and natural visibility conditions for that area, as well as the visibility improvement made to date and the URP. See 40 CFR 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 a 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”²⁰ 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 toward 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).

In addition to satisfying the requirements at 40 CFR 51.308(f) related to reasonable progress, the regional haze SIP revisions for the second planning period must address the requirements in 40 CFR 51.308(g)(1) through (5) pertaining to periodic reports describing progress toward the RPGs, 40 CFR 51.308(f)(5), as well as requirements for FLM consultation that apply to all visibility protection SIPs and SIP revisions. See 40 CFR 51.308(i).

²⁰ 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.

A state must submit its regional haze SIP and subsequent SIP revisions to EPA according to the requirements applicable to all SIP revisions under the CAA and EPA’s regulations. See CAA 169A(b)(2); CAA 110(a). Upon EPA approval, a SIP is enforceable by the Agency and the public under the CAA. If EPA finds that a state fails to make a required SIP revision, or if EPA finds that a state’s SIP is incomplete or disapproves the SIP, the Agency must promulgate a federal implementation plan (FIP) that satisfies the applicable requirements. See CAA 110(c)(1).

A. Identification of Class I Areas

The first step in developing a regional haze SIP is for a state to determine which Class I areas, in addition to those within its borders, “may be affected” by emissions from within the state. In the 1999 RHR, EPA determined that all states contribute to visibility impairment in at least one Class I area, 64 FR at 35720–22, and explained that the statute and regulations lay out an “extremely low triggering threshold” for determining “whether States should be required to engage in air quality planning and analysis as a prerequisite to determining the need for control of emissions from sources within their State.” *Id.* at 35721.

A state must determine which Class I areas must be addressed by its SIP by evaluating the total emissions of visibility impairing pollutants from all sources within the state. While the RHR does not require this evaluation to be conducted in any particular manner, EPA’s 2019 Guidance provides recommendations for how such an assessment might be accomplished, including, where appropriate, using the determinations previously made for the first planning period. 2019 Guidance at 8–9. In addition, the determination of which Class I areas may be affected by a state’s emissions is subject to the requirement in 40 CFR 51.308(f)(2)(iii) to “document the technical basis, including modeling, monitoring, cost, engineering, and emissions information, on which the State is relying to determine the emission reduction measures that are necessary to make reasonable progress in each mandatory Class I Federal area it affects.”

B. Calculations of Baseline, Current, and Natural Visibility Conditions; Progress to Date; and the Uniform Rate of Progress (URP)

As part of assessing whether a SIP submission for the second planning period is providing for reasonable progress toward the national visibility goal, the RHR contains requirements in

40 CFR 51.308(f)(1) related to tracking visibility improvement over time. The requirements of this subsection apply only to states having Class I areas within their borders; the required calculations must be made for each such Class I area. EPA’s 2018 Visibility Tracking Guidance²¹ provides recommendations to assist states in satisfying their obligations under 40 CFR 51.308(f)(1); specifically, in developing information on baseline, current, and natural visibility conditions, and in making optional adjustments to the URP to account for the impacts of international anthropogenic emissions and prescribed fires. See 82 FR at 3103–05.

The RHR requires tracking of visibility conditions on two sets of days: the clearest and the most impaired days. Visibility conditions for both sets of days are expressed as the average deciview index for the relevant five-year period (the period representing baseline or current visibility conditions).²² The RHR provides that the relevant sets of days for visibility tracking purposes are the 20 percent clearest days (the 20 percent of monitored days in a calendar year with the lowest values of the deciview index) and 20 percent most impaired days (the 20 percent of monitored days in a calendar year with the highest amounts of anthropogenic visibility impairment).²³ See 40 CFR 51.301. A state must calculate visibility conditions for both the 20 percent clearest days and 20 percent most impaired days for the baseline period of 2000–2004 and the most recent five-year period for which visibility monitoring data are available (representing current visibility conditions). See 40 CFR 51.308(f)(1)(i), (iii). States must also calculate natural visibility conditions for the clearest days and most impaired days²⁴ by estimating the conditions that

²¹ The 2018 Visibility Tracking Guidance references and relies on parts of the 2003 Tracking Guidance: “Guidance for Tracking Progress Under the Regional Haze Rule” which can be found at <https://www.epa.gov/sites/default/files/2021-03/documents/tracking.pdf>. EPA Office of Air Quality Planning and Standards, Research Triangle Park (September 2003).

²² The “deciview index” means a value for a day that is derived from calculated or measured light extinction, such that uniform increments of the index correspond to uniform incremental changes in perception across the entire range of conditions, from pristine to very obscured. The deciview index is calculated using Interagency Monitoring of Protected Visual Environments (IMPROVE) aerosol measurements. See 40 CFR 51.301.

²³ This notice also refers to the 20 percent clearest and 20 percent most anthropogenically impaired days as the “clearest” and “most impaired” or “most anthropogenically impaired” days, respectively.

²⁴ The RHR at 40 CFR 51.308(f)(1)(ii) contains an error related to the requirement for calculating two

would exist on those two sets of days absent anthropogenic visibility impairment. See 40 CFR 51.308(f)(1)(ii). Using all these data, states must then calculate, for each Class I area, the amount of progress made since the baseline period (2000–2004) and how much improvement is left to achieve in order to reach natural visibility conditions.

Using the data for the set of most impaired days only, states must plot a line between visibility conditions in the baseline period and natural visibility conditions for each Class I area to determine the URP—the amount of visibility improvement, measured in deciviews, that would need to be achieved during each planning period in order to achieve natural visibility conditions by the end of 2064. The URP is used in later steps of the reasonable progress analysis for informational purposes and to provide a non-enforceable benchmark against which to assess a Class I area's rate of visibility improvement.²⁵ Additionally, in the 2017 RHR Revisions, EPA provided states the option of proposing to adjust the endpoint of the URP to account for impacts of anthropogenic sources outside the United States and/or impacts of certain types of wildland prescribed fires. These adjustments, which must be approved by EPA, are intended to avoid any perception that states should compensate for impacts from international anthropogenic sources and to give states the flexibility to determine that limiting the use of wildland prescribed fire is not necessary for reasonable progress. See 82 FR 3107, footnote 116.

EPA's 2018 Visibility Tracking Guidance can be used to help satisfy the 40 CFR 51.308(f)(1) requirements, including in developing information on baseline, current, and natural visibility conditions, and in making optional adjustments to the URP. In addition, the 2020 Data Completeness Memo provides recommendations on the data completeness language referenced in 40

sets of natural conditions values. The rule says “most impaired days or the clearest days” where it should say “most impaired days and clearest days.” This is an error that was intended to be corrected in the 2017 RHR Revisions but did not get corrected in the final rule language. This is supported by the preamble text at 82 FR 3098: “In the final version of 40 CFR 51.308(f)(1)(ii), an occurrence of ‘or’ has been corrected to ‘and’ to indicate that natural visibility conditions for both the most impaired days and the clearest days must be based on available monitoring information.”

²⁵ Being on or below the URP is not a “safe harbor”; *i.e.*, achieving the URP does not mean that a Class I area is making “reasonable progress” and does not relieve a state from using the four statutory factors to determine what level of control is needed to achieve such progress. See, *e.g.*, 82 FR at 3093.

CFR 51.308(f)(1)(i) and provides updated natural conditions estimates for each Class I area.

C. Long-Term Strategy (LTS) for Regional Haze

The core component of a regional haze SIP submission is a LTS that addresses regional haze in each Class I area within a state's borders and each Class I area that may be affected by emissions from the state. The LTS “must include the enforceable emissions limitations, compliance schedules, and other measures that are necessary to make reasonable progress, as determined pursuant to (f)(2)(i) through (iv).” See 40 CFR 51.308(f)(2). The amount of progress that is “reasonable progress” is based on applying the four statutory factors in CAA section 169A(g)(1) in an evaluation of potential control options for sources of visibility impairing pollutants, which is referred to as a “four-factor” analysis (FFA). The outcome of that analysis is the emission reduction measures that a particular source or group of sources needs to implement in order to make reasonable progress toward the national visibility goal. See 40 CFR 51.308(f)(2)(i). Emission reduction measures that are necessary to make reasonable progress may be either new, additional control measures for a source or the existing emission reduction measures that a source is already implementing. See 2019 Guidance at 43; 2021 Clarifications Memo at 8–10. Such measures must be represented by “enforceable emissions limitations, compliance schedules, and other measures” in a state's LTS in its SIP. See 40 CFR 51.308(f)(2).

Section 51.308(f)(2)(i) provides the requirements for the FFA. The first step of this analysis entails selecting the sources to be evaluated for emission reduction measures; to this end, the RHR requires states to consider “major and minor stationary sources or groups of sources, mobile sources, and area sources” of visibility impairing pollutants for potential control analysis (*i.e.*, FFA). See 40 CFR 51.308(f)(2)(i). A threshold question at this step is which visibility impairing pollutants will be analyzed. As EPA previously explained, consistent with the first planning period, EPA generally expects that each state will analyze at least SO₂ and NO_x in selecting sources and determining control measures. See 2019 Guidance at 12 and 2021 Clarifications Memo at 4. A state that chooses not to consider at least these two pollutants should demonstrate why such consideration would be unreasonable. 2021 Clarifications Memo at 4.

While states have the option to analyze *all* sources, the 2019 Guidance explains that “an analysis of control measures is not required for every source in each implementation period,” and that “[s]electing a set of sources for analysis of control measures in each implementation period is consistent with the Regional Haze Rule, which sets up an iterative planning process and anticipates that a state may not need to analyze control measures for all its sources in a given SIP revision.” 2019 Guidance at 9. However, given that source selection is the basis of all subsequent control determinations, a reasonable source selection process “should be designed and conducted to ensure that source selection results in a set of pollutants and sources the evaluation of which has the potential to meaningfully reduce their contributions to visibility impairment.” See 2021 Clarifications Memo at 3.

EPA explained in the 2021 Clarifications Memo that each state has an obligation to submit a LTS that addresses the regional haze visibility impairment that results from emissions from within that state. Thus, source selection should focus on the in-state contribution to visibility impairment and be designed to capture a meaningful portion of the state's total contribution to visibility impairment in Class I areas. A state should not decline to select its largest in-state sources on the basis that there are even larger out-of-state contributors. See 2021 Clarifications Memo at 4.²⁶

Thus, 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 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).

²⁶ Similarly, in responding to comments on the 2017 RHR Revisions, EPA explained that “[a] state should not fail to address its many relatively low-impact sources merely because it only has such sources and another state has even more low-impact sources and/or some high impact sources.” 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 87–88, available at www.regulations.gov.

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.²⁷ This is accomplished by considering the four factors—“the costs of compliance, the time necessary for compliance, and the energy and non-air quality environmental impacts of compliance, and the remaining useful life of any existing source subject to such requirements.” See CAA 169A(g)(1). EPA has explained that the 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 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 a FFA,²⁸ it must consider a “meaningful set” of technically feasible control options for reducing emissions of visibility impairing pollutants. *Id.* at 3088. The 2019 Guidance provides that “[a] state must reasonably pick and justify the measures that it will consider, recognizing that there is no statutory or regulatory requirement to consider all technically feasible measures or any particular measures. A range of technically feasible measures available to reduce emissions would be one way to justify a reasonable set.” See 2019 Guidance at 29.

²⁷ The CAA provides that “[i]n determining reasonable progress there shall be taken into consideration” the four statutory factors. See CAA 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 long-term strategy, *e.g.*, from other newly adopted, on-the-books, or on-the-way rules and measures for sources not selected for four-factor analysis for the second planning period.

²⁸ “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.” 82 FR at 3088. However, not all approaches to grouping sources for four-factor analysis are necessarily reasonable; the reasonableness of grouping sources in any particular instance will depend on the circumstances and the manner in which grouping is conducted. If it is feasible to establish and enforce different requirements for sources or subgroups of sources, and if relevant factors can be quantified for those sources or subgroups, then states should make a separate reasonable progress determination for each source or subgroup. See 2021 Clarifications Memo at 7–8.

EPA’s 2021 Clarifications Memo provides further guidance on what constitutes a reasonable set of control options for consideration: “A reasonable four-factor analysis will consider the full range of potentially reasonable options for reducing emissions.” See 2021 Clarifications Memo at 7. In addition to add-on controls and other retrofits (*i.e.*, new emission reduction measures for sources), EPA explained that states should generally analyze efficiency improvements for sources’ existing measures as control options in their FFAs, as in many cases such improvements are reasonable given that they typically involve only additional operation and maintenance costs. Additionally, the 2021 Clarifications Memo provides that states that have assumed a higher emission rate than a source has achieved or could potentially achieve using its existing measures should also consider lower emission rates as potential control options. That is, a state should consider a source’s recent actual and projected emission rates to determine if it could reasonably attain lower emission rates with its existing measures. If so, the state should analyze the lower emission rate as a control option for reducing emissions. See 2021 Clarifications Memo at 7. EPA’s recommendations to analyze potential efficiency improvements and achievable lower emission rates apply to both sources that have been selected for FFA and those that have forgone a FFA on the basis of existing “effective controls.” See 2021 Clarifications Memo at 5, 10.

After identifying a reasonable set of potential control options for the sources it has selected, a state then collects information on the four factors with regard to each option identified. 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 factor alongside the four statutory factors.²⁹ The 2019 Guidance provides recommendations for the types of information that can be used to characterize the four factors (with or without visibility), as well as ways in which states might reasonably consider and balance that information to determine which of the potential control options is necessary to make reasonable progress. See 2019 Guidance at 30–36. The 2021 Clarifications Memo contains

²⁹ 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; 2019 Guidance at 36–37.

further guidance on how states can reasonably consider modeled visibility impacts or benefits in the context of a FFA. See 2021 Clarifications Memo at 12–13, 14–15. Specifically, EPA explained that while visibility can reasonably be used when comparing and choosing between multiple reasonable control options, it should not be used to summarily reject controls that are reasonable given the four statutory factors. See 2021 Clarifications Memo at 13. 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.³⁰ If the outcome of a FFA is a new, additional emission reduction measure for a source, that new measure is necessary to make reasonable progress toward remedying existing anthropogenic visibility impairment and must be included in the SIP. If the outcome of a FFA is that no new measures are reasonable for a source, continued implementation of the source’s existing measures is generally necessary to prevent future emission increases and thus to make reasonable progress toward the second part of the national visibility goal: preventing future anthropogenic visibility impairment. See CAA 169A(a)(1). That is, when the result of a FFA is that no new measures are necessary to make reasonable progress, the source’s existing measures are generally necessary to make reasonable progress and must be included in the SIP. However, there may be circumstances in which a state can demonstrate that a source’s existing measures are *not*

³⁰ States may choose to, but are not required to, include measures in their long-term strategies beyond just the emission reduction measures that are necessary for reasonable progress. See 2021 Clarifications Memo at 16. For example, states with smoke management programs may choose to submit their smoke management plans to EPA for inclusion in their SIPs but are not required to do so. See, *e.g.*, 82 FR at 3108–09 (requirement to consider smoke management practices and smoke management programs under 40 CFR 51.308(f)(2)(iv) does not require states to adopt such practices or programs into their SIPs, although they may elect to do so).

necessary to make reasonable progress. Specifically, if a state can demonstrate that a source will continue to implement its existing measures and will not increase its emission rate, it may not be necessary to have those measures in the LTS in order to prevent future emission increases and future visibility impairment. EPA's 2021 Clarifications Memo provides further explanation and guidance on how states may demonstrate that a source's existing measures are not necessary to make reasonable progress. *See* 2021 Clarifications Memo at 8–10. If the state can make such a demonstration, it need not include a source's existing measures in the LTS or its SIP.

As with source selection, 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, including source selection, information gathering, characterization of the four statutory factors (and potentially visibility), balancing of the four factors, and selection of the emission reduction measures that represent reasonable progress, 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. This documentation requirement can be met through the provision of and reliance on technical analyses developed through a regional planning process, so long as that process and its output has been approved by all state participants. In addition to the explicit regulatory requirement to document the technical basis of their reasonable progress determinations, states are also subject to the general principle that those determinations must be reasonably moored to the statute.³¹ That

is, a state's decisions about the emission reduction measures that are necessary to make reasonable progress must be consistent with the statutory goal of remedying existing and preventing future visibility impairment.

The four statutory factors (and potentially visibility) are used to determine what emission reduction measures for selected sources must be included in a state's LTS for making reasonable progress. Additionally, the RHR at 40 CFR 51.3108(f)(2)(iv) separately provides five "additional factors"³² that states must consider in 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. The 2019 Guidance provides that a state may satisfy this requirement by considering these additional factors in the process of selecting sources for a FFA, when performing that analysis, or both, and that not every one of the additional factors needs to be considered at the same stage of the process. *See* 2019 Guidance at 21. EPA provided further guidance on the five additional factors in the 2021 Clarifications Memo, explaining that a state should generally not reject cost-effective and otherwise reasonable controls merely because there have been emission reductions since the first planning period owing to other ongoing air pollution control programs or merely because visibility is otherwise projected to improve at Class I areas. Additionally, states generally should not rely on these additional factors to summarily assert that the state has already made sufficient progress and, therefore, no sources need to be selected or no new controls are needed regardless of the outcome of FFAs. *See* 2021 Clarifications Memo at 13.

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. Consultation allows for each state that impacts visibility in an area to share whatever technical information, analyses, and control determinations may be necessary to develop coordinated emission management strategies. This coordination may be managed through inter- and intra-RPO consultation and the development of regional emissions strategies; additional consultations between states outside of RPO processes may also occur. 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). EPA will consider the technical information and explanations presented by the submitting state and the state with which it disagrees when considering whether to approve the state's SIP. *See Id.*; 2019 Guidance at 53. 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).

D. 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. Their primary purpose is to assist the public and EPA in assessing the reasonableness of states' LTSs for making reasonable progress toward the national visibility goal. *See* 40 CFR 51.308(f)(3)(iii) and (iv). States in which Class I areas are located must establish two RPGs—one representing visibility conditions on the clearest days and one representing visibility on the most anthropogenically impaired days—for each area within their borders. 40 CFR 51.308(f)(3)(i). The two RPGs, measured in deciviews, are intended to reflect the projected impacts, on each set of days,

³¹ *See Arizona ex rel. Darwin v. U.S. EPA*, 815 F.3d 519, 531 (9th Cir. 2016); *Nebraska v. U.S. EPA*, 812 F.3d 662, 668 (8th Cir. 2016); *North Dakota v. EPA*, 730 F.3d 750, 761 (8th Cir. 2013); *Oklahoma v. EPA*, 723 F.3d 1201, 1206, 1208–10 (10th Cir. 2013); cf. also *Nat'l Parks Conservation Ass'n v. EPA*, 803 F.3d 151, 165 (3d Cir. 2015); *Alaska Dep't*

of Env'tl. Conservation v. EPA, 540 U.S. 461, 485, 490 (2004).

³² 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.

of the emission reduction measures the state with the Class I area and other contributing states have included in their LTSs for the second planning period.³³ The RPGs also account for the projected impacts of implementing other CAA requirements, including non-SIP based requirements. Because RPGs are the modeled result of the measures in states' LTSs (as well as other measures required under the CAA), they cannot be determined before states have conducted their FFAs and determined the control measures that are necessary to make reasonable progress.³⁴ See 2021 Clarifications Memo at 6.

For the second planning period, the RPGs are set for 2028. RPGs are not enforceable targets, 40 CFR 51.308(f)(3)(iii); rather, they "provide a way for the states to check the projected outcome of the [long-term strategy] against the goals for visibility improvement." See 2019 Guidance at 46. 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." Thus, states are required to have emission reduction measures in their LTSs that are projected to achieve visibility conditions on the most impaired days that are better than the baseline period and shows no degradation on the clearest days compared to the clearest days from the baseline period. The baseline period for the purpose of this comparison is the baseline visibility condition—the annual average visibility condition for the period 2000–2004. See 40 CFR 51.308(f)(1)(i), 82 FR at 3097–98.

So that RPGs may also serve as a metric for assessing the amount of progress a state is making toward the

national visibility goal, 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. 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." The 2019 Guidance provides suggestions about how such a "robust demonstration" might be conducted. See 2019 Guidance at 50–51.

The 2017 RHR, 2019 Guidance, and 2021 Clarifications Memo also explain that projecting an RPG that is on or below the URP based on only on-the-books and/or on-the-way control measures (*i.e.*, control measures already required or anticipated before the FFA is conducted) is not a "safe harbor" from the CAA's and RHR's requirement that all states must conduct a FFA to determine what emission reduction measures constitute reasonable progress.³⁵ The URP is a planning metric used to gauge the amount of progress made thus far and the amount left before reaching natural visibility conditions. However, the URP is not based on consideration of the four statutory factors and therefore cannot answer the question of whether the amount of progress being made in any particular planning period is "reasonable progress." See 82 FR at 3093, 3099–3100; 2019 Guidance at 22; 2021 Clarifications Memo at 15–16.

³⁵ In lieu of conducting a FFA, states may elect to show the source has existing effective controls for the particular pollutants under evaluation or that the source is shutting down by the end of the planning period (or close to it).

E. 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 subsection 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. A state with Class I areas within its borders must submit with its SIP revision a monitoring strategy for measuring, characterizing, and reporting regional haze visibility impairment that is representative of all Class I areas within the state. SIP revisions for such states must also provide for the establishment of any additional monitoring sites or equipment needed to assess visibility conditions in Class I areas, as well as reporting of all visibility monitoring data to EPA at least annually. Compliance with the monitoring strategy requirement may be met through a state's participation in 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. See 40 CFR 51.308(f)(6), (f)(6)(i), (f)(6)(iv). The IMPROVE monitoring data is used to determine the 20 percent most anthropogenically impaired and 20 percent clearest sets of days every year at each Class I area and tracks visibility impairment over time.

All states' implementation plans 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. 40 CFR 51.308(f)(6)(ii), (iii). Section 51.308(f)(6)(v) further requires that all states' implementation plans provide for a statewide inventory of emissions of pollutants that are reasonably anticipated to cause or contribute to visibility impairment in any Class I area; the inventory must include emissions for the most recent year for which data are available and estimates of future projected emissions. States must also include commitments to update their inventories periodically. The inventories themselves do not need to be included as elements in the SIP and are not subject to EPA review as part of the Agency's evaluation of a SIP revision.³⁶ All states' implementation plans must also provide for any other

³⁶ See "Step 8: Additional requirements for regional haze SIPs" in 2019 Guidance at 55.

³³ RPGs are intended to reflect the projected impacts of the measures all contributing states include in their long-term strategies. However, due to the timing of analyses, control determinations by other states, and other on-going emissions changes, a particular state's RPGs may not reflect all control measures and emissions reductions that are expected to occur by the end of the implementation period. The 2019 Guidance provides recommendations for addressing the timing of RPG calculations when states are developing their long-term strategies on disparate schedules, as well as for adjusting RPGs using a post-modeling approach. See 2019 Guidance at 47–48.

³⁴ The 2019 Guidance allows for the possibility of post-modeling adjustments to the RPGs to account for the fact that final LTS decisions for the state or for other states may not be known until late in the process, or even after SIPs are submitted. See 2019 Guidance at 46–48. See also, 82 FR 3078, 3080 (January 10, 2017).

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). Per the 2019 Guidance, a state may note in its regional haze SIP that its compliance with the Air Emissions Reporting Rule (AERR) in 40 CFR part 51, subpart A satisfies the requirement to provide for an emissions inventory for the most recent year for which data are available. To satisfy the requirement to provide estimates of future projected emissions, a state may explain in its SIP how projected emissions were developed for use in establishing RPGs for its own and nearby Class I areas.³⁷

Separate from the requirements related to monitoring for regional haze purposes under 40 CFR 51.308(f)(6), the RHR also contains a requirement at 40 CFR 51.308(f)(4) related to any additional monitoring that may be needed to address visibility impairment in Class I areas from a single source or a small group of sources. This is called “reasonably attributable visibility impairment.”³⁸ Under this provision, if EPA or the FLM of an affected Class I area has advised a state that additional monitoring is needed to assess reasonably attributable visibility impairment (RAVI), the state must include in its SIP revision for the second planning period an appropriate strategy for evaluating such impairment.

F. 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 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).

A core component of the progress report requirements is an assessment of changes in visibility conditions on the clearest and most impaired days. For second planning period progress reports, 40 CFR 51.308(g)(3) requires states with Class I areas within their borders to first determine current visibility conditions for each area on the most impaired and clearest days, 40 CFR 51.308(g)(3)(i), and then to calculate the difference between those current conditions and baseline (2000–2004) visibility conditions in order to assess progress made to date. *See* 40 CFR 51.308(g)(3)(ii). States must also assess the changes in visibility impairment for the most impaired and clearest days since they submitted their first planning period progress reports. *See* 40 CFR 51.308 (f)(5) and (g)(3)(iii). Since different states submitted their first planning period progress reports at different times, the starting point for this assessment will vary state by state.

Similarly, states must provide analyses tracking the change in emissions of pollutants contributing to visibility impairment from all sources and activities within the state over the period since they submitted their first planning period progress reports. *See* 40 CFR 51.308 (f)(5) and (g)(4). Changes in emissions should be identified by the type of source or activity. Section 51.308(g)(5) also addresses changes in emissions since the period addressed by the previous progress report and requires states’ implementation plan revisions to include an assessment of any significant changes in anthropogenic emissions within or outside the state. This assessment must include an explanation of whether these changes in emissions were anticipated and whether they have limited or impeded progress in reducing emissions and improving visibility relative to what the state projected based on its LTS for the first planning period.

G. 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). Consultation that occurs 120 days prior to any public hearing or public comment opportunity will be deemed “early enough,” but the RHR provides that in any event the opportunity for consultation must be provided at least 60 days before a public hearing or comment opportunity. This consultation must include the opportunity for the FLMs to discuss their assessment of visibility impairment in any Class I area and their recommendations on the development and implementation of strategies to address such impairment. 40 CFR 51.308(i)(2). In order 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. 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 North Carolina’s Regional Haze Submission for the Second Planning Period

On April 4, 2022, DAQ submitted a revision to the North Carolina SIP to address the State’s regional haze obligations for the second planning period, which runs through 2028, in accordance with CAA sections 169A and the RHR at 40 CFR 51.308(f).³⁹ The following sections contain EPA’s evaluation of North Carolina’s Haze Plan with respect to the requirements of the CAA and RHR for the second

³⁹ On June 27, 2012, EPA finalized a limited approval of North Carolina’s first planning period regional haze plan submitted to EPA on December 17, 2007 (77 FR 38185). On June 7, 2012 (77 FR 33642), EPA finalized a limited disapproval of the December 17, 2007, submission. On May 24, 2016, EPA approved North Carolina’s October 31, 2014, BART alternative demonstration, which was a revision to its regional haze plan and converted the limited approval of the December 17, 2007, submission to a full approval (81 FR 32652). On August 25, 2016, EPA approved North Carolina’s May 31, 2013, progress report for the first planning period (81 FR 58400).

³⁷ *Id.*

³⁸ EPA’s visibility protection regulations define “reasonably attributable visibility impairment” as “visibility impairment that is caused by the emission of air pollutants from one, or a small number of sources.” 40 CFR 51.301.

planning period of the regional haze program.

North Carolina has five Class I areas, two of which are shared with Tennessee: Linville Gorge National Wilderness Area (“Linville Gorge”); Shining Rock National Wilderness Area (“Shining Rock”); Swanquarter National Wilderness Area (“Swanquarter”); Great Smoky Mountains National Park (“Great Smoky Mountains”) (NC/TN); and Joyce Kilmer-Slickrock National Wilderness Area (“Joyce Kilmer”) (NC/TN). The following sections describe North Carolina’s Haze Plan, including analyses conducted by VISTAS and North Carolina’s determinations based on those analyses, North Carolina’s assessment of progress made since the first planning period in reducing emissions of visibility impairing pollutants, and the visibility improvement progress at its Class I areas and nearby Class I areas. This document also contains EPA’s evaluation of North 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 a 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. For out-of-state Class I areas, states must assess their visibility impacts on a statewide basis which is discussed in Section IVA.2, below, and on a source specific basis which is discussed in Section IV.C.2, below.

2. *State Assessment:* To address 40 CFR 51.308(f), North Carolina identified Class I areas affected by North Carolina’s statewide emissions of visibility impairing pollutants and then consulted with states with Class I areas affected by North Carolina’s statewide emissions. DAQ presented the results of

Particulate Matter Source Apportionment Technology (PSAT)⁴⁰ modeling which VISTAS conducted to estimate the projected impact of statewide SO₂ and NO_x 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.⁴¹ In Table 7–14 of the 2022 Plan, DAQ lists the total sulfate plus nitrate contribution from all source sectors in North Carolina to total visibility impairment for the 20 percent most impaired days at Class I areas in the VISTAS modeling domain in inverse megameters (Mm⁻¹). North 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) (0.78 Mm⁻¹) and Okefenokee National Wilderness Area (Okefenokee) (0.67 Mm⁻¹) in Georgia and James River Face National Wilderness Area (James River Face) (0.45 Mm⁻¹) in Virginia.⁴²

Based on these results for the out-of-state Class I areas, North Carolina consulted with the VISTAS states (see Section 10.1 and Appendix F–1 of the 2022 Plan) and the Mid-Atlantic/Northeast Visibility Union (MANE–VU)⁴³ states (see Section 10.3 and Appendix F–4 of the 2022 Plan) which contain Class I areas located nearest to North Carolina and to which North Carolina’s emissions had the highest sulfate plus nitrate contribution to total sulfate plus nitrate visibility impairment. The purpose of this

⁴⁰ 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.

⁴¹ DAQ did not include primary PM (directly emitted) data in this analysis because the PSAT analyses performed by VISTAS tagged statewide emissions of SO₂ and NO_x and did not tag primary total PM emissions in the analysis after concluding that emissions of the PM precursors SO₂ and NO_x, particularly from point sources, are projected to have the largest impact on visibility impairment in 2028 and that SO₂ and NO_x are the most significant visibility impairing pollutants from controllable anthropogenic sources.

⁴² In contrast, North Carolina’s sulfate plus nitrate impairment impacts to the State’s Class I areas are: 0.95 Mm⁻¹, 1.13 Mm⁻¹, 1.83 Mm⁻¹, 0.89 Mm⁻¹, 0.43 Mm⁻¹ for Linville Gorge, Shining Rock, Swanquarter, Great Smoky Mountains, and Joyce Kilmer, respectively.

⁴³ MANE–VU was established in 2001 to assist the Mid-Atlantic and Northeast states in planning and developing their regional haze SIP revisions. The MANE–VU states are Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

consultation was to identify whether North Carolina’s statewide impacts to the VISTAS and MANE–VU states are significant enough to develop coordinated emission management strategies containing the emission reductions necessary to make reasonable progress.⁴⁴ With respect to MANE–VU, none of the states in this RPO contacted North Carolina for consultation with the exception of New Hampshire and New Jersey. North Carolina’s consultation with MANE–VU, New Hampshire, and New Jersey is further discussed in Section IV.C.2.e of this document and Section I.E of EPA’s Technical Support Document (TSD) for this proposed rulemaking.

3. *EPA Evaluation:* EPA proposes to conclude that North Carolina adequately addressed 40 CFR 51.308(f) regarding identification of its statewide visibility impacts to Class I areas outside of the State and consulting with states with Class I areas which may reasonably be anticipated to cause or contribute to any impairment of visibility due to North Carolina’s emissions. EPA proposes to agree with the State’s approach of focusing on SO₂ and NO_x impacts from North Carolina 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 areas followed by organic carbon and ammonium nitrate (depending on the area).⁴⁵ 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 agrees that North Carolina adequately identified Class I areas outside of North Carolina that may be affected by emissions from within the State and consulted with affected states. The information submitted by North Carolina supports this finding, because it shows that the state analyzed its statewide sulfate and nitrate contributions to total visibility impairment at out-of-state Class I areas in Table 7–14 of the 2022 Plan; none of

⁴⁴ North Carolina did not consult with states with Class I areas in the Central States Air Resource Agencies (CENSARA), Lake Michigan Air Directors’ Consortium (LADCO), and Western Regional Air Partnership (WRAP) RPO regions because North Carolina’s statewide sulfate plus nitrate contribution to total sulfate plus nitrate impairment in the Class I areas in these regions was relatively low (i.e., ranging from zero percent to 0.12 percent of total sulfate plus nitrate impairment). Additionally, no states in CENSARA, LADCO, and WRAP requested consultation with North Carolina regarding its statewide emissions.

⁴⁵ See Figures 2–17 and 2–18 of the 2022 Plan for the VISTAS Class I areas. See also section IV.C.2.a of this notice.

the Class I areas in MANE–VU and VISTAS have 2028 RPGs on the 20 percent most impaired days above the URP;⁴⁶ with the exception of Joyce Kilmer, the visibility impairment due to emissions from North Carolina at in-state Class I areas is greater than the impairment due to emission from North Carolina at out-of-state Class I areas; and the State completed consultation with VISTAS and MANE–VU states via the RPO processes and, in some cases, on a state-to-state basis and documented those consultations.⁴⁷

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 2022 Plan, North Carolina calculated baseline

visibility conditions (2000–2004) in Table 2–3; current visibility conditions (2014–2018) in Table 2–5;⁴⁸ and natural visibility conditions in Table 2–2 for the 20 percent most impaired and 20 percent clearest days for the State’s Class I areas in deciviews as shown in Table 1, below. North Carolina also calculated for its Class I areas the actual progress made toward natural visibility conditions to date 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, in Table 2–6 (for the 20 percent most impaired days) and Table 2–7 (for the 20 percent clearest days) as shown in Table 2, below.

TABLE 1—BASELINE, CURRENT, AND NATURAL VISIBILITY CONDITIONS IN NORTH CAROLINA’S CLASS I AREAS IN DECIVIEWS (dv)

Class I area	Baseline 20% clearest days	Baseline 20% most impaired days	Current 20% clearest days	Current 20% most impaired days	Natural 20% clearest days	Natural 20% most impaired days
Great Smoky Mountains	13.58	29.11	8.35	17.21	4.62	10.05
Joyce Kilmer	13.58	29.11	8.35	17.21	4.62	10.05
Linville Gorge	11.11	28.05	7.61	16.42	4.07	9.70
Shining Rock	7.70	28.13	4.40	15.49	2.49	* 10.25
Swanquarter	12.34	23.79	10.61	16.30	5.71	* 10.01

* The 2022 Plan indicates in Table Ex–1–3 and Table 8–1 that natural conditions are 10.01 and 9.79 deciviews for Shining Rock and Swanquarter, respectively. Tables Ex–1–1, Table 2–2, and Tables 2–6 reflect the correct values shown here which are derived from EPA’s June 3, 2020, Technical Addendum available at: https://www.epa.gov/sites/default/files/2020-06/documents/memo_data_for_regional_haze_technical_addendum.pdf.

TABLE 2—ACTUAL PROGRESS FOR VISIBILITY CONDITIONS IN NORTH CAROLINA’S CLASS I AREAS IN DECIVIEWS (dv)

Class I area	Current minus baseline for 20% clearest days	Current minus baseline for 20% most impaired days	Natural minus current for 20% clearest days	Natural minus current for 20% most impaired days
Great Smoky Mountains	–5.23	–11.90	–3.73	–7.16
Joyce Kilmer	–5.23	–11.90	–3.73	–7.16
Linville Gorge	–3.50	–11.63	–3.54	–6.72
Shining Rock	–3.30	–12.64	–1.91	–5.24
Swanquarter	–1.73	–7.49	–4.90	–6.29

Additionally, Figures 3–1, 3–2, 3–3, and 3–4 of the 2022 Plan provide the URP figures for the 20 percent most impaired days for Great Smoky Mountains (which also represents the URP for Joyce Kilmer), Linville Gorge, Shining Rock, and Swanquarter, respectively. The URPs were developed

using EPA guidance⁴⁹ 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. All North Carolina Class I areas are projected to be below the 2028 URP

values for the second planning period based on VISTAS’ modeling.

3. *EPA Evaluation:* EPA finds that North Carolina’s Haze Plan meets the requirements of 40 CFR 51.308(f)(1) because the State provided for its five Class I areas: baseline, current, and natural visibility conditions for the 20

⁴⁶ See Memorandum from Richard A. Wayland, OAQPS, to Regional Air Division Directors re: Availability of Modeling Data and Associated Technical Support Document for the EPA’s Updated 2028 Visibility Air Quality Modeling (September 19, 2019), available at: https://www.epa.gov/sites/default/files/2019-10/documents/updated_2028_regional_haze_modeling-19-0.pdf.

⁴⁷ See Section IV.C.2.e of this notice and Section I.E of EPA’s TSD for additional detail regarding consultation.

⁴⁸ The period 2014–2018 represents current visibility conditions for North Carolina because it is the most recent five-year period for which visibility monitoring data were available at the time of SIP development.

⁴⁹ “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). 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.

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 for each Class I area in North Carolina. Therefore, EPA is proposing to approve the portions of the North Carolina SIP submission related to 40 CFR 51.308(f)(1).

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 a LTS for making reasonable progress toward the national visibility goal. CAA 169A(b)(2)(B). As explained in Section II of this document, reasonable progress is achieved when all states contributing to visibility impairment in a Class I area are implementing the measures determined—through application of the four statutory factors to sources of visibility impairing pollutants—to be necessary to make reasonable progress. 40 CFR 51.308(f)(2)(i). Each state's LTS must include the enforceable emission limitations, compliance schedules, and other measures that are necessary to make reasonable progress. 40 CFR 51.308(f)(2). All new (*i.e.*, additional) measures that are the outcome of FFAs are necessary to make reasonable progress and must be in the LTS. If the conclusion of a FFA and other measures necessary to make reasonable progress for a particular source is that no new measures are reasonable, that source's existing measures are necessary to make reasonable progress, unless the state can demonstrate that the source will continue to implement those measures and will not increase its emission rate. Existing measures that are necessary to make reasonable progress must also 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. 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 FFA 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. 40 CFR 51.308(f)(3)(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. Section 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 the EPA (or a more recent year), with a 12-month exemption period for newly submitted data.

2. *State Assessment:* To develop North Carolina's LTS, DAQ set criteria to identify sources to evaluate for potential controls using the four factors outlined in Section II.B, selected sources based on those criteria, considered the four factors for the selected sources, provided emissions limits and supporting conditions for adoption into the regulatory portion of the SIP, 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), North Carolina, through VISTAS, used a two-step source selection process: (1) Area of Influence (AoI) analysis, and (2) PSAT⁵⁰ modeling for sources exceeding an AoI threshold.⁵¹ North Carolina considered the four factors for sources that exceeded both the AoI and PSAT thresholds. Both sulfates and nitrates were considered in the source selection process. To identify sources having the most impact on visibility at Class I areas for PSAT modeling, DAQ used an AoI threshold of greater than or equal to three percent for sulfate and nitrate combined at any North Carolina Class I area for all sources within and outside of the State. Sources which exceeded North Carolina's AoI threshold are listed in Tables 7–20 through 7–24 of the Haze Plan. Of these sources, five sources in North Carolina exceeded the AoI threshold for any Class I area in the State: Blue Ridge Paper Products—Canton Mill (BRPP); Domtar Paper LLC (Domtar);⁵² Duke Energy Carolinas LLC (DEC)—Marshall Steam Station (DEC-Marshall); PCS Phosphate Inc.—Aurora (PCS); and SGL Carbon LLC.⁵³

North 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 identified based on the State's PSAT threshold are listed in Tables 7–36, 7–37, and 7–38 of the 2022 Plan. Of the 19 sources that exceeded the sulfate PSAT threshold, 16 sources are located in 10 other states and three are located in North Carolina. North Carolina selected the three in-state sources

⁵⁰ PSAT modeling is a type of photochemical modeling which quantifies individual facility visibility impacts to an area. See footnote 40. DAQ applied its PSAT threshold by facility whereas in the first period, DAQ applied the threshold by emissions unit at selected facilities.

⁵¹ 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 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.

⁵² On December 1, 2023, DAQ issued Air Quality Permit No. 04291T51 authorizing modifications to the Domtar facility, which is available at: <https://edocs.deq.nc.gov/AirQuality/DocView.aspx?id=457541&dbid=0&repo=AirQuality&searchid=c271acf8-6535-4306-8cfb-9a0caa2b3d97>. Because these authorized permit modifications are subsequent to the North Carolina SIP submission, North Carolina did not consider the modification to determine reasonable progress in the second planning period.

⁵³ See Table 7–29 on p. 227 of the 2022 Plan.

(BRPP, Domtar, and PCS) for an emissions control analysis.⁵⁴ The projected 2028 SO₂ emissions (in tons per year (tpy)) from BRPP, Domtar, and PCS are 483, 1,120, and 3,045, respectively.⁵⁵ No sources modeled for PSAT exceeded the PSAT threshold for nitrates. Because no sources exceeded the State’s PSAT threshold for nitrates and because ammonium sulfate continues to be the dominant visibility impairing pollutant at the North Carolina Class I areas (as discussed in the following paragraphs), DAQ focused solely on evaluating potential SO₂ controls from BRPP, Domtar, and PCS to address regional haze in potentially affected Class I areas. Section I.A of the TSD provides additional detail regarding the State’s source selection process.

The 2022 Plan shows the VISTAS model projections demonstrating that

ammonium sulfate is expected to remain the dominant visibility impairing pollutant through 2028, by a factor of four or greater, over ammonium nitrate at Class I areas in North Carolina.⁵⁶ In Section 7.4 of the 2022 Plan, DAQ explains the VISTAS analyses relied upon to support the State’s focus on SO₂ control evaluations. Additionally, Section 10.4.1 of the Haze Plan provides the State’s responses to FLM comments on the exclusion of NO_x control evaluations from the FFAs.

Although ammonium nitrate contributions to light extinction have increased in recent years (2016–2018), sulfate is still the highest contributor to visibility impairment in North Carolina’s Class I areas. DAQ provided light extinction data on the 20 percent most impaired and 20 percent clearest days for the North Carolina Class I areas for the 2009–2013 modeling base period

and the 2014–2018 current conditions period which show 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.⁵⁷

In Section 10.4.1, DAQ reviewed more recent visibility monitoring data for the period 2015–2019 from the IMPROVE monitoring network for Great Smoky Mountains, Linville Gorge, and Shining Rock.⁵⁸ Table 3, below, summarizes the percent contribution on the 20 percent most impaired days at Great Smoky Mountains (also Joyce Kilmer), Linville Gorge, and Shining Rock for certain PM species (*i.e.*, ammonium sulfate, ammonium nitrate, and organic carbon) in 2009–2013 versus 2015–2019.⁵⁹

TABLE 3—FIVE-YEAR AVERAGE (2009–2013 vs. 2015–2019) PERCENT (%) PARTICLE CONTRIBUTIONS TO LIGHT EXTINCTION FOR 20% MOST IMPAIRED DAYS AT GREAT SMOKY MOUNTAINS,* LINVILLE GORGE, AND SHINING ROCK ⁶⁰

PM species	Great smoky mountains		Linville gorge		Shining rock	
	2009–2013 (%)	2015–2019 (%)	2009–2013 (%)	2015–2019 (%)	2009–2013 (%)	2015–2019 (%)
Ammonium Sulfate	76.3	54.4	77.2	56.9	74.5	58.1
Ammonium Nitrate	5.2	16.6	2.5	8.0	5.5	10.3
Organic Carbon	11.1	17.4	12.5	22.4	12.5	19.4

* Monitoring data for Great Smoky Mountains serves as the IMPROVE data for Joyce Kilmer.

Figures 7–27 (Swanquarter), 7–28 (Shining Rock), 7–29 (Linville Gorge), 7–30 (Joyce Kilmer), and 7–31 (Great Smoky Mountains) in the 2022 Plan show that the majority of 2028 predicted nitrate light extinction on the 20 percent most impaired days at North Carolina’s Class I areas is not caused by NO_x emissions from EGU and non-EGU point sources.⁶¹ At Shining Rock, Linville Gorge, Joyce Kilmer, and the Great Smoky Mountains, projected 2028 total sulfate extinction is greater than 17 Mm⁻¹ and total projected 2028 total nitrate extinction is less than 3.5 Mm⁻¹.

At Swanquarter, the projected 2028 sulfate extinction is 16.6 Mm⁻¹ and the projected 2028 nitrate extinction is 4.5 Mm⁻¹. DAQ states that North Carolina sources contribute a small percentage to total nitrate impairment in all cases (ranging from less than one percent of all nitrate visibility impairment at the Great Smoky Mountains to 13 percent at Swanquarter).

DAQ states that it is unclear why ammonium nitrate has started to increase at some but not all VISTAS Class I areas while point and mobile source NO_x emissions have been

declining. VISTAS modeling for 2028 suggests that sources outside of North Carolina may be the likely contributor. DAQ indicates that further research is needed to identify the emission sources and geographic locations of those sources contributing to the ammonium nitrate fraction of PM_{2.5} contributing to regional haze. DAQ notes that at some locations, one ton of SO₂ reduction can have anywhere from twice to more than 100 times the impact on visibility impairment as one ton of NO_x reduction.⁶²

⁵⁴ BRPP and Domtar are pulp and paper mills. PCS is a fertilizer plant with sulfuric acid plants on site.

⁵⁵ See Tables 7–48, 7–55, and 7–60 on pp. 271, 275, and 279, respectively, of the 2022 Plan.

⁵⁶ See Figures 2–7 through 2–18 and Figure 10–10 of the 2022 Plan. Figures 2–7 through 2–10 provide 2009–2013 speciated PM data for North Carolina’s Class I areas showing that ammonium sulfate is the dominant visibility impairing pollutant. Figures 2–11 and 2–12 provide speciated PM data for 2009–2013 for the VISTAS Class I areas and neighboring areas on the 20 percent most impaired days and 20 percent clearest days, respectively. Figures 2–13 to 2–18 show the speciated PM data for North Carolina’s Class I areas for the period 2014–2018 showing that ammonium sulfate is the dominant visibility impairing pollutant. Figures 2–17 and 2–18 provide speciated

PM data for 2014–2018 for the VISTAS Class I areas and neighboring areas on the 20 percent most impaired days and 20 percent clearest days, respectively.

⁵⁷ See Section 2.5.2 (particularly Figures 2–7 through 2–11 for the 2009–2013 period and Figures 2–13 through 2–18 for the 2014–2018 period), and Section 10.4.1 of the 2022 Plan related to ammonium nitrate.

⁵⁸ DAQ did not include 2015–2019 IMPROVE monitoring data for Swanquarter in Section 10.4.1 because NPS and USFS did not request that DAQ consider more recent visibility monitoring data for Swanquarter.

⁵⁹ The data in Table 1 is derived from Figures 10–1, 10–2, and 10–3 of the 2022 Plan. Swanquarter speciation data is shown in Figures 2–10 through 2–12 and 2–16 through 2–18 of the 2022 Plan.

⁶⁰ DAQ provided IMPROVE monitoring data in Figures 10–1, 10–2, and 10–3 regarding Great Smoky Mountains (also for Joyce Kilmer), Linville Gorge, and Shining Rock. For Swanquarter, 2015–2019 IMPROVE data for the 20 percent most impaired days are: 50 percent, 17 percent, and 17 percent for ammonium sulfate, ammonium nitrate, and organic carbon, respectively. See <https://vista.cira.colostate.edu/Improve/rhr-summary-data/>.

⁶¹ Figure 7–26 provides the 2028 visibility impairment from nitrate on the 20 percent most impaired days for all 18 Class I Areas in VISTAS. The figure shows the EGU and non-EGU contributions to total nitrate derived light extinction in 2028.

⁶² See pp. 333–335 and Table 10–8 of the 2022 Plan.

In Section 7.7.3.2 of the 2022 Plan, DAQ reviewed North Carolina facilities that were not selected for PSAT modeling and which had an AOI contribution between one and three percent for one or more Class I areas in North Carolina and which were not selected for FFA evaluation. This review included the eight Duke Energy power plants with coal units in North Carolina which, with the exception of DEC-Marshall, did not meet North Carolina's AOI threshold (see Table 7–43 of the 2022 Plan). DAQ reviewed existing SO₂ and NO_x controls for the Duke Energy facilities with coal units and non-EGUs with an AOI contribution between one and three percent sulfate plus nitrate and based on this review, DAQ did not identify any uncontrolled or lightly controlled facilities that were large contributors to anthropogenic light extinction at any of North Carolina's Class I areas that were missed by North Carolina's source selection process.

b. Consideration of the Four Factors: North Carolina considered each of the four CAA factors for BRPP and Domtar and described how the four factors were taken into consideration in selecting the SO₂ measures for inclusion in the State's LTS. For PCS, DAQ considered the four CAA factors for its existing measures for the affected units and determined that there are no technically feasible control measures beyond the existing measures to further reduce SO₂ emissions, and thus, no new measures were evaluated using the four factors. The following subsections summarize the State's evaluation of these facilities. Additional detail is provided in Section I.B. of the TSD.

i. BRPP: During 2017 to 2019, BRPP implemented SO₂ controls on existing processes and replaced two coal-fired boilers with new natural gas-fired boilers to comply with a Special Order by Consent (SOC) between the North Carolina Environmental Management Commission and BRPP.⁶³ As a result of the SOC, BRPP reduced actual annual SO₂ emissions by 93 percent (5,470 tons per year) from 2017-level emissions.

The FFA focused on the No. 4 Power Boiler, Riley Bark Boiler, and the Riley Coal Boiler because these three boilers comprise 90.2 percent of the BRPP's total 2019 actual emissions and 91.8

percent of the BRRP's total 2028 projected SO₂ emissions.⁶⁴ These units are equipped with wet flue gas desulfurization (WFGD).⁶⁵ To complete the cost of compliance analysis, BRPP evaluated replacing coal with ultra-low sulfur diesel (ULSD) (all three boilers) and adding dry sorbent injection (DSI) (for the Riley Coal Boiler and No. 4 Power Boiler). Table 7–54 of the 2022 Plan shows that of the new control measures considered, the lowest cost effectiveness was \$13,477 per ton of SO₂ removed using a 3.25 percent interest rate and a 30-year equipment life in the cost calculations. The State notes that based on the FFA, BRPP identified no cost-effective control measures to further reduce SO₂ emissions for the three boilers evaluated.

Regarding the other statutory factors, the State identifies the remaining useful life of the source is estimated at more than 25 years, and the equipment life of the control options evaluated is 30 years for both the DSI and ULSD options. The State identifies that the time necessary to comply for both the DSI and ULSD options is at least three years to accommodate time for corporate funding approval, permitting, re-engineering, and planned outage scheduling. Regarding energy and non-air quality environmental impacts of compliance, DAQ explains that adding DSI would increase energy usage as well as PM emissions from materials handling and landfill operations and it would also decrease the useful life of the mill landfill and increase truck traffic on local streets. Regarding ULSD, no significant energy and non-air quality environmental impacts were identified.

Given the 93 percent decrease in SO₂ emissions due to the SOC and the State's determination that there are no cost-effective control SO₂ measures available based on a review of the four factors, DAQ concluded that only existing SO₂ measures are necessary for reasonable progress for the second planning period at BRPP's Riley Coal Boiler, Riley Bark Boiler, and the No. 4 Power Boiler. No source-specific changes were proposed to the North Carolina SIP for BRPP because these

existing SO₂ measures are already incorporated into the SIP.⁶⁷

ii. Domtar: The FFA for Domtar focused on Hog Fuel Boiler 2 (“HFB2”) because this unit is projected to emit approximately 90 percent of the facility's total projected SO₂ emissions in 2028 (1,010 tpy out of 1,120 tpy).⁶⁸ A hog fuel boiler at a paper mill typically burns wood waste known as “hog fuel” to generate electricity for the mill. In addition, Domtar currently routes the majority of its noncondensable waste gases through HFB2. The sulfur compounds from the waste gases accounts for the vast majority of the SO₂ emissions. HFB2 uses low sulfur fuels and inherent bark scrubbing to control SO₂ emissions. To complete the cost of compliance analysis, Domtar evaluated HFB2 for WFGD and DSI.⁶⁹ Table 7–58 of the 2022 Plan provides summary cost data showing that the cost effectiveness of the addition of a WFGD would be \$3,660/ton and the addition of DSI would cost \$22,092/ton of SO₂ removed using a 3.25 percent interest rate, a 30-year equipment life, and assuming a 95 percent SO₂ control efficiency for the scrubber and a 50 percent control efficiency for DSI.⁷⁰

Regarding the other statutory factors, the remaining useful life of HFB2 is 20 years or more, and the equipment life assumed in the cost calculations is 30 years for both the WFGD and DSI control options. The time necessary to

⁶⁷ See 85 FR 74884 (November 24, 2020); 40 CFR 52.1770(d). The SIP contains specific SO₂ permit limits and associated operating restrictions; monitoring, recordkeeping, and reporting; and testing compliance parameters from BRPP's title V permit (No. 08961T29) reflecting the requirements of the SOC.

⁶⁸ With respect to Domtar's Hog Fuel Boiler 1 (“HFB1”), this unit is projected to emit 12 tpy SO₂ in 2028. HFB1 was not included in the FFA because it is currently equipped to burn only natural gas and biomass with No. 2 fuel oil as a backup fuel. Also, based on updated 2028 emissions projections data, the unit will only contribute two percent of the facility's total SO₂ emissions. In the docket to this proposed rule is a legible copy of the May 12, 2020, letter from Domtar to DAQ provided in Appendix G–2a of the Haze Plan.

⁶⁹ In addition to the FFA, DAQ provided, as supplemental information, that the use of a WFGD on HFB2 would improve visibility by 0.03 deciview and improve visual range by approximately 0.16 mile at Swanquarter and that the WFGD would reduce Domtar's contribution to total visibility impairment at Swanquarter by 0.33 percent (0.152 Mm⁻¹). DAQ did not rely upon this supplemental information for the Domtar FFA analysis and conclusions.

⁷⁰ In Appendix I of the Haze Plan, DAQ notes that HFB2 is used as a control device for several process gas streams at Domtar. DAQ checked EPA's RACT/BACT/LAER Clearinghouse available at <https://www.epa.gov/catc/ractbactlaer-clearinghouse-rblc-basic-information> and was unable to find documentation of similar emissions units to HFB2 to compare costs of WFGD at this type of unit.

⁶³ See Section 7.8.1.1 of the 2022 Plan. North Carolina and BRPP entered into the SOC on October 9, 2017, to implement facility process modifications, upgrade existing control equipment, as well as to install new control equipment to comply with the Boiler Maximum Achievable Control Technology (MACT) standard by May 20, 2019, that cumulatively resulted in the control and reduction of facility-wide SO₂ emissions. The SOC is available in Docket ID No. EPA–R04–OAR–2020–0001 on www.regulations.gov.

⁶⁴ See Table 7–48 on p. 271 of the 2022 Plan.

⁶⁵ The SO₂ removal efficiency from the existing control measures at the Riley Coal Boiler, Riley Bark Boiler, and the No. 4 Power Boiler is approximately 90 percent. See Section 7.8.1.1 of the 2022 Plan.

⁶⁶ WFGD, also referred to as wet scrubbers, are a type of control technology which removes SO₂ and other pollutants from gaseous exhaust streams. WFGD is considered the most efficient way to remove SO₂ from gaseous waste streams if the removal efficiency is optimized.

comply for both the WFGD and DSI options is at least three years due to corporate funding approval, permitting, re-engineering, and planned outage scheduling. Regarding energy and non-air quality environmental impacts of compliance, additional electricity would be needed to operate a DSI system, and a DSI system would create additional solid waste. Regarding the WFGD, additional electricity and water would be needed to run the system and additional fan power would be required overcome the additional pressure drop through the WFGD. Other environmental and energy impacts associated with operating a WFGD include generation and disposal of wastewater.

DAQ concluded that there are no cost-effective control SO₂ measures available based on a review of the four factors and that only existing SO₂ measures at HFB2 are necessary for reasonable progress during the second planning period. North Carolina identified permit conditions reflecting these existing measures in Section 7.8.3.1 of the 2022 Plan for incorporation into the North Carolina SIP. In its Commitment Letter, DAQ committed to revise certain permit conditions and submit, no later than one year from the effective date of a final conditional approval action (should EPA finalize the proposed partial conditional approval), a SIP revision requesting incorporation of the revised permit conditions and additional existing specific permit conditions into the SIP. DAQ's commitments are discussed in Section IV.C.3.b.ii of this document.

iii. PCS: The FFA for PCS focused on evaluating Sulfuric Acid Plants (SAPs) 5, 6, and 7 for additional SO₂ controls because these three SAPs accounted for over 97 percent of total facility SO₂ emissions in 2016 and are estimated to account for 94 percent of the total facility SO₂ emissions in 2028. During 2017–2019, PCS implemented upgrades to enhance the SO₂ conversions in the catalytic systems on SAPs 5, 6, and 7 pursuant to a consent decree with EPA entered on February 26, 2015.⁷¹ Table 7–61 of the 2022 Plan summarizes the SO₂ emissions reductions from the upgrades involving a dual absorption process with cesium catalyst.⁷² PCS' title V permit includes the SO₂ emissions limits required under the consent decree and prohibits relaxation

of these emissions limits after the consent decree has been terminated.

For PCS, the State evaluated whether there are any technically feasible control technologies available for SAPs 5, 6, and 7 at the facility beyond the current SO₂ emissions control technology in place (dual absorption process with cesium catalyst) to further reduce SO₂ emissions at these units and concluded that there are none. Given this conclusion and the SO₂ reductions at PCS due to the upgrades, DAQ concluded that only the existing measures for SAPs 5, 6, and 7 are necessary for reasonable progress during the second planning period. North Carolina identified permit conditions reflecting these existing measures in Section 7.8.3.2 of the 2022 Plan for incorporation into the North Carolina SIP.⁷³ In its Commitment Letter, DAQ committed to submit, no later than one year from the effective date of a final conditional approval action (should EPA finalize the proposed partial conditional approval), a SIP revision requesting incorporation of additional existing specific permit conditions into the SIP. DAQ's commitments are discussed in Section IV.C.3.b.iii of this document.

c. Documentation of Technical Basis:

With respect to emissions information documentation pursuant to 40 CFR 51.308(f)(2)(iii), Section 4 of the 2022 Plan explains the State's use of emissions inventories to develop the plan with additional documentation provided in Appendix B. North Carolina, through VISTAS, developed a 2011 statewide base year emissions inventory which was used to project emissions out to 2028, the end of the second planning period. DAQ also evaluated emissions data from 2017, the year of the most recent triennial emissions data available at the time of the development of the 2022 Plan.⁷⁴ DAQ also provided annual, statewide anthropogenic SO₂, NO_x, and PM_{2.5} emissions data from 2011 through 2019

⁷³ In an email dated March 28, 2024, DAQ clarified that the text of Condition 2.5 A.1.p of PCS' title V permit, proposed for adoption into the SIP on page 289 of the Haze Plan, was inadvertently excluded from the excerpts of permit conditions provided in Section 7.8.3.2 of the Haze Plan under "Section 2.5 A.1.k through p—Emissions Monitoring Requirements."

⁷⁴ 2017 emissions data is included in the following tables and figures in the 2022 Plan: Table 7–41 (SO₂) and 7–42 (NO_x) for certain non-EGU sources in North Carolina; Tables 13–9 (SO₂), 13–10 (NO_x), 13–11 (PM_{2.5}), 13–12 (PM₁₀), 13–13 (VOC) for anthropogenic statewide emissions of these pollutants; Table 13–14 (SO₂, NO_x for all RPOs); Figures 13–9 (SO₂), 13–10 (NO_x), 13–11 (PM_{2.5}), 13–12 (PM₁₀), 13–13 (VOC) for anthropogenic statewide emissions of these pollutants; and Figures 13–14 and 13–15 (SO₂, NO_x for all RPOs).

for North Carolina in Tables 13–9, 13–10, and 13–11, respectively, of the 2022 Plan.

With respect to modeling information documentation pursuant to 40 CFR 51.308(f)(2)(iii), Sections 5 and 6 of the 2022 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 2022 Plan details the State's analysis of proposed FFAs for BRPP and Domtar located in Appendix G which 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 North Carolina's Class I areas in Section 2 of the 2022 Plan with supporting information located in Appendix C.

Section I.D of the TSD provides a more detailed summary of the State's assessment of the documentation of the technical basis for the 2022 Plan under 40 CFR 51.308(f)(2)(iii) and 40 CFR 51.308(f)(6)(v).

d. Assessment of the Five Additional Factors in 40 CFR 51.308(f)(2)(iv): With respect to 40 CFR 51.308(f)(2)(iv), North Carolina considered each of the five additional factors in developing the State's LTS and evaluated their relevancy for the second planning period. With respect to 40 CFR 51.308(f)(2)(iv)(A), North 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), North Carolina summarized the State's existing regulations that mitigate the impacts of construction activities by requiring control of erosion, siltation, and pollution from construction activities and requiring subject facilities to control PM from fugitive dust emission sources generated within plant boundaries.⁷⁵ With respect to 40 CFR

⁷⁵ DAQ explained that fine soils were a relatively minor contributor to visibility impairment on the 20

⁷¹ The consent decree entered by the Court on February 26, 2015, is located in the docket for this proposed rulemaking. This consent decree terminated on April 3, 2023.

⁷² See Appendix G–3 of the 2022 Plan for additional information regarding the dual absorption process with cesium catalyst.

51.308(f)(2)(iv)(C), North Carolina summarized existing and planned source retirements in Section 7.2.2 and Section 8.3.5 of the 2022 Plan. With respect to 40 CFR 51.308(f)(2)(iv)(D), North Carolina considered the State's *Guidelines for Managing Smoke from Forestry Burning Operations* to mitigate PM_{2.5} emissions and regional haze impacts associated with prescribed burning.⁷⁶ With respect to 40 CFR 51.308(f)(2)(iv)(E), North Carolina pointed to the development and evaluation of the 2028 RPGs for the North Carolina Class I areas which reflect the net effect on visibility due to projected changes in point, area, and mobile source emissions over the second period. Section I.C of the TSD provides a more detailed summary of the State's assessment of the five additional factors in 40 CFR 51.308(f)(2)(iv).

e. Interstate Consultation: North Carolina consulted with states⁷⁷ and RPOs that identified North Carolina sources as impacting those states' (or states within the RPOs') Class I areas, and DAQ consulted with the 10 states with one or more sources exceeding North Carolina's PSAT threshold at one or more of North Carolina's Class I areas.

i. State/RPOs Requesting Consultation with North Carolina:

a. MANE-VU Ask: The following summarizes the conclusions of consultation related to the MANE-VU Ask for North Carolina.⁷⁸ Section I.E of the TSD provides a more detailed summary of the State's interstate consultation pursuant to 40 CFR 51.308(f)(2)(ii).

The MANE-VU Ask for states outside of MANE-VU addresses both statewide impacts to visibility and specific emissions units' visibility impacts. States that contributed greater than or equal to two percent of the visibility

percent most impaired days at the Class I areas in North Carolina during the baseline period of 2000–2004.

⁷⁶ DAQ notes that elemental carbon is the primary visibility impairing pollutant related to wildfires, prescribed wildland fires, and agricultural burning. Elemental carbon is a relatively minor contributor to visibility impairment on the 20 percent most impaired days from the base period (2000–2004) through 2018 at the Class I areas in North Carolina based on IMPROVE monitoring data as discussed in Section 2.4 of the 2022 Plan.

⁷⁷ New Hampshire and New Jersey are the only states that requested consultation with North Carolina.

⁷⁸ MANE-VU refers to the emission reduction measures identified in other states as being necessary to make reasonable progress as "Asks." The MANE-VU Ask to states outside of the MANE-VU Region is available at: <https://otcair.org/manevu/Upload/Publication/Formal%20Actions/MANE-VU%20Inter-Regional%20Ask%20Final%208-25-2017.pdf>.

impairment to a Class I area and had an average mass impact of over one percent (0.01 microgram per cubic meter) on a statewide basis were identified for consultation and included in the Inter-RPO Ask. Additionally, any emissions units having the potential for a 3.0 Mm⁻¹ or greater light extinction impact on any MANE-VU Class I area based on CALPUFF modeling of 2011 SO₂ and NO_x emissions were identified for consultation in the MANE-VU Ask.

In a letter dated October 16, 2017, MANE-VU requested consultation with North Carolina on the basis that North Carolina was identified as impacting MANE-VU Class I area(s) on both a statewide basis and emission unit basis. On a statewide basis, MANE-VU claimed that North Carolina's percent mass-weighted sulfate and nitrate contributions from North Carolina to MANE-VU Class I areas in 2015 exceeds the RPO's two percent threshold for five Class I areas in MANE-VU.⁷⁹ On an emissions unit basis, the No. 1 Power Boiler at North Carolina's Kapstone Kraft Corporation ("Kapstone") was identified as having the potential to exceed the 3.0 Mm⁻¹ or greater visibility impact threshold set by MANE-VU for any Class I area in the MANE-VU region.⁸⁰

Regarding statewide visibility impacts to MANE-VU Class I areas, North Carolina disagreed with MANE-VU that North Carolina's statewide emissions are impacting visibility at any MANE-VU Class I areas. North Carolina's viewpoints are reflected in the January 27, 2018, letter from VISTAS to MANE-VU. To resolve the disagreement, North Carolina sent a response letter on February 16, 2018, to MANE-VU and noted several disagreements with MANE-VU's analysis.

Regarding Kapstone's visibility impacts to MANE-VU Class I areas, in a letter dated February 16, 2018, DAQ clarified the status of the No. 1 Power Boiler at KapStone that was initially identified in a September 5, 2017, document from MANE-VU as having the potential for a maximum 6.0 Mm⁻¹ light extinction impact on a MANE-VU Class I area based on CALPUFF modeling of the facility's 2011 SO₂ and NO_x emissions.⁸¹ DAQ reviewed the

⁷⁹ See Tables 2 and 3 of Appendix F–4 of the Haze Plan.

⁸⁰ The August 25, 2017, MANE-VU document identifying maximum potential visibility impacts from the No. 1 Power Boiler at Kapstone Kraft Corporation in North Carolina is located at: <https://otcair.org/manevu/Upload/Publication/Formal%20Actions/MANE-VU%20Inter-Regional%20Ask%20Final%208-25-2017.pdf>.

⁸¹ The September 5, 2017, MANE-VU document, "Selection of States for MANE-VU Regional Haze Consultation (2018)", is available at: <https://>

modeling documentation and found that the maximum potential light extinction impact modeled for the power boiler was 0.28 Mm⁻¹ for MANE-VU Class I areas and 0.47 Mm⁻¹ for Class I areas near the MANE-VU region shown in Table 1 of the 2018 letter. Based on discussions with MANE-VU representatives, there was agreement that the initial light extinction values shown in Table 1 of the 2018 letter are correct for the No. 1 Power Boiler and that the boiler should not be included in the MANE-VU Ask.

North Carolina documented the State's responses and viewpoints with respect to the MANE-VU Ask in Section 10 and Appendix F–4 of the 2022 Plan. North Carolina proposes that it fulfilled the consultation requirements under 40 CFR 51.308(f)(2)(ii) by the State's active participation in the MANE-VU consultation process and by the State's documented responses to MANE-VU. Thus, DAQ determined that no further action is required under the RHR to address MANE-VU's requests.

b. Proposed Plan Comments from MANE-VU, New Hampshire, and New Jersey: MANE-VU, New Hampshire, and New Jersey provided written comments on the North Carolina haze plan proposed for public comment at the State level.⁸² In total, there are five MANE-VU Inter-RPO Asks for states outside of the MANE-VU Region. Regarding Asks 1, 4, and 5, MANE-VU, New Hampshire, and New Jersey acknowledged in their comments on the North Carolina prehearing plan that the existing measures in North Carolina address these three asks. Regarding Ask 2, MANE-VU determined that this ask does not apply to North Carolina. Regarding Ask 3, DAQ reviewed the MANE-VU, New Hampshire, and New Jersey recommendations for the State to adopt an ultra-low sulfur fuel (ULSF) oil standard consistent with Ask 3 and explained in the 2022 Plan why it would not be reasonable to do so. DAQ evaluated residual and distillate oil use in North Carolina and concluded that adopting an ULSF standard would provide "very little" reduction in SO₂ emissions or any noticeable improvement in visibility in Class I areas in North Carolina and in downwind states.

otcair.org/manevu/Upload/Publication/Reports/MANE-VU%20Contributing%20State%20Analysis%20Final.pdf.

⁸² MANE-VU, New Hampshire, and New Jersey submitted a letter dated October 12, 2021, and New Jersey also submitted a letter dated October 15, 2021, providing comments on North Carolina's proposed haze plan. These letters are included in Appendix I of the 2022 Plan.

ii. *North Carolina's Requests for Consultation with Other States:* Consultation with other states with sources contributing to regional haze at North Carolina's Class I areas is discussed in Section 10 and Appendix F of the 2022 Plan. As listed in Tables 7–37 and 7–38 of the 2022 Plan, North Carolina requested a FFA of 16 sources in 10 other states because these sources exceeded the State's sulfate PSAT threshold at one or more of North Carolina's Class I areas.⁸³ DAQ documented the responses from the 10 states in Section 10.1.1 of the 2022 Plan. Section I.E.3 of the TSD provides more details regarding the consultation related to these sources.

3. *EPA Evaluation:* EPA has reviewed DAQ's source selection criteria, consideration of the four factors, determinations of controls necessary for reasonable progress, submitted permit conditions, documentation of technical basis, interstate consultation, and consideration of the five additional factors. Based on this review, EPA finds that North Carolina's LTS satisfies 40 CFR 51.308(f)(2) but for concerns with the legal and practicable enforceability of certain Domtar and PCS permit conditions identified for incorporation into the SIP. As discussed above, North Carolina has committed to provide EPA with a SIP submission no later than one year from the effective date of a final conditional approval action that would adequately address the legal and practicable enforceability concerns identified in this document. Therefore, EPA is proposing to conditionally approve the sections of the Haze Plan addressing 40 CFR 51.308(f)(2). If North Carolina submits the required SIP revision by the specified deadline and EPA approves the submission, then the identified enforceability concerns will be cured and the conditional approval of the sections of the Haze Plan addressing 40 CFR 51.308(f)(2) will be converted to a full approval. Sections IV.C.3.b.ii and IV.C.3.b.iii of this document discuss the enforceability concerns with the Domtar and PCS

⁸³ The 16 sources are: Entergy Arkansas Inc-Independence Plant in Arkansas; Plant Bowen in Georgia; Gibson and Indiana Michigan Power DBA AEP Rockport in Indiana; Tennessee Valley Authority (TVA)-Shawnee in Kentucky; New Madrid Power Plant-Marston in Missouri; Cardinal Power Plant—Cardinal Operating Company (Cardinal Power Plant); Duke Energy Ohio—Wm. H. Zimmer Station (Duke-Zimmer); and General James M. Gavin Power Plant (Gavin Power Plant) in Ohio; Homer City Gen LP/Center and Genon NE Mgmt Co/Keystone Station in Pennsylvania; Eastman and TVA-Cumberland in Tennessee; Jewell Coke Company LLP in Virginia; and Allegheny—Harrison and Monongahela—Pleasants Power Station in West Virginia. North Carolina requested FFAs of non-VISTAS sources through VISTAS.

permit conditions, respectively, and North Carolina's commitments to resolve these concerns. Although EPA finds that North Carolina's LTS satisfies 40 CFR 51.308(f)(2) but for the enforceability concerns with certain Domtar and PCS permit conditions identified for incorporation into the SIP, EPA is soliciting comment on the adequacy of DAQ's analyses, including the FFAs, determination of controls necessary for reasonable progress, and the adequacy of the submitted permit conditions, including associated monitoring, recordkeeping, and reporting, and whether the State has met the requirements of 40 CFR 51.308(f)(2)(i) through (iv).

a. *Source Selection Criteria:* EPA finds that North Carolina's source selection was reasonable. The Haze Plan supports this finding, because it contains information such as Appendix C which includes monitoring and meteorological data used to support selection of sources; Appendix D which provides documentation supporting the AoI analyses (first step of the State's source selection process); and Appendix E which details the visibility and source apportionment data used and results from the PSAT modeling (second step of the State's source selection process). However, EPA finds this source selection requirement is not separable from the overarching requirement of 40 CFR 51.308(f)(2) to establish a LTS. As explained previously in this document, EPA is proposing to conditionally approve North Carolina's LTS due to concerns with the legal and practical enforceability of certain permit conditions identified in the Haze Plan for incorporation into the SIP. Accordingly, EPA finds that the Haze Plan will only meet all requirements of 40 CFR 51.308(f)(2) if North Carolina meets its commitment to submit the corrective SIP revision described in its Commitment Letter no later than one year from the effective date of a final conditional approval action, should EPA finalize the proposed partial conditional approval, and EPA approves that SIP revision. North Carolina included a description of the criteria that the State used to determine which sources the State evaluated for emissions controls.

EPA also finds that North Carolina's source selection resulted in a reasonable set of sources contributing to visibility impairment at Class I areas affected by North Carolina's sources. 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 North Carolina and neighboring states,⁸⁴ and the State identified three North Carolina sources for a control evaluation and identified 16 out-of-state sources for which they requested a control evaluation through interstate consultation. Additionally, statewide SO₂ emissions are expected to decrease in the second planning period from 2019 levels of 34,712 tpy SO₂ to projected 2028 levels of 32,644 tpy SO₂ (a six percent reduction) which occurred after a 63 percent decrease in statewide SO₂ emissions from 2011 to 2018 by 74,830 tpy SO₂, and statewide NO_x emissions are expected to decrease in the second planning period from 2019 levels of 223,264 tpy NO_x to projected 2028 levels of 138,986 tpy NO_x (approximately a 38 percent reduction) which occurred after a 37 percent decrease in statewide NO_x emissions from 2011 to 2018 by 137,820 tpy NO_x.⁸⁵ Additional emissions reductions from permanent shutdowns which have not been reflected in the 2028 emissions projections and 2028 RPGs are 204 tons of SO₂ and 208 tons of SO₂ based on 2016 actual and projected 2028 SO₂ emissions, respectively, and 248 tons of NO_x and 287 tons of NO_x based on 2016 and projected 2028 NO_x emissions, respectively. Visibility conditions in North Carolina's Class I areas in 2028 are estimated to improve since the 2000–2004 baseline period by 14.1 deciviews (Great Smoky Mountains and Joyce Kilmer), 13.8 deciviews (Linville Gorge), 14.8 deciviews (Shining Rock), and 8.5 deciviews (Swanquarter).⁸⁶ Specific to the second planning period, visibility conditions in North Carolina's Class I areas in 2028 are estimated to improve since the 2014–2018 period by 2.2 deciviews (Great Smoky Mountains, Joyce Kilmer, Linville Gorge, Shining Rock), and 1.0 deciview (Swanquarter). These projected second planning period visibility improvements represent approximately ⁸⁷ 30 percent (Great

⁸⁴ 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. See also 2019 Guidance, pp. 12–13.

⁸⁵ North Carolina's statewide emissions of SO₂ and NO_x decreased during the period from 2011 to 2018 from 118,721 tpy SO₂ to 43,891 tpy SO₂ and decreased from 369,496 to 231,676 tpy NO_x. See Tables 13–9 and 13–10 of the Haze Plan.

⁸⁶ See Table 8–1 of the Haze Plan.

⁸⁷ See visibility data for the 20 percent most impaired days data from Table 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 Great Smoky Mountains: $\frac{[(17.21 - 15.03)]}{(17.21 - 10.05)} \times 100 = 30.4$ percent.

Smoky Mountains and Joyce Kilmer); 32 percent (Linville Gorge), 40 percent (Shining Rock), and 16 percent (Swanquarter) of the additional progress needed to reach natural conditions at each Class I area. Additionally, using the most recently available 20 percent most impaired days IMPROVE data (2018–2022)⁸⁸ for the 20 percent most impaired days,⁸⁹ in the first four years of the second planning period, North Carolina's Class I areas have already achieved 25 percent (Great Smoky Mountains and Joyce Kilmer),⁹⁰ 25 percent (Linville Gorge), 27 percent (Shining Rock), and 21 percent (Swanquarter) of the remaining progress needed to reach natural conditions. Also, North Carolina is not contributing to visibility impairment at any Class I areas above the URP, and the State appropriately focused on controlling point source SO₂ emissions based on data showing ammonium sulfate is the dominant visibility impairing pollutant at the North Carolina Class I areas.

Although North Carolina did not select any Duke Energy sources for analysis, EPA conducted further review of five Duke Energy facilities to evaluate the reasonableness of North Carolina's source selection—DEC—Belews Creek Steam Station (DEC-Belews Creek), DEC—Cliffside Steam Station (DEC-Cliffside), DEC—Marshall, Duke Energy Progress, LLC (DEP)—Mayo Electric Generating Plant (DEP-Mayo), and DEP—Roxboro Steam Electric Plant (DEP-Roxboro). EPA identified these five facilities for further review because,

⁸⁸ The 2018–2022 IMPROVE data for the 20 percent most impaired days was obtained from <https://vista.cira.colostate.edu/Improve/rhr-summary-data/> 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 “GRSM1” (Great Smoky Mountains whose data also represents Joyce Kilmer), “LIGO1” (Linville Gorge), “SHRO1” (Shining Rock), “SWAN1” (Swanquarter), respectively, (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 North Carolina Class I area 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. The 2018–2022 IMPROVE data for North Carolina's Class I areas are: 15.4 deciviews (Great Smoky Mountains and Joyce Kilmer), 14.7 deciviews (Linville Gorge), 14.0 deciviews (Shining Rock), and 14.9 deciviews (Swanquarter).

⁸⁹ The 2014–2018 IMPROVE data was provided by North Carolina in Table 8–1 of the Haze Plan.

⁹⁰ 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 Great Smoky Mountains: $\frac{[(17.21 - 15.4)/(17.21 - 10.05)] \times 100 = 25 \text{ percent}$.

in the VISTAS AoI analysis, DEC-Belews Creek, DEC-Cliffside, and DEC-Marshall ranked in the top 10 facility sulfate impacts at Shining Rock; DEC-Belews Creek and DEC-Cliffside ranked in the top 10 facility sulfate impacts at Linville Gorge; DEP-Roxboro ranked in the top 10 facility sulfate impacts at Swanquarter; DEP-Roxboro ranked in the top 10 facility sulfate impacts at James River Face in Virginia; and DEP-Mayo ranked in the top 20 facility sulfate impacts at James River Face. EPA assessed whether these five Duke Energy facilities are effectively controlled for SO₂⁹¹ and whether any cost-effective new emissions reduction measures for SO₂ would have likely resulted from a FFA had these sources met the State's source selection criteria.

The 2019 Guidance provides several scenarios in which EPA believes it may be reasonable for a state not to select a particular source for further analysis. Two of these scenarios are applicable to the five Duke facilities—a coal-fired EGU that has add-on flue gas desulfurization (FGD) and meets the applicable alternative SO₂ emission limit of 0.2 pound (lb) per million British Thermal Units (MMBtu) (lb/MMBtu) in the Mercury and Air Toxics Standards (MATS) rule for power plants;⁹² and an EGU that, during the first period, installed a FGD system that operates year-round with an effectiveness of at least 90 percent. The 2019 Guidance states that in both cases, it is unlikely that an analysis of control measures for a source already equipped with a scrubber and meeting a 0.20 lb/MMBtu limit or greater than 90 percent efficiency would conclude that even more stringent control of SO₂ is necessary to make reasonable progress. See 2019 Guidance at 23.

Each of the five Duke sources are equipped with WFGD and are subject to the alternative SO₂ emissions limit from the MATS rule. EPA evaluated the WFGD SO₂ control efficiencies at each of the coal-fired units at these five sources as follows: DEC-Belews Creek (Units 1, 2); DEC-Cliffside (Units 5 and 6); DEC-Marshall (Units 1–4); DEP-Mayo (Units 1A and 1B); DEP-Roxboro (Units 1, 2, 3A, 3B, 4A, 4B). Data from 2017–2021 indicate that existing WFGD systems at these units at the five Duke facilities routinely achieve 92 to 98 percent SO₂ removal efficiencies with

⁹¹ EPA did not evaluate NO_x controls for these facilities because EPA proposes to agree with North Carolina's conclusion that ammonium sulfate continues to be the dominant visibility impairing pollutant at North Carolina's Class I areas. See Section IV.C.2.a of this notice.

⁹² The MATS rule is located at 40 CFR part 63, subpart UUUUU.

some month-to-month variation in performance.⁹³ Because these coal units are subject to the MATS alternative SO₂ emission limit of 0.2 lb/MMBtu and are equipped with WFGD that routinely achieve a high SO₂ control effectiveness, it reasonable to assume that a FFA would likely result in the conclusion that no further controls are necessary.

b. Consideration of the Four CAA Factors: EPA finds that North Carolina reasonably evaluated and determined, under the four CAA factors, the emission reduction measures for the selected sources that are necessary to make reasonable progress but for the concerns with the legal and practicable enforceability of certain Domtar and PCS permit conditions identified for incorporation into the SIP for the reasons discussed below.⁹⁴

i. BRPP: Regarding BRPP, EPA finds that DAQ's conclusions that existing SO₂ measures at BRPP's Riley Coal Boiler, Riley Bark Boiler, and the No. 4 Power Boiler are necessary for reasonable progress for the second planning period to be reasonable. The State evaluated available and technically feasible SO₂ controls that were based on, where applicable, estimated values of capital costs, annualized costs, and cost per ton of emission reductions, and were consistent with recommendations in EPA's “Air Pollution Control Cost Manual” (Cost Manual).⁹⁵ WFGD with approximately a 90 percent control efficiency is an existing SO₂ control for these units, and the recently installed control measures are estimated to reduce the 2028 projected emissions for the facility from approximately 5,875 tons to 485 tons of SO₂.⁹⁶ Additionally, EPA finds that DAQ reasonably concluded that the addition of DSI controls at \$13,477/ton and \$14,752/ton for the Riley Coal Boiler and No. 4 power Boiler, respectively, and the ULSD at over \$126,000/ton for all three units, are not necessary to make reasonable progress. The associated

⁹³ This data is available through EPA's Clean Air Markets Program at: <https://campd.epa.gov/data>. A summary of the WFGD control efficiency data for the years 2017–2022 for DEC-Belews Creek (Units 1, 2); DEC-Cliffside (Units 5 and 6); DEC-Marshall (Units 1–4); DEP-Mayo (Units 1A and 1B); and DEP-Roxboro (Units 1, 2, 3A, 3B, 4A, 4B) is compiled in a spreadsheet which is included in the docket for this proposed rulemaking.

⁹⁴ See also Section I.B of the TSD for additional details regarding North Carolina's FFAs.

⁹⁵ EPA's Cost Manual is available at: <https://www.epa.gov/economic-and-cost-analysis-air-pollution-regulations/cost-reports-and-guidance-air-pollution>.

⁹⁶ Tables 7–5 and 7–26 of the 2022 Plan display 2028 BRPP SO₂ emissions projections as 405 tpy. Table 7–49 of the 2022 Plan identifies the 2028 BRPP SO₂ emissions projections as 485 tpy.

existing SO₂ emissions limits for these boilers, summarized in Table 7–48 of the 2022 Plan, are already adopted into the North Carolina SIP effective November 24, 2020.⁹⁷

ii. Domtar: Regarding Domtar, EPA finds that DAQ's exclusion of HFB1 from FFA review is reasonable because it is equipped to only burn natural gas and biomass with No. 2 fuel oil as a backup unit and is projected to emit 12 tpy of SO₂ in 2028, which is only one percent of Domtar's total SO₂ emissions. EPA also finds that DAQ's control analysis and conclusions that the existing SO₂ measures at Domtar's HFB2 are necessary for reasonable progress for the second planning period are reasonable, except for EPA's concerns with the legal and practicable enforceability of certain permit conditions identified for incorporation into the SIP from Domtar's title V permit. The State evaluated available and technically feasible SO₂ control measures for HFB2 that were based on, where applicable, estimated values of capital costs, annualized costs, and cost per ton of emission reductions prepared according to EPA's Cost Manual. The cost effectiveness of DSI is \$22,092/ton and the cost effectiveness of the WFGD is \$3,660/ton using a conservative 3.25 percent interest rate.⁹⁸

North Carolina's LTS contains deficiencies that preclude full approval and, based on the State's commitment to address these concerns, EPA is proposing to conditionally approve the LTS portion of the Haze Plan. As discussed in Section III of this document, each state's regional haze SIP must include a LTS that contains enforceable emissions limitations, compliance schedules, and other measures that are necessary to make reasonable progress. See CAA section 169A(b)(2), 40 CFR 51.308(f)(2). Furthermore, CAA section 110(a)(2)(A) requires SIPs to "include enforceable conditions and other control measures, means or techniques . . . as may be necessary or appropriate" to meet the requirements of the Act. As EPA has repeatedly stated, to be enforceable, a CAA requirement must be legally and practically enforceable, and there is a considerable body of applicable EPA rules, EPA guidance, and EPA-approved state practices on the topic of practicably enforceable emission

limits.⁹⁹ Typically, a primary mechanism for ensuring that a SIP provision is legally and practicably enforceable is for a state to impose sufficient monitoring, recordkeeping, and reporting (MRR) requirements on affected sources.

EPA's rules regarding the preparation, adoption, and submittal of SIPs at 40 CFR part 51 also contain requirements concerning the enforceability of SIP emission limits. For example, SIPs must include enforceable test methods for each emission limit included in the plan. See 40 CFR 51.212. SIPs must also provide legally enforceable methods requiring owners or operators of stationary sources to maintain records of and periodically report to the State information regarding the nature and number of emissions from a stationary source and other information as it may be necessary for a state to determine if the source is in compliance with the control strategy. See 40 CFR 51.211. Furthermore, the SIP completeness criteria in 40 CFR part 51, appendix V state that complete SIPs contain "evidence that the plan contains emission limitations, work practice standards and recordkeeping/reporting requirements, where necessary, to ensure emission levels" and "compliance/enforcement strategies, including how compliance will be determined in practice." See 40 CFR 51.103; 40 CFR part 51, appendix V, sections 2.2(g), (h).

North Carolina's SIP revision relies on certain existing emission limits in the title V permit for Domtar to achieve reasonable progress towards the national visibility goal. These emission limits must be legally and practically enforceable, as required under sections 110(a)(2)(A) and 169A(b)(2) of the Act, and the SIP must satisfy EPA's rules regarding the enforceability of SIP emission limits. Section 7.8.3.1 of the Haze Plan identifies SO₂ emission limits from Conditions 2.1 A.4 and 2.1 A.7 of Domtar title V Air Quality Permit No. 04291T51 for incorporation into the SIP as well as several other provisions in these Conditions, including A.4.c.¹⁰⁰

⁹⁹ See, e.g., 57 FR 13497, 13567 (April 16, 1992) (explaining principles, including enforceability, to which SIPs and implementing instruments must adhere to help assure that planned emission reductions will be achieved); 80 FR 33840, 33843, 33865, 33890, 33891, 33903 (June 12, 2015) (discussing the requirement that SIP emission limits must be practically enforceable and stating that "[t]he term practically enforceable means, in the context of a SIP emission limitation, that the limitation is enforceable as a practical matter (e.g., contains appropriate averaging times, compliance verification procedures and recordkeeping requirements)."

¹⁰⁰ The State requested in the Haze Plan for EPA to incorporate specific permit conditions from

The conditions listed in *italics* under Section 7.8.3.1 are identified for incorporation into the SIP with the exception of any text marked in *strikeout*.

Condition 2.1 A.4.a contains an SO₂ emission limit of 2.3 lbs/MMBtu heat input when firing wood or natural gas. This limit also applies when burning waste gases with wood and/or natural gas. However, the SIP revision does not include a methodology to evaluate compliance with the 2.3 lbs/MMBtu emission limit. EPA considers the lack of a compliance methodology as a deficiency because it undermines the enforceability of the emission limit. In its Commitment Letter, North Carolina has committed to address this concern by revising Condition 2.1 A.4 of Permit No. 04291T51 to include a condition containing a procedure to monitor and evaluate compliance with the SO₂ emission limit of 2.3 lbs/MMBtu in Condition 2.1 A.4.a and submitting a SIP revision, no later than one year from the effective date of a final conditional approval action (should EPA finalize the proposed partial conditional approval), requesting incorporation of the condition into the SIP.

Condition 2.1 A.4.c states that monitoring, recordkeeping, and reporting are not required for the combustion of wood residue and natural gas. However, as discussed above, these SIP-approved emission limits must have adequate monitoring, recordkeeping, and periodic reporting requirements in order to be legally and practically enforceable, and the SIP must satisfy EPA's rules regarding the enforceability of SIP emission limits which require monitoring, recordkeeping, and periodic reporting. To address this concern, North Carolina submitted a letter dated July 30, 2024, withdrawing from the Haze Plan the State's request for EPA to incorporate Condition 2.1 A.4.c into the SIP,¹⁰¹ and in its Commitment Letter, North Carolina committed to submit a

Domtar title V Air Quality Permit No. 04291T50. However, this permit was superseded after EPA received the SIP revision. In an email dated March 28, 2024, DAQ asks EPA to instead incorporate the same terms from the current Domtar title V permit (DAQ Air Quality Permit No. 04291T51) and confirms that the text of the permit conditions identified for incorporation into the SIP in Section 7.8.3.1 of the Haze Plan from Permit No. 04291T50 has not changed. The March 28, 2024, email and the current Domtar permit are included in the docket for this proposed rulemaking.

¹⁰¹ In a July 30, 2024, letter, DAQ withdrew the State's request for EPA to incorporate Condition 2.1 A.4.c from Domtar Paper Company's title V air permit for its Plymouth facility into the North Carolina SIP. This request appeared in Section 7.8.3.1 of the Haze Plan narrative on pages 284–285. The July 30, 2024, letter of withdrawal is included in the docket for this proposed rulemaking.

⁹⁷ See 85 FR 74884 (November 24, 2020) available at: <https://www.govinfo.gov/content/pkg/FR-2020-11-24/pdf/2020-25464.pdf>.

⁹⁸ See <https://fred.stlouisfed.org/series/PRIME> for historical interest rates. As of July 22, 2024, the current bank prime interest rate is 8.5 percent. (See: <https://www.federalreserve.gov/releases/h15/>).

SIP revision, no later than one year from the effective date of a final conditional approval action (should EPA finalize the proposed partial conditional approval), requesting incorporation of Conditions 4 I.B., P, and X into the SIP.¹⁰²

Condition 2.1 A.7.a contains an SO₂ emission limit of 0.80 lb/MMBtu heat input when firing oil and wood/lignin. Condition 2.1 A.7 identifies fuel sampling and analysis as the method to evaluate compliance with the 0.80 lb/MMBtu emission limit; however, the Condition does not identify a method to convert fuel sampling and analysis data into SO₂ emissions values comparable with the emission limit. This emission limit is not practicably enforceable for SIP purposes without inclusion of a corresponding conversion methodology. In its Commitment Letter, North Carolina has committed to address this concern by revising Condition 2.1 A.6 and/or Condition 2.1 A.7 of Permit No. 04291T51 to include a condition containing a procedure to monitor and evaluate compliance with the SO₂ emission limit of 0.80 lb/MMBtu in Condition 2.1 A.7.a and submitting a SIP revision, no later than one year from the effective date of a final conditional approval action (should EPA finalize the proposed partial conditional approval), requesting incorporation of the monitoring condition into the SIP.

Given the concerns identified above, and North Carolina's Commitment Letter containing the aforementioned commitments to address these identified concerns related to Domtar, EPA is proposing to conditionally approve the sections of the Haze Plan addressing the requirements of 40 CFR 51.308(f)(2), (f)(3), and (i)(2) through(4).

iii. PCS: Regarding PCS, EPA finds that DAQ's control analysis and conclusions that the existing SO₂ measures at PCS' SAPs 5, 6, and 7 are necessary for reasonable progress for the second planning period are reasonable, except for EPA's concerns with the legal and practicable enforceability of certain permit conditions identified for incorporation into the SIP from PCS' title V permit. The State adequately demonstrated that there are no

technically feasible SO₂ control measures for sulfuric acid plants beyond dual absorption process with cesium catalyst, the current SO₂ control measure at SAPs 5, 6, and 7.

North Carolina's SIP revision relies on certain existing emission limits in the title V permit for PCS to achieve reasonable progress towards the national visibility goal. However, EPA finds that these emission limits are not legally and practicably enforceable. As discussed above, these emission limits must be legally and practically enforceable, as required under sections 110(a)(2)(A) and 169A(b)(2) of the Act, and the SIP must satisfy EPA's rules regarding the enforceability of SIP emission limits. Section 7.8.3.2 of the Haze Plan identifies SO₂ emission limits from Condition 2.4 A.1 of PCS title V Air Quality Permit No. 04176T72 for incorporation into the SIP as well as several other provisions in Condition 2.4 A.1, including Conditions A.1.m and A.1.o.^{103 104} The conditions listed in *italics* under Section 7.8.3.2 are identified for incorporation into the SIP with the exception of any text marked in *strikeout*. A summary of EPA's finding and North Carolina's commitment to address the lack of enforceability of these emission limits is found below.

The monitoring provision in Condition 2.4 A.1.m requires the permittee to monitor SO₂ emissions in accordance with the CEMS Plan (Attachment 2 to the permit). However, the 2022 Plan excludes Attachment 2 and the reference to Attachment 2 from the request to incorporate Condition 2.4 A.1.m into the SIP. Similarly, the first sentence of the monitoring provision in

Condition 2.4 A.1.o requires the permittee to use analyzer data to determine 3-hour rolling averages and 365-day rolling averages per Attachment 2, and the second sentence requires the permittee to round calculations associated with these averages using the procedures specified in Attachment 2. However, the 2022 Plan excludes the second sentence and the reference to Attachment 2 in the first sentence from the request to incorporate Condition 2.4 A.1.o into the SIP. EPA considers this exclusion of monitoring requirements from Conditions 2.4 A.1.m and 2.4 A.1.o to be a deficiency because the lack of monitoring requirements undermines the enforceability of the SO₂ emission limits identified for incorporation into the SIP. In its Commitment Letter, North Carolina has committed to address these concerns by submitting, no later than one year from the effective date of a final conditional approval action (should EPA finalize the proposed partial conditional approval), a SIP revision requesting incorporation of Conditions 2.4 A.1.m (with the exception of Condition 2.4 A.1.m.v) and 2.4 A.1.o in its entirety and Attachment 2 of Permit No. 04176T72 into the SIP.

The SIP revision does not identify any reporting requirements from title V permit No. 04176T72 for incorporation into the SIP. As discussed above, these emission limits must have adequate monitoring, recordkeeping, and periodic reporting requirements in order to be legally and practicably enforceable. In its Commitment Letter, North Carolina has committed to address this concern by submitting, no later than one year from the effective date of a final conditional approval action (should EPA finalize the proposed partial conditional approval), a SIP revision requesting incorporation of Conditions 4 I.B., P, and X into the SIP.¹⁰⁵

Given the concerns identified above and North Carolina's Commitment Letter containing the aforementioned commitments to address these identified concerns related to PCS, EPA is proposing to conditionally approve the sections of the Haze Plan addressing the requirements of 40 CFR 51.308(f)(2), (f)(3), and (i)(2) through(4).

c. Documentation of Technical Basis: With respect to 40 CFR 51.308(f)(2)(iii), EPA finds that North Carolina adequately documented cost, engineering, emissions, modeling, and monitoring information to determine the measures that are necessary to make reasonable progress. With regard to

¹⁰² North Carolina's SIP contains a recordkeeping provision at 15 NCAC 02D .0605 that requires the owner or operator of a source subject to the requirements of 15 NCAC 02D or 02Q, such as Domtar, to maintain for two years "(1) records detailing malfunctions pursuant to 15A NCAC 02D .0535; (2) records of testing conducted pursuant to rules in Subchapter 02D; (3) records of monitoring conducted pursuant to Subchapters 02D or 02Q of this Chapter; (4) records detailing activities relating to compliance schedules in this Subchapter [02D]; and (5) for unpermitted sources, records needed to determine compliance with rules in Subchapters 02D or 02Q of this Chapter." See 15 NCAC 02D .0605(a), (e).

¹⁰³ Condition 2.4 A.1 of Air Quality Permit No. 04176T72 includes the SO₂ emissions limits for Sulfuric Acid Plants Nos. 5, 6, and 7 required under a February 26, 2015, consent decree between EPA and PCS that terminated on April 3, 2023. The consent decree and termination order are in the docket for this proposed rulemaking. Although the consent decree is terminated, the emission limits "shall never be relaxed." See Condition 2.4 A.1.f.

¹⁰⁴ The statement in the first bullet on p. 288 of the 2022 Plan that reads "Section 2.5 A.1.b through d, f" is correct. The paragraph letters "a", "b", and "c" in the italicized text are incorrect and should read "b", "c", and "d", respectively. The State requested in the Haze Plan for EPA to incorporate specific permit conditions from PCS title V Air Quality Permit No. 04176T66 into the SIP. However, this permit was superseded after EPA received the SIP revision. In an email dated July 30, 2024, DAQ asks EPA to incorporate the same terms from the current PCS title V permit (DAQ Air Quality Permit No. 04176T72). The email confirms that the text of the permit conditions identified for incorporation into the SIP in Section 7.8.3.2 of the Haze Plan from Permit No. 04176T66 has not changed with the exception of the renumbering of Section 2.5 to Section 2.4 and the correction of a typographical error to a cross-reference in condition 2.5 A.1.p (currently 2.4 A.1.p) in the PCS permit.

¹⁰⁵ As discussed in Section IV.C.3.b.ii above, North Carolina's SIP contains a recordkeeping provision at 15 NCAC 02D .0605.

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 2022 Plan (40 CFR 51.308(f)(2)(iii)). DAQ also provided statewide actual emissions inventory data for 2011, 2014, 2016, 2017, 2018, and 2019 in its 2022 Plan. Additionally, the State provided 2028 emissions data used in the source selection process. With regard to cost and engineering information, the State provided the underlying cost calculations associated with the cost summaries in Section 7.8 of the plan for BRPP and Domtar, and the proposed FFAs in Appendix G provide engineering analyses evaluating potential new control measures.¹⁰⁶ With regard to monitoring data, the State provided IMPROVE data for the modeling base period plus baseline, current (2014–2018), updated current (2015–2019), and natural conditions for all VISTAS Class I areas with more detailed data provided for the North Carolina Class I areas. With regard to 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 the Five Additional Factors in 40 CFR 51.308(f)(2)(iv): EPA finds that North Carolina considered each of the five additional factors in 40 CFR 51.308(f)(2)(iv), discussed the measures the State has in place to address each factor (or discussed why such measures are not needed), and, where relevant, explained how each factor informed DAQ's and VISTAS' technical analyses for the second planning period.

With respect to 40 CFR 51.308(f)(2)(iv)(A), EPA finds that DAQ 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), EPA finds that North Carolina adequately evaluated measures to mitigate the impacts of construction activities by describing various State regulations that address control of erosion, siltation, and pollution from construction activities and that require subject facilities to control PM from

fugitive dust emission sources generated within plant boundaries.

With respect to 40 CFR 51.308(f)(2)(iv)(C), EPA finds that North Carolina adequately considered source retirement and replacement schedules by summarizing existing and planned source retirements throughout the 2022 Plan, including in Section 7.2.2 (retirements accounted for in the 2028 inventory/RPGs) and Section 8.3.5 (retirements not accounted for in the 2028 inventory/RPGs). Additionally, retirement schedules for various Duke Energy power plant facilities are included in Table 7–43 of the 2022 Plan.

With respect to 40 CFR 51.308(f)(2)(iv)(D), EPA finds that North Carolina adequately addressed the requirement to consider the State's basic smoke management practices for prescribed fire used for agricultural and wildland vegetation management purposes and smoke management programs for the following reasons. The State describes its *Guidelines for Managing Smoke from Forestry Burning Operations* to mitigate PM_{2.5} emissions and regional haze impacts associated with prescribed burning and highlights interagency coordination related to educating North Carolina citizens on open burning and related topics.¹⁰⁷

With respect to 40 CFR 51.308(f)(2)(iv)(E), EPA finds that North Carolina assessed the anticipated net effect on visibility due to projected changes in point, area, and mobile source emissions over the second period in development of the 2028 RPGs for the North Carolina Class I areas. DAQ used the 2011 base year emissions inventory to project emissions from various source sectors to 2028, the end of the second planning period. DAQ, 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 2009–2013.¹⁰⁸ For North Carolina, estimated visibility improvements by 2028 in each Class I area are based on: estimated emissions

¹⁰⁷ DAQ notes that elemental carbon is the primary visibility impairing pollutant related to wildfires, prescribed wildland fires, and agricultural burning. Elemental carbon is a relatively minor contributor to visibility impairment on the 20 percent most impaired days from the base period (2000–2004) through 2018 at the Class I areas in VISTAS and Class I areas neighboring VISTAS based on IMPROVE monitoring data as discussed in Section 2.4 of the 2022 Plan. See Figures 2–17 and 2–18 of the 2022 Plan.

¹⁰⁸ In preparing the 2028 emissions for point sources, North Carolina started with a 2016 base year inventory which include emission reductions associated with federal and state control programs and consent decrees included in the LTS for the first planning period.

reductions associated with existing federal and state measures implemented or expected to be implemented during the second planning period; emissions reductions associated with facility closures that occurred after the 2016 point source emissions base year (*i.e.*, January 1, 2017 through November 18, 2018); and estimates of emissions changes associated with economic growth and other factors.

e. Interstate Consultation: With respect to interstate consultation pursuant to 40 CFR 51.308(f)(2)(ii), EPA finds that North Carolina adequately consulted with those states with Class I areas where North Carolina emissions may reasonably be anticipated to cause or contribute to visibility impairment and to consult with those states whose sources may reasonably be anticipated to cause or contribute to visibility impairment at North Carolina's Class I areas. No states requested that North Carolina perform a FFA of any of the State's sources. With respect to the MANE–VU Ask, North Carolina adequately took action to resolve disagreements with MANE–VU related to North Carolina's statewide impacts and satisfactorily documented the State's disagreements by sending the February 16, 2018, letter to MANE–VU documenting the State's points of disagreement in addition to supporting the January 27, 2018, letter from VISTAS to MANE–VU.¹⁰⁹ With respect to consultation with other states with visibility impacts to North Carolina's Class I areas, DAQ adequately documented the responses from consulted states in Appendix F and as summarized in Section 10.1.1 and identified whether the State agrees with the conclusions.

f. Conclusions: For the reasons discussed above, EPA finds that North Carolina's LTS satisfies 40 CFR 51.308(f)(2) but for the concerns with the legal and practicability of certain Domtar and PCS permit conditions identified for incorporation into the SIP. Given this finding and North Carolina's commitment to submit a SIP revision resolving these concerns, EPA is proposing to conditionally approve the sections of the Haze Plan addressing the requirements of 40 CFR 51.308(f)(2), (f)(3), and (i)(2) through(4).

¹⁰⁹ Appendix F–4 of the 2022 Plan contains the January 27, 2018, and February 16, 2018, letters along with a letter dated October 16, 2017, in which MANE–VU requested consultation with North Carolina because North Carolina exceeds the MANE–VU visibility impact threshold for at least one Class I area in the MANE–VU region.

¹⁰⁶ The State documented that there are no additional technical feasible control technologies for SO₂ at PCS.

D. RPGs

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 clearest days and the most impaired 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 the 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:* North Carolina identified 2028 RPGs for each of its Class I areas in deciviews for the 20 percent clearest days and the 20 percent most impaired in Tables 8–1 and 8–2, respectively, of the 2022 Plan, which are all well below the 2028 URP value for each Class I area by approximately 13 to 23 deciviews (see Table 1) based on VISTAS’ modeling. Table 4 summarizes the 2028 RPGs and 2028 URP for North Carolina’s Class I areas.

TABLE 4—NORTH CAROLINA’S CLASS I AREA 2028 RPGS AND URP IN DECIVIEWS (dv)

Class I area	2028 RPG for 20% clearest days	2028 RPG for 20% most impaired days	2028 Uniform rate of progress (URP)
Great Smoky Mountains	8.96	15.03	21.49
Joyce Kilmer	8.96	15.03	21.49
Linville Gorge	8.21	14.25	20.71
Shining Rock	4.54	13.31	20.98
Swanquarter	10.77	15.27	18.28

Figures 3–1 through 3–4 of the 2022 Plan show the URP for the 20 percent most impaired days for Great Smoky Mountains and Joyce Kilmer, Linville Gorge, Shining Rock, and Swanquarter.

3. *EPA Evaluation:* As discussed previously in this document, EPA is proposing to conditionally approve the sections of the Haze Plan addressing the regional haze requirements contained in 40 CFR 51.308(f)(2) due to concerns with the legal and practicable enforceability of certain permit conditions for Domtar and PCS identified for incorporation into the SIP. 40 CFR 51.308(f)(3)(i) specifies that RPGs must reflect “enforceable emissions limitations, compliance schedules, and other measures required under paragraph (f)(2) of this section.” Because the RPGs must reflect enforceable limits, compliance schedules, and other measures in the LTS and because the enforceability issues discussed in Sections IV.C.3.b.ii and IV.C.3.b.iii render certain emission limits in the LTS for Domtar and PCS unenforceable, EPA finds that North Carolina has satisfied the applicable requirements of 40 CFR 51.308(f)(3) related to RPGs but for these practicable enforceability concerns and proposes to conditionally approve the sections of the Haze Plan addressing the requirements of 40 CFR 51.308(f)(3).

North Carolina 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; North Carolina’s RPGs also 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; and any additional unanticipated emissions reductions provide further assurances that the State’s Class I areas will achieve their 2028 RPGs. However, because the EPA is proposing to conditionally approve North Carolina’s LTS under 40 CFR 51.308(f)(2) through this proposed rulemaking, EPA is also proposing to conditionally approve the RPGs under 40 CFR 51.308(f)(3). Therefore, if North Carolina submits the required corrective SIP revision by the specified deadline in its commitment letter and EPA approves the submission, the identified practicable enforceability concerns will be cured and the conditional approval of the elements of the Haze Plan related to the requirements of 40 CFR 51.308(f)(3) will be converted to a full approval.

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 subsection 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 a 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), North Carolina states that the existing IMPROVE monitors for the State's Class I areas are adequate. With respect to 40 CFR 51.308(f)(6)(ii), data from these IMPROVE monitors will be used for future haze plans and progress reports. 40 CFR 51.308(f)(6)(iii) does not apply to North Carolina because it has Class I areas. 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 (AQS). With respect to 40 CFR 51.308(f)(6)(v), DAQ provided a statewide baseline emissions inventory of visibility impairing pollutants for the year 2011 in Table 4–2 of the 2022 Plan; provided 2011, 2014, and 2016–2019¹¹⁰ anthropogenic emissions data for SO₂, NO_x, PM_{2.5}, PM₁₀, and VOC in Tables 13–9, 13–10, 13–11, 13–12, 13–13, respectively; provided EPA and VISTAS 2028 future emissions projections for SO₂ and NO_x in Table 4–3, and for specific point sources, 2028 VISTAS emission projections for SO₂ and NO_x in Tables 7–20 through 7–24; and committed to update the inventory periodically. With respect to 40 CFR 51.308(f)(6)(vi), North Carolina affirms there are no elements, including

reporting, recordkeeping, or other measures, necessary to address and report on visibility for North Carolina's Class I areas or Class I areas outside the State that are affected by sources in North 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. Section II of the TSD provides a more detailed summary of the State's assessment of its monitoring strategy for regional haze and other plan requirements pursuant to 40 CFR 51.308(f)(6).

3. EPA Evaluation: EPA finds that North Carolina has satisfied the applicable requirements of 40 CFR 51.308(f)(4) and (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 North Carolina at this time because neither EPA nor the FLMs requested additional monitoring to assess RAVI.

EPA finds that North Carolina satisfied 40 CFR 51.308(f)(6), which is 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), North Carolina stated that the existing IMPROVE monitors relied upon for the State's five Class I areas are adequate, and thus, additional monitoring sites or equipment are not needed to assess whether RPGs for all Class I areas within the State are being achieved. With respect to 40 CFR 51.308(f)(6)(ii), North Carolina has 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 North 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 North 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 finds that North 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 finds that North 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. In addition, EPA finds that North 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). Therefore, EPA is proposing to approve the portions of the North Carolina SIP submission related to 40 CFR 51.308(f)(6).

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 address the progress report requirements of 40 CFR 51.308(g)(1) through (5). The purpose of these requirements is to evaluate progress toward 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 toward reducing emissions and improving visibility.

¹¹⁰ As discussed above, at the time of development of the 2022 Plan, the 2017 NEI was the most recent triennial emissions inventory and 2019 emissions data were the most recent annual emissions data available at the time of the development of the 2022 Plan.

2. *State Assessment*: With respect to the progress report elements pursuant to 40 CFR 51.308(f)(5), DAQ addressed these elements in Section 13 of the 2022 Plan for the period 2011 to 2018, the end of the first period.

Regarding 40 CFR 51.308(g)(1) and (g)(2), DAQ describes the status of the implementation of the measures of the LTS from the first planning period in Section 13.2 of the 2022 Plan and provides a summary of the emission reductions achieved by implementing those measures in Section 13.3 of the 2022 Plan. With respect to 40 CFR 51.308(g)(1), Table 13–1 of the 2022 Plan identifies key emissions control measures and other emission reduction actions included in the LTS of North Carolina's first regional haze plan submitted on December 17, 2007 (“2007 Haze Plan”). Table 13–1 also identifies key measures that contributed to emission reductions during the first planning period but were not a part of the LTS for the first period (e.g., 2010 SO₂ NAAQS).

With respect to 40 CFR 51.308(g)(2), North Carolina continued to focus on SO₂ 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.¹¹¹ In Section 13.3 of the 2022 Plan, DAQ summarized EGU and certain non-EGU SO₂ emissions reductions over the 2013–2018 period. The Duke Energy Progress and Duke Progress Carolinas EGU facilities collectively emitted a total of 73,456 tons of SO₂ emissions in 2011 which decreased to 15,130 tons in 2018, a reduction of approximately 79 percent and the EGU sector represents over 50 percent of statewide SO₂ emissions from stationary sources in North Carolina. Regarding EGU NO_x emissions reductions, Duke Energy Progress and Duke Progress Carolinas EGU facilities together emitted a total of 39,285 tons of NO_x emissions in 2011 which decreased to 27,305 tons in 2018, a reduction of 30 percent. Additionally, DAQ focused on five non-EGU facilities identified in the 2007 Haze Plan for a FFA and for which no new measures were found reasonable in that plan: BRPP; Domtar; International Paper—New Bern Mill; PCS; and Coastal Carolina Clean Power—Kenansville. Except for Domtar, whose SO₂ emissions increased by 161

tpy from 2011 to 2018, SO₂ emissions decreased due to new control measures or because the facility closed (i.e., Coastal Carolina Clean Power—Kenansville closed in 2017). DAQ states that there has been a 58 percent reduction in SO₂ emissions associated with these five facilities. The data summarized below regarding 40 CFR 51.308(g)(4) also reflects emissions reductions for the 2013–2018 period.

Regarding 40 CFR 51.308(g)(3), DAQ calculated the following for the State's five Class I areas in Tables 13–6, 13–7, and 13–8: the 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 past five years. DAQ concluded that IMPROVE monitoring data for 2014–2018 show that all North Carolina Class I areas are well 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 13–1 through 13–8 of the 2022 Plan.¹¹²

Regarding 40 CFR 51.308(g)(4), in Section 13.5, DAQ provided emissions trends from 2011 through 2019 for SO₂, NO_x, PM_{2.5}, PM₁₀, and VOCs which reflect the emissions reductions from the measures in the first planning period LTS. In summary, from 2011 to 2019, statewide emissions of SO₂, NO_x, PM_{2.5}, PM₁₀, and VOCs have reduced by 71, 40, 20, 4, and 13 percent, respectively. Regarding SO₂, statewide SO₂ emissions decreased (in tpy) from 118,721 in 2011 to 34,712 in 2019. Regarding NO_x, statewide NO_x emissions decreased (in tpy) from 369,496 in 2011 to 223,264 in 2019.

Regarding 40 CFR 51.308(g)(5), in Section 13.6, DAQ reviewed anthropogenic SO₂ and NO_x 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 SO₂ and NO_x emissions from 2011 through 2017 in all regions of the country as shown in Table 13–14 and Figures 13–14 and 13–15 of the 2022 Plan. DAQ concluded that there does not appear to be any anthropogenic emissions within North Carolina that would have limited or impeded progress in reducing pollutant emissions or improving visibility.

Section III of the TSD provides a more detailed summary of the State's assessment of how North Carolina addressed requirements for periodic

reports describing progress toward the RPGs for the State's Class I areas pursuant to 40 CFR 51.308(f)(5).

3. *EPA Evaluation*: EPA finds that North Carolina has met the requirements of 40 CFR 51.308(g)(1)–(5) because the 2022 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 the North Carolina Class I areas; an analysis tracking the changes in emissions since the first planning period progress report using available emissions data from 2011–2019, including annual 2018 and 2019 emissions data and 2017 NEI data which is the most recent triennial emissions inventory submission from North Carolina prior to submission of the 2022 Plan in accordance with the RHR; and assessed whether any significant changes in anthropogenic emissions within or outside the State have occurred since 2010 (the end of the period addressed by North 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 approve the progress report elements pursuant to 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 the 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 the FLMs must be provided an opportunity to discuss with states: assessment of

¹¹¹ 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).

¹¹² In Figures 13–1 through 13–8 of the 2022 Plan, the “Model Projection” represents the RPGs and “Observation” represents IMPROVE data.

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), North Carolina consulted with the FLMs prior to opening the State public comment period on its proposed haze plan and included a summary of the conclusions and recommendations of the FLMs in the proposed plan dated August 30, 2021, in Section 10.4 and Appendix H of the 2022 Plan. North Carolina consulted with the FLMs on April 5, 2021, which was 147 days before the opening of the public comment period on August 30, 2021.

With respect to 40 CFR 51.308(i)(2), DAQ offered to the three FLM agencies the opportunity to consult on the April 5, 2021, draft North Carolina Haze Plan. DAQ shared with the FLMs the August 30, 2021, proposed North Carolina Haze Plan issued for state public notice and comment with a public hearing held October 6, 2021, with the close of the comment period on October 15, 2021. A summary of this consultation process is discussed and documented in Section 10.4 of the 2022 Plan (responses to FLM comments) with supporting information in Appendix H (FLM comments received) and Appendix F. Appendix F-3 contains VISTAS stakeholder materials which include data and analyses for North Carolina that were presented to the FLMs (and EPA). In addition, through VISTAS, North 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. DAQ 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 2022 Plan.

To address 40 CFR 51.308(i)(3), North Carolina provided responses to comments received from NPS and USFS in Section 10.4 and Appendix I (Section 3.2) of the 2022 Plan.¹¹³

¹¹³ FWS did not provide written comments to DAQ on North Carolina's draft and proposed haze plans.

With respect to 40 CFR 51.308(i)(4), North Carolina updated its existing procedures for continuing consultation with the FLMs, including annual discussions with a review of the most recent IMPROVE monitoring data. Also, DAQ stated that its New Source Review (NSR) regulations for both nonattainment and attainment areas will address emissions from new sources that may be located near a Class I area or increased emissions from major modifications to existing sources. DAQ noted that consultation with the FLMs is also required for sources that are subject to its NSR regulations.

3. *EPA Evaluation:* EPA is proposing to conditionally approve the Haze Plan with respect to the FLM consultation requirements under 40 CFR 51.308(i)(2)–(4) because EPA is proposing to conditionally approve the LTS under 40 CFR 51.308(f)(2) and the RPGs under 40 CFR 51.308(f)(3). Although North Carolina consulted with the FLMs prior to the public hearing on the 2022 Plan and included a summary of the conclusions and recommendations of the FLMs in the proposed plan issued for public review, provided the FLMs the requisite opportunity to review and provide feedback on the State's initial draft plan pursuant to 40 CFR 51.308(i)(2), included the FLM comments in the proposed Haze Plan pursuant to CAA 169A(d), included responses to the FLM comments in the Haze Plan pursuant to 40 CFR 51.308(i)(3), and included ongoing FLM consultation procedures in the Haze Plan pursuant to 40 CFR 51.308(i)(4), North Carolina's consultation was based on a SIP revision that did not meet the required statutory and regulatory requirements of the CAA and the RHR, respectively. If EPA finalizes the partial conditional approval of the Plan, as proposed in this document, the State will be required to again satisfy the FLM consultation requirement under 40 CFR 51.308(i) in the process of submitting to EPA the corrective SIP revision identified in its Commitment Letter.

H. Environmental Justice (EJ) Considerations

As explained in *EPA Legal Tools to Advance Environmental Justice* and the 2021 Clarifications Memo, CAA section 169A and the RHR provide states with the discretion to consider EJ in developing rules and measures related to regional haze.¹¹⁴ In this instance,

¹¹⁴ *EPA Legal Tools to Advance Environmental Justice* (May 2022) is available at: <https://www.epa.gov/system/files/documents/2022-05/EJ%20Legal%20Tools%20May>

DAQ exercised this discretion, as is described below in summary. In reviewing DAQ's analysis, EPA defers to North Carolina's reasonable exercise of its discretion in considering EJ in this way. The information associated with DAQ's analysis is included in this document for informational purposes only; it does not form any part of the basis of EPA's proposed action.

DAQ describes North Carolina's EJ Program for regional haze in Section 10.6 of the 2022 Plan which includes outreach plans to provide an opportunity for meaningful involvement of all people regardless of race, color, national origin, or income during the comment period of this regional haze plan for North Carolina. DAQ ran EJSscreen,¹¹⁵ an EJ mapping and screening tool that provided a nationally consistent dataset and approach for combining various environmental and demographic indicators, around the North Carolina Class I areas except for Great Smoky Mountains because the area is too large to perform the EJSscreen analysis. Based on the EJSscreen results, which are included in Appendix F-5 of the Haze Plan, DAQ implemented its outreach plan, including conducting specific outreach during the comment period on the August 30, 2021, proposed haze plan to communities within potentially underserved block groups that overlap or are within one mile of the North Carolina Class I areas. DAQ also provided project information and updates to the Eastern Band of the Cherokee Nation. Section IV of the TSD provides a more detailed summary of how North Carolina opted to consider EJ in development of the 2022 Plan. While EPA commends North Carolina's consideration of EJ when developing its SIP revision, the EJ analyses submitted by DAQ were considered but were not the basis for EPA's proposed action.

V. Incorporation by Reference

In this document, EPA is proposing to include in a final EPA rule regulatory text that includes incorporation by reference. In accordance with the requirements of 1 CFR 51.5, and as discussed above in this preamble, EPA is proposing to incorporate by reference into North Carolina's SIP the following conditions from DAQ Air Quality Permit No. 04291T51 issued to Domtar with an effective date of December 1, 2023: Conditions 2.1 A.4.a (except for the references to HFB1 and the list of systems and sources in A.4.a.i through

¹¹⁵ *202022%20FINAL.pdf*; 2021 Clarifications Memo at 16.

¹¹⁵ EPA's EJSscreen tool is available at: <https://www.epa.gov/ejscreen>.

A.4.a.v); ¹¹⁶ A.6.e (except for the references to HFB1 and the second sentence); ¹¹⁷ A.6.k (except for the references to HFB1); ¹¹⁸ A.6.l; A.6.m (except the word “above”); ¹¹⁹ A.7.a (except for the text unrelated to the SO₂ limit for HFB2); ¹²⁰ A.7.d (except for the references to particulate matter and the word “above”); ¹²¹ A.7.f (except for the phrase “amounts of each fuel fired in the No. 1 Hog Fuel Boiler each month and the”); ¹²² and A.7.g (except the word “above”).¹²³ EPA is also proposing

¹¹⁶ The text incorporated into the SIP would state “Emissions of sulfur dioxide when firing wood or natural gas in the No. 2 Hog Fuel Boiler (ID No. ES-65-25-0310) shall not exceed 2.3 pounds per million Btu heat input. Sulfur dioxide formed by the combustion of sulfur in fuels, wastes, ores, and other substances shall be included when determining compliance with this standard, and shall include the sulfur dioxide formed by the combustion of sulfur-containing gases.” See Section 7.8.3.1 of the 2022 Plan.

¹¹⁷ The text incorporated into the SIP would state “The Permittee shall demonstrate compliance with the sulfur dioxide emission limit for the No. 2 Hog Fuel Boiler (ID No. ES-65-25-0310) by fuel sampling and analysis. [40 CFR 60.45(b)(2)]” See Section 7.8.3.1 of the 2022 Plan.

¹¹⁸ The text incorporated into the SIP would state “Pursuant to 40 CFR 60.7(b), the Permittee shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the No. 2 Hog Fuel Boiler (ID No. ES 65-25-0310) and any malfunctions of the air pollution control equipment, or any periods during which a continuous monitoring system or monitoring device is inoperative [40 CFR 60.7(b)]. The Permittee shall be deemed in noncompliance with 15A NCAC 02D .0524 if the startup, shutdown, or malfunction records and records of air pollution control equipment malfunctions are not maintained as specified.” See Section 7.8.3.1 of the 2022 Plan.

¹¹⁹ The text incorporated into the SIP would state “The Permittee shall record and maintain records of the amount and type of each fuel burned during each day and keep fuel receipts from the supplier that certify potential sulfur dioxide content of fuel oil fired in the hog fuel boilers as specified in Section 2.1 A.6.e. The Permittee shall be deemed in noncompliance with 15A NCAC 02D .0524 if the fuel records are not maintained as specified.” See Section 7.8.3.1 of the 2022 Plan.

¹²⁰ The text incorporated into the SIP would state “The following Best Available Control Technology (BACT) shall not be exceeded:” and include the row entry for HFB2 containing the 0.80 lb/MMBtu emission limit. See Section 7.8.3.1 of the 2022 Plan.

¹²¹ The text incorporated into the SIP would state “The Permittee shall follow the monitoring and recordkeeping requirements for sulfur dioxide in Section 2.1 A.6.e and A.6.i through A.6.m. The Permittee shall be deemed in noncompliance with 15A NCAC 02D .0530 if the monitoring required for sulfur dioxide emissions from the No. 2 Hog Fuel Boiler is not maintained as required.” See Section 7.8.3.1 of the 2022 Plan.

¹²² The text incorporated into the SIP would state “The Permittee shall record and maintain records of the amounts of each fuel fired in the No. 2 Hog Fuel Boiler each month and make these records available to an authorized representative of DAQ upon request. The Permittee shall be deemed in noncompliance with 15A NCAC 02D .0530 if the amounts of fuels fired each month are not recorded.” See Section 7.8.3.1 of the 2022 Plan.

¹²³ The text incorporated into the SIP would state “The Permittee shall submit a semiannual summary report, acceptable to the Regional Air Quality

the incorporation by reference into North Carolina’s SIP the following conditions from DAQ Air Quality Permit No. 04176T72 issued by DAQ to PCS with an effective date of May 7, 2024: Conditions 2.4 A.1.b (except for the phrase “By no later than the compliance deadline specified in Section 2.4 A.1.g, below.”); ¹²⁴ A.1.c (except for the phrase “By no later than the compliance deadline specified in Section 2.4 A.1.g, below.”); ¹²⁵ A.1.d (except for the phrase “By no later than the compliance deadline specified in Section 2.4 A.1.g, below.” and the last four sentences of A.1.d.ii); ¹²⁶ A.1.f; A.1.h; A.1.i; A.1.k (except for the phrase “After the compliance dates listed in Section 2.1.1 A.6.g, above.”); ¹²⁷ A.1.l (except for the phrase “Beginning with the initial RATA as required by Section 2.1.1 A.6.k, above, and thereafter”); ¹²⁸

Supervisor, of monitoring and recordkeeping activities given in Section 2.1 A.7.d through A.7.f, postmarked on or before January 30 of each calendar year for the preceding six-month periods between July and December, and July 30 of each calendar year for the preceding six-month period between January and June. The report shall identify all periods of noncompliance with the requirements of this permit or a statement that no periods of noncompliance occurred during the reporting period.” See Section 7.8.3.1 of the 2022 Plan.

¹²⁴ The text incorporated into the SIP would state “The sulfur dioxide emissions from Sulfuric Acid Plant No. 5 (ID No. S-5) shall not exceed the following emissions limitations: i. Short-Term Limit: 3.2 pounds per ton of 100 percent sulfuric acid production on a 3-hour rolling average basis. ii. Long-Term Limit: 2.5 pounds per ton of 100 percent sulfuric acid production on a 365-day rolling average basis.” See Section 7.8.3.2 of the 2022 Plan.

¹²⁵ The text incorporated into the SIP would state “The sulfur dioxide emissions from Sulfuric Acid Plant No. 6 (ID No. S-6) shall not exceed the following emissions limitations: i. Short-Term Limit: 3.3 pounds per ton of 100 percent sulfuric acid production on a 3-hour rolling average basis. ii. Long-Term Limit: 2.5 pounds per ton of 100 percent sulfuric acid production on a 365-day rolling average basis.” See Section 7.8.3.2 of the 2022 Plan.

¹²⁶ The text incorporated into the SIP would state “The sulfur dioxide emissions from Sulfuric Acid Plant No. 7 (ID No. S-7) shall not exceed the following emissions limitations: i. Short-Term Limit: 3.0 pounds per ton of 100 percent sulfuric acid production on a 3-hour rolling average basis. ii. Long-Term Limit: 1.75 pounds per ton of 100 percent sulfuric acid production on a 365-day rolling average basis.” See Section 7.8.3.2 of the 2022 Plan.

¹²⁷ The text incorporated into the SIP would state “The Permittee shall conduct a Relative Accuracy Test Audit (RATA) at least once every four calendar quarters at each of the Sulfuric Acid Plants No. 5, No. 6, and No. 7 (ID Nos. S-5, S-6, and No. 7) per the procedures of 40 CFR 60.85 for sulfur dioxide and oxygen concentrations and pounds sulfur dioxide per ton of 100 percent sulfuric acid produced as required by 40 CFR part 60 Appendix F, Procedure 1, 5.1.1.” See Section 7.8.3.2 of the 2022 Plan.

¹²⁸ The text incorporated into the SIP would state “For every triennial RATA (*i.e.*, year 1, 4, 7, etc.), the Permittee shall utilize the reference methods and procedures specified in 40 CFR 60.85(b) to

A.1.m (except for the phrase “By no later than the compliance deadlines listed in Section 2.4 A.1.g, above,” the phrase “(see Attachment 2 of this permit),” and Condition A.1.m.v); ¹²⁹ A.1.n; A.1.o (except for the phrase “per Attachment 2 of this permit,” and the second sentence); ¹³⁰ A.1.p; and A.1.q. EPA has made, and will continue to make, these materials generally available through www.regulations.gov and at the EPA Region 4 Office (please contact the person identified in the **FOR FURTHER INFORMATION CONTACT** section of this preamble for more information).

VI. Proposed Action

For the reasons stated herein, EPA is proposing to approve in part and conditionally approve in part North Carolina’s April 4, 2022, SIP submission as supplemented with a commitment letter on July 30, 2024. EPA is proposing to approve the sections of the Haze Plan addressing the requirements of 40 CFR 51.308(f)(1), (f)(4) through(6), and (g)(1)

generate the Reference Method values for calculating the relative accuracy. In intervening years (*i.e.*, year 2, 3, 5, 6, etc.) the Permittee may use the alternative method specified in 40 CFR 60.85(c) to calculate the Reference Method values.” See Section 7.8.3.2 of the 2022 Plan.

¹²⁹ The text incorporated into the SIP would state “The Permittee shall monitor sulfur dioxide emissions from each of the sulfuric acid plants (ID Nos. S-5, S-6, and S-7), in accordance with the SO₂ CEMS Plan and following procedures: i. The Permittee shall measure the sulfur dioxide concentration (lb/DSCF or ppmvd) and oxygen concentration (percent by volume) at the exit stack at least once every 15 minutes using a sulfur dioxide analyzer and oxygen analyzer. ii. During routine calibration checks and adjustments of any analyzer, the precalibration level shall be used to fill in any analyzer data gaps that occur pending completion of the calibration checks and adjustments. iii. If any one or more than one analyzer is/are not operating, a like-kind replacement (*i.e.* a redundant analyzer) may be used as a substitute. iv. If any one or more than one analyzer is/are not operating for a period of 24 hours or greater and no redundant analyzer is available, data gaps in the array involving the non-operational analyzer(s) shall be filled as follows: (A) Exit stack gas shall be sampled and analyzed for sulfur dioxide at least once every three hours, while the relevant sulfuric acid plant is operating. Sampling shall be conducted by Reich test or other established method (*e.g.*, portable analyzer). The most recent 3-hour average reading shall be substituted for the four 15-minute average measurements that would otherwise be utilized if the analyzer were operating normally. (B) Oxygen in the exit stack gas shall be sampled and analyzed at least once every three hours, while the relevant sulfuric acid plant is operating. Sampling shall be conducted by Orsat test or other method (*e.g.*, portable analyzer). The most recent 3-hour average reading shall be substituted for the four 15-minute average measurements that would otherwise be utilized if the analyzer were operating normally.” See Section 7.8.3.2 of the 2022 Plan.

¹³⁰ The text incorporated into the SIP would state “The 15-minute analyzer data shall be used to determine the 3-hour rolling averages and 365-day rolling averages to demonstrate [sic] compliance with the short-term and long-term sulfur dioxide limits.” See Section 7.8.3.2 of the 2022 Plan.

through(5). EPA is proposing to conditionally approve the sections of the Haze Plan addressing the requirements of 40 CFR 51.308(f)(2), (f)(3), and (i)(2) through(4) due to concerns with the legal and practicable enforceability of certain permit conditions identified in the Haze Plan for incorporation into the SIP.

VII. 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 Orders 12866 (58 FR 51735, October 4, 1993) and 14094 (88 FR 21879, April 11, 2023);
- 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.

In addition, the SIP is not approved to apply on any Indian reservation land or in any other area where EPA or an Indian Tribe has demonstrated that a Tribe has jurisdiction. In those areas of Indian country, the rule does not have

Tribal implications and will not impose substantial direct costs on Tribal governments or preempt Tribal law as specified by Executive Order 13175 (65 FR 67249, November 9, 2000).

Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 59 FR 7629, Feb. 16, 1994) directs Federal agencies to identify and address “disproportionately high and adverse human health or environmental effects” of their actions on minority populations and low-income populations to the greatest extent practicable and permitted by law. EPA defines EJ as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.” EPA further defines the term fair treatment to mean that “no group of people should bear a disproportionate burden of environmental harms and risks, including those resulting from the negative environmental consequences of industrial, governmental, and commercial operations or programs and policies.”

North Carolina DAQ evaluated EJ considerations as part of its SIP submittal even though the CAA and applicable implementing regulations neither prohibit nor require an evaluation. EPA's evaluation of North Carolina DAQ's EJ considerations are described above in the section titled, “Environmental Justice (EJ) Considerations.” The analysis was done for the purpose of providing additional context and information about this rulemaking to the public, not as a basis of the proposed action. EPA is proposing action under the CAA on bases independent of North Carolina's evaluation of EJ. Due to the nature of the action being proposed here, this proposed action is expected to have a neutral to positive impact on the air quality of the affected area. In addition, there is no information in the record upon which this decision is based that is inconsistent with the stated goal of Executive Order 12898 of achieving EJ for people of color, low-income populations, and Indigenous peoples.

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Incorporation by reference, Nitrogen dioxide, Particulate matter, Sulfur oxides.

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

Dated: August 13, 2024.

Jeaneanne Gettle,

Acting Regional Administrator, Region 4.

[FR Doc. 2024-18495 Filed 8-19-24; 8:45 am]

BILLING CODE 6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 721 and 725

[EPA-HQ-OPPT-2024-0074; FRL-11916-01-OCSP]

RIN 2070-AB27

Significant New Use Rules on Certain Chemical Substances (24-1.5e)

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: EPA is proposing significant new use rules (SNURs) under the Toxic Substances Control Act (TSCA) for chemical substances that were the subject of premanufacture notices (PMNs) and a Microbial Commercial Activity Notice (MCAN) and are also subject to a TSCA Order. The SNURs require persons who intend to manufacture (defined by statute to include import) or process any of these chemical substances for an activity that is proposed as a significant new use by this rule to notify EPA at least 90 days before commencing that activity. The required notification initiates EPA's evaluation of the conditions of use for that chemical substance. In addition, the manufacture or processing for the significant new use may not commence until EPA has conducted a review of the required notification, made an appropriate determination regarding that notification, and taken such actions as required by that determination.

DATES: Comments must be received on or before September 19, 2024.

ADDRESSES: Submit your comments, identified by docket identification (ID) number EPA-HQ-OPPT-2024-0074, at <https://www.regulations.gov>. Follow the online instructions for submitting comments. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Additional instructions on commenting and visiting the docket, along with more information about dockets generally, is available at <https://www.epa.gov/dockets>.

FOR FURTHER INFORMATION CONTACT:

For technical information contact: William Wysong, New Chemicals Division (7405M), Office of Pollution Prevention and Toxics, Environmental