adhere to the following procedural requirements:

(1) *Request for a hearing.* Following publication of a proposed regulation, and before the close of the comment period, any interested party may file in the rulemaking docket a petition, directed to the General Counsel, to hold a hearing on the proposed regulation. The General Counsel shall determine whether to grant the petition in accordance with the requirements of this section.

(2) *Grant of petition for hearing.* Except as provided in paragraph (b)(3) of this section, the petition shall be granted if the petitioner makes a plausible *prima facie* showing that:

(i) The proposed rule depends on conclusions concerning one or more specific scientific, technical, economic, or other factual issue that is genuinely in dispute or that may not satisfy the requirements of the Information Quality Act;

(ii) The ordinary public comment process is unlikely to provide an adequate examination of the issues to permit a fully informed judgment; and

(iii) The resolution of the disputed factual issues would likely have a material effect on the costs and benefits of the proposed rule.

(3) *Denial of petition for hearing.* A petition meeting the requirements of paragraph (b)(2) of this section may be denied if the General Counsel determines the requested hearing would not advance the consideration of the proposed rule and the General Counsel's ability to make the rulemaking determinations required by this section.

(4) *Explanation and appeal of denial.* If a petition is denied in whole or in part, the General Counsel shall include a detailed explanation of the factual basis for the denial, including findings on each of the relevant factors identified in paragraph (b)(2) or (3) of this section. The General Counsel's denial of a petition, in whole or in part, may be appealed by the petitioner to the Secretary within 30 days of the date on which the General Counsel's explanation of the factual basis for the denial is issued.

(5) *Hearing notice.* If the General Counsel grants the petition, or if the denial of a petition is reversed on appeal to the Secretary, the General Counsel shall publish notification of the hearing in the **Federal Register**. The document shall specify the proposed rule at issue and the specific factual issues to be considered at the hearing. The scope of the hearing shall be limited to the factual issues specified in the notice.

(6) *Hearing process.* (i) A hearing under this section shall be conducted using procedures approved by the General Counsel, and interested parties shall have a reasonable opportunity to participate in the hearing through the presentation of testimony and written submissions.

(ii) The General Counsel shall arrange for a neutral officer to preside over the hearing and shall provide a reasonable opportunity to question the presenters.

(iii) After the hearing and after the record of the hearing is closed, the hearing officer shall place in the docket minutes of the hearing with sufficient detail as to reflect fully the evidence and arguments presented on the issues, along with proposed findings addressing the disputed issues of fact identified in the hearing notice.

(iv) Interested parties who participated in the hearing shall be given an opportunity to file statements of agreement or objection in response to the hearing officer's proposed findings. The complete record of the hearing shall be made part of the rulemaking record.

(7) *Actions following hearing.* (i) Following the completion of the hearing process, the General Counsel shall consider the record of the hearing, including the hearing officer's proposed findings, and shall make a reasoned determination whether to terminate the rulemaking, to proceed with the rulemaking as proposed, or to modify the proposed rule.

(ii) If the General Counsel decides to terminate the rulemaking, the General Counsel shall publish a document in the **Federal Register** announcing the decision and explaining the reasons for the decision.

(iii) If the General Counsel decides to finalize the proposed rule without material modifications, the General Counsel shall explain the reasons for the decision and provide responses to the hearing record in the preamble to the final rule.

(iv) If the General Counsel decides to modify the proposed rule in material respects, the General Counsel shall publish a new or supplemental notice of proposed rulemaking in the **Federal Register** explaining the General Counsel's responses to and analysis of the hearing record, setting forth the modifications to the proposed rule, and providing additional reasonable opportunity for public comment on the proposed modified rule.

(8) *Interagency review process.* The hearing procedures under this paragraph (b)(8) shall not impede or interfere with the interagency review process of the Office of Information and Regulatory Affairs for the proposed rulemaking.

(c) When issuing a proposed regulation under this section that is defined as high impact or economically significant within the meaning of DOT Order 2100.6B or 49 CFR part 5, the Department shall follow the procedural requirements set forth therein.

* * * * *

Subpart G—Policies Relating to Enforcement

■ 3. Section 399.79 is amended by revising the paragraph (f) heading and deleting paragraph (g) to read as follows:

(f) *Formal enforcement proceedings before an administrative law judge.*

* * * * *

Issued in Washington, DC, under authority delegated in 49 CFR part 1.27(n):

Gregory Zerzan,

General Counsel.

[FR Doc. 2025–19692 Filed 10–29–25; 8:45 am]

BILLING CODE 4910–9X–P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA–R10–OAR–2023–0348; FRL–11133–01–R10]

Air Plan Approval; AK; Regional Haze Plan for the Second Implementation Period

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The Environmental Protection Agency (EPA) is proposing to approve the Alaska regional haze plan for the second implementation period. Alaska submitted the plan to address applicable requirements under the Clean Air Act and the EPA's Regional Haze Rule.

DATES: Written comments must be received on or before December 1, 2025.

ADDRESSES: Submit your comments, identified by Docket ID No. EPA–R10–OAR–2023–0348 at *https://www.regulations.gov*. For comments submitted at *regulations.gov,* follow the online instructions for submitting comments. Once submitted, comments may not be edited or removed from *regulations.gov*. For either manner of submission, the EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be confidential business information or other information the disclosure of which 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. The 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, please contact the person identified in the **FOR FURTHER INFORMATION CONTACT** section. For the full EPA public comment policy, information about confidential business information or multimedia submissions, and general guidance on making effective comments, please visit *https://www.epa.gov/dockets/commenting-epa-dockets*.

FOR FURTHER INFORMATION CONTACT: Kristin Hall, EPA Region 10, 1200 Sixth Avenue, Suite 155, Seattle, WA 98101, at (206) 553–6357 or *hall.kristin@epa.gov*.

SUPPLEMENTARY INFORMATION: Throughout this document, the use of ''we'' and ''our'' means ''the EPA.''

Table of Contents

I. What action is the EPA proposing?

The EPA is proposing to approve the Alaska regional haze plan for the second implementation period as meeting the Regional Haze Rule (RHR) requirements of 40 CFR 51.308(f)(1) through (6), (g)(1) through (5), and (i). The Alaska Department of Environmental Conservation (DEC) submitted the regional haze plan on July 25, 2022, as a State Implementation Plan (SIP) revision, and clarified aspects of the submission on October 6, 2025. In addition, as requested by the Alaska DEC in the submission, we are proposing to approve and incorporate by reference into the Alaska SIP at 40 CFR 52.70(c), two new regulatory provisions of Alaska Administrative Code Title 18 Environmental Conservation, Chapter 50 Air Quality Control (18 AAC 50), specifically, 18 AAC 50.025 and 18 AAC 50.265, State effective August 21, 2022. The EPA is proposing this action pursuant to Clean Air Act (CAA) sections 110 and 169A.

II. Background and Requirements for Regional Haze Plans

A detailed history and background of the regional haze program is provided in multiple prior EPA proposal actions.[1] For additional background on the 2017 RHR revisions, please refer to section III of this document. Overview of Visibility Protection Statutory Authority, Regulation, and Implementation of ''Protection of Visibility: Amendments to Requirements for State Plans'' of the 2017 RHR.[2] The following is an abbreviated history and background of the regional haze program and 2017 RHR as it applies to the current action.

A. Regional Haze

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. See CAA section 169A. The CAA establishes as a national goal the ''prevention of any future, and the remedying of any existing, impairment of visibility in mandatory class I Federal areas which impairment results from manmade air pollution.'' See CAA section 169A(a)(1).

In CAA section 169A(a)(1), Congress established the national goal of preventing any future and remedying any existing impairment of visibility in mandatory Class I Federal areas that results from manmade (anthropogenic) air pollution. The core component of a regional haze SIP submission for the second implementation period is a strategy that addresses regional haze in each Class I area within the State's borders and each Class I area outside the State that may be affected by emissions originating from within the State, CAA section 169A(b)(2)(B), 40 CFR 51.308(f)(2), and makes ''reasonable progress'' toward the national goal based on consideration of the four statutory factors in CAA section 169A(g)(1)—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.[3]

Regional haze is visibility impairment that is produced by a multitude of anthropogenic sources and activities which are located across a broad geographic area and that emit pollutants that impair visibility. Visibility impairing pollutants include fine and coarse particulate matter (PM) (*e.g.,* sulfates, nitrates, organic carbon, elemental carbon, and soil dust) and their precursors (*e.g.,* sulfur dioxide (SO_2), nitrogen oxides (NO_X), and, in some cases, volatile organic compounds (VOC) and ammonia (NH_3)). Fine particle precursors react in the atmosphere to form fine particulate matter ($PM_{2.5}$), which impairs visibility by scattering and absorbing light. Visibility impairment reduces the perception of clarity and color, as well as visible distance.[4]

To address regional haze visibility impairment, the 1999 RHR established an iterative planning process that requires both States in which Class I areas are located and States ''the emissions from which may reasonably be anticipated to cause or contribute to any impairment of visibility'' in a Class I area to periodically submit SIP revisions to address such impairment. See CAA section 169A(b)(2); see also 40 CFR 51.308(b), (f) (establishing submission dates for iterative regional haze SIP revisions); 64 FR 35714, July 1, 1999, at page 35768.

[1] See 90 FR 13516 (March 24, 2025).

[2] See 82 FR 3078 (January 10, 2017) at page 3081.

[3] CAA section 169A(g)(1); 40 CFR 51.308(f)(2)(i).

[4] 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 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}). The formula for the deciview is 10 ln (b^{ext})/10 Mm − 1). See 40 CFR 51.301.

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

B. The Western Regional Air Partnership

The Western Regional Air Partnership (WRAP) [5] is one of five regional air quality planning organizations across the United States.[6] The WRAP functions as a voluntary partnership of State, Tribe, Federal, and Local air agencies whose purpose is to understand current and evolving air quality issues in the West. There are 15 member States, including Alaska, 28 Tribes, and 30 Local air agency members.[7] Federal partners include the EPA, the National Park Service, the U.S. Fish and Wildlife Service, the Forest Service, and the Bureau of Land Management.

Based on emissions and monitoring data supplied by its membership, the WRAP produced technical tools to support modeling of visibility impacts at Class I areas across the West.[8] The WRAP Technical Support System for the second implementation period or ''TSSV2'' consolidated air quality monitoring data, meteorological and receptor modeling data analyses, emissions inventories and projections, and gridded air quality/visibility regional modeling results. The TSSV2 is accessible by members and allows for the creation of maps, figures, and tables to export and use in developing regional haze plans and maintains the original source data for verification and further analysis.[9]

III. Requirements for Regional Haze Plans for the Second Implementation Period

Under the CAA and the EPA's regulations, all 50 States, the District of Columbia, and the U.S. Virgin Islands were required, by July 31, 2021, to submit regional haze SIP revisions satisfying the applicable requirements for the second implementation period of the regional haze program. Each State's SIP must contain a long-term strategy 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 section 169A(b)(2)(B). To this end, 40 CFR 51.308(f) lays out the process by which States determine what constitutes their long-term strategies, with the order of the requirements in 40 CFR 51.308(f)(1) through (3) generally mirroring the order of the steps in the reasonable progress analysis [10] and in 40 CFR 51.308(f)(4) through (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 long-term strategy. See 40 CFR 51.308(f), (f)(2). For each Class I area within its borders, a State must then calculate the baseline (five-year average period of 2000–2004), current, and natural visibility conditions (*i.e.,* visibility conditions without anthropogenic visibility impairment) for that area, as well as the visibility improvement made to date and the ''uniform rate of progress'' (URP).

The URP is the linear rate of progress needed to attain natural visibility conditions, assuming a starting point of baseline visibility conditions in 2004 and ending with natural conditions in 2064. This linear interpolation is used as a tracking metric to help States assess the amount of progress they are making towards the national visibility goal over time in each Class I area. See 40 CFR 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 long-term strategy 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 implementation period. Additionally, as further explained below, the RHR at 40 CFR 51.3108(f)(2)(iv) separately provides five ''additional factors'' [11] 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 long-term strategy. After a State has developed its long-term strategy, it then establishes reasonable progress goals (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 implementation period, *i.e.,* in 2028, as well as the impacts of other requirements of the CAA. The RPGs include reasonable progress controls not only for sources in the State in which the Class I area is located, but also for sources in other States that contribute to visibility impairment in that area. The RPGs are then compared to the baseline visibility conditions and the URP to ensure that progress is being made towards the statutory goal of preventing any future and remedying any existing anthropogenic visibility impairment in Class I areas. 40 CFR 51.308(f)(2) and (3). There are additional requirements in the rule, including (Federal Land Manager) FLM consultation, that apply to all visibility protection SIPs and SIP revisions. See *e.g.,* 40 CFR 51.308(i).

In addition to satisfying the requirements at 40 CFR 51.308(f) related to reasonable progress, the regional haze plan SIP revisions for the second implementation period must address the requirements in 40 CFR 51.308(g)(1) through (5) pertaining to periodic reports describing progress towards 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 *e.g.,* 40 CFR 51.308(i).

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

[5] The WRAP website may be found at *https://westar.org/.*

[6] See *https://www.epa.gov/visibility/visibility-regional-planning-organizations/* for information about the regional planning organizations, or RPOs, for visibility.

[7] The WRAP membership list may be found at *https://www.westar.org/wrap-council-members/.*

[8] Technical information may be found at *https://www.westar.org/wrap-technical-steering-committee/.*

[9] The WRAP TSSV2 for the second implementation period may be found at *https://views.cira.colostate.edu/tssv2/.*

[10] The EPA explained in the 2017 RHR that we were adopting new regulatory language in 40 CFR 51.308(f) that, unlike the structure in 40 CFR 51.308(d), ''tracked the actual planning sequence.'' See 82 FR 3078, January 10, 2017, at page 3091.

[11] The five ''additional factors'' for consideration in 40 CFR 51.308(f)(2)(iv) are distinct from the four factors listed in CAA section 169A(g)(1) and 40 CFR 51.308(f)(2)(i) that States must consider and apply to sources in determining reasonable progress.

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, the EPA determined that all States contribute to visibility impairment in at least one Class I area 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.'' See 64 FR 35714, July 1, 1999, at pages 35720–22.

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. 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 Uniform Rate of Progress

As part of assessing whether a SIP revision for the second implementation period is providing for reasonable progress towards 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 section apply only to States having Class I areas within their borders; the required calculations must be made for each such Class I area. The EPA's 2018 Visibility Tracking Guidance 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 3078, January 10, 2017, at pages 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). The RHR provides that the relevant sets of days for visibility tracking purposes are the 20% clearest (the 20% of monitored days in a calendar year with the lowest values of the deciview index) and the 20% most impaired days (the 20% of monitored days in a calendar year with the highest amounts of anthropogenic visibility impairment). 40 CFR 51.301. A State must calculate visibility conditions for both the 20% clearest and the 20% 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). 40 CFR 51.308(f)(1)(i) and (iii). States must also calculate natural visibility conditions for the clearest and most impaired days, by estimating the conditions that would exist on those two sets of days absent anthropogenic visibility impairment. 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 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 implementation period 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. Additionally, in the 2017 RHR, the 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 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 3078, January 10, 2017, at page 3107, footnote 116.

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

C. Long-Term Strategy for Regional Haze

The core component of a regional haze SIP revision is a long-term strategy that addresses regional haze in each Class I area within a State's borders and each Class I area outside the State that may be affected by emissions from the State. The long-term strategy ''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).'' 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. The outcome of that analysis is the emission reduction measures that a particular source or group of sources needs to implement to make reasonable progress towards 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 they may be the existing emission reduction measures that a source is already implementing. See 82 FR 3078, January 10, 2017, at pages 3092–93. Such measures must be represented by ''enforceable emissions limitations, compliance schedules, and other measures'' (*i.e.,* any additional compliance tools) in a State's long-term strategy in its SIP. 40 CFR 51.308(f)(2).

The regulation at 40 CFR 51.308(f)(2)(i) provides the requirements for the four-factor analysis. 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 four-factor control analysis. 40 CFR 51.308(f)(2)(i). A threshold question at this step is which visibility impairing pollutants will be analyzed.

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).

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 implementation period.[12] 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.'' CAA section 169A(g)(1). The EPA has explained that the four-factor analysis 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 to satisfy the CAA's reasonable progress mandate.'' 82 FR 3078, January 10, 2017, at page 3091. Thus, for each source it has selected for four-factor analysis,[13] a State must consider a ''meaningful set'' of technically feasible control options for reducing emissions of visibility impairing pollutants. 82 FR 3078, January 10, 2017, at page 3088.

The 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. 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 towards the national visibility goal must be included in a State's long-term strategy and in its SIP. If the outcome of a four-factor analysis is that an emissions reduction measure is necessary to make reasonable progress towards remedying existing or preventing future anthropogenic visibility impairment, that measure must be included in the SIP.

The characterization of information on each of the factors is also subject to the documentation requirement in 40 CFR 51.308(f)(2)(iii). The reasonable progress analysis is a technically complex exercise, and 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 the EPA can comprehend and evaluate the information and analysis the State relied upon to determine what emission reduction measures must be in place to make reasonable progress. The technical documentation must include the modeling, monitoring, cost, engineering, and emissions information on which the State relied to determine the measures necessary to make reasonable progress. Additionally, the RHR at 40 CFR 51.308(f)(2)(iv) separately provides five ''additional factors'' [14] that States must consider in developing their long-term strategies: (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 long-term strategy.

Because the air pollution that causes regional haze crosses State boundaries, 40 CFR 51.308(f)(2)(ii) requires a State to consult with other States that also have emissions that are reasonably anticipated to contribute to visibility impairment in a given Class I area. If a State, pursuant to consultation, agrees that certain measures (*e.g.,* a certain emission limitation) are necessary to make reasonable progress at a Class I area, it must include those measures in its SIP. 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. 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. 40 CFR 51.308(f)(2)(ii)(C). Under all circumstances, a State must document in its SIP revision all substantive consultations with other contributing States. 40 CFR 51.308(f)(2)(ii)(C).

In this proposed action, the EPA notes that it is the Agency's policy, as announced in the EPA's recent approval of the West Virginia Regional Haze SIP,[15] that where the State has considered the four statutory factors, and visibility conditions for a Class I area impacted by a State are projected to be below the URP in 2028, the State has presumptively demonstrated reasonable progress for the second implementation period for that area. The EPA acknowledges that this reflects a change in policy as to how the URP should be used in the evaluation of regional haze second planning period

[12] The CAA provides that, ''[i]n determining reasonable progress there shall be taken into consideration'' the four statutory factors. See CAA section 169A(g)(1). However, in addition to four-factor analyses for selected sources, groups of sources, or source categories, a State may also consider additional emission reduction measures for inclusion in its 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 implementation period.

[13] ''Each source'' or ''particular source'' is used here as shorthand. While a source-specific analysis is one way of applying the four factors, neither the statute nor the RHR requires States to evaluate individual sources. Rather, States have ''the flexibility to conduct four-factor analyses for specific sources, groups of sources or even entire source categories, depending on state policy preferences and the specific circumstances of each state.'' See 82 FR 3078, January 10, 2017, at page 3088.

[14] The five ''additional factors'' for consideration in 40 CFR 51.308(f)(2)(iv) are distinct from the four factors listed in CAA section 169A(g)(1) and 40 CFR 51.308(f)(2)(i) that States must consider and apply to sources in determining reasonable progress.

[15] See proposed rulemaking (90 FR 16478, April 18, 2025, at page 16483) and final rule (90 FR 29737, July 7, 2025, at pages 29738–39).

SIPs. However, the EPA finds that this policy aligns with the purpose of the statute and RHR, which is achieving ''reasonable'' progress, not maximal progress, toward Congress' natural visibility goal.

D. Reasonable Progress Goals

Reasonable progress goals (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.'' 82 FR 3078, January 10, 2017, at page 3091. For the second implementation period, the RPGs are set for 2028. RPGs are not enforceable targets, 40 CFR 51.308(f)(3)(iii). While States are not legally obligated to achieve the visibility conditions described in their RPGs, 40 CFR 51.308(f)(3)(i) requires that ''[t]he long-term strategy and the reasonable progress goals must provide for an improvement in visibility for the most impaired days since the baseline period and ensure no degradation in visibility for the clearest days since the baseline period.''

RPGs may also serve as a metric for assessing the amount of progress a State is making towards the national visibility goal. To support this approach, the RHR requires States with Class I areas to compare the 2028 RPG for the most impaired days to the corresponding point on the URP line (representing visibility conditions in 2028 if visibility were to improve at a linear rate from conditions in the baseline period of 2000–2004 to natural visibility conditions in 2064). If the most impaired days RPG in 2028 is above the URP (*i.e.,* if visibility conditions are improving more slowly than the rate described by the URP), each State that contributes to visibility impairment in the Class I area must demonstrate, based on the four-factor analysis required under 40 CFR 51.308(f)(2)(i), that no additional emission reduction measures would be reasonable to include in its long-term strategy. 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.''

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 section apply either to States with Class I areas within their borders, States with no Class I areas but that are reasonably anticipated to cause or contribute to visibility impairment in any Class I area, or both. Compliance with the monitoring strategy requirement may be met through a State's participation in the Interagency Monitoring of Protected Visual Environments (IMPROVE) monitoring network, which is used to measure visibility impairment caused by air pollution at the 156 Class I areas covered by the visibility program. 40 CFR 51.308(f)(6), (f)(6)(i), and (iv).

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

F. Requirements for Periodic Reports Describing Progress Towards the Reasonable Progress Goals

Section 51.308(f)(5) requires a State's regional haze SIP revision to address the requirements of 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 implementation period. The regional haze progress report requirement is designed to inform the public and the EPA about a State's implementation of its existing long-term strategy and whether such implementation is in fact resulting in the expected visibility improvement. See 81 FR 26942, May 4, 2016, at page 26950; see also 82 FR 3078, January 10, 2017, at page 3119. To this end, every State's SIP revision for the second implementation period is required to assess changes in visibility conditions and describe the status of implementation of all measures included in the State's long-term strategy, including Best Available Retrofit Technology (BART) and reasonable progress emission reduction measures from the first implementation period, and the resulting emissions reductions. 40 CFR 51.308(g)(1) and (2).

G. Requirements for State and Federal Land Manager 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.'' 40 CFR 51.308(i)(2). For the 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 the 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. 40 CFR 51.308(i)(4).

IV. The EPA's Evaluation of the Alaska Regional Haze Plan for the Second Implementation Period

A. Background on the Alaska First Implementation Period Plan

On April 4, 2011, Alaska submitted its regional haze plan for the first implementation period (2008 through 2018). The CAA required that first implementation period plans include, among other things, a long-term strategy for making reasonable progress and BART requirements for certain older facilities, where applicable.[16] The EPA approved Alaska's first implementation period plan on February 14, 2013 (78 FR 10546). On March 10, 2016, the State

[16] The requirements for regional haze SIPs for the first implementation period are contained in CAA section 169A(b)(2)(B) and 40 CFR 51.308(d) and (e). See also 40 CFR 51.308(b).

submitted a five-year progress report, that the EPA approved on April 12, 2018 (83 FR 15746).[17]

B. The Alaska Second Implementation Period Plan and the EPA's Evaluation

On July 25, 2022, Alaska submitted its regional haze plan for the second implementation period.[18] The Alaska DEC made the plan available for public comment from March 30, 2022, through May 24, 2022, and held a public hearing on May 10, 2022.[19] Alaska received and responded to public comments and included the comments and responses in the regional haze plan submission.[20] We note that, to address certain regional haze requirements, the 2022 regional haze plan submission relied in part on SO_2 best available control technology (BACT) analyses originally conducted and submitted as part of the Fairbanks $PM_{2.5}$ serious nonattainment plan in 2020 and 2021.[21] However, Alaska subsequently revised the original SO_2 BACT analyses to address EPA concerns and to account for more recent vendor quotes and fuel prices.[22] These updated SO_2 BACT analyses were later submitted by Alaska to the EPA as part of a December 4, 2024, SIP revision to the Fairbanks $PM_{2.5}$ serious area nonattainment plan.[23]

To clarify the relationship between the Alaska regional haze plan and the revisions to the Fairbanks $PM_{2.5}$ serious area nonattainment plan, Alaska sent a letter to the EPA on October 6, 2025. The letter stated that Alaska was relying on the 2024 updated SO_2 BACT analyses to meet the regional haze four-factor analysis requirements for the second implementation period. Accordingly, the State found no SO_2 controls to be necessary for reasonable progress in the second implementation period. The following sections describe in detail the Alaska regional haze plan submission and clarification letter, including, but not limited to, air quality modeling conducted, source selection, control measure analysis, and visibility improvement progress at Class I areas in Alaska. The following sections also describe the EPA's evaluation of the submission against the requirements of the CAA and RHR for the second implementation period. The submission, clarification letter, and other supporting documents may be found in the docket for this action.

C. Identification of Class I Areas

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 (f)(2), which requires each State's plan to include a long-term strategy that addresses regional haze in such Class I areas.

The EPA concluded in the 1999 RHR that ''all [s]tates contain sources whose emissions are reasonably anticipated to contribute to regional haze in a Class I area,'' 64 FR 35714, July 1, 1999, at page 35721, and this determination was not changed in the 2017 RHR. Critically, the statute and regulation both require that the cause-or-contribute assessment consider all emissions of visibility impairing pollutants from a State, as opposed to emissions of a particular pollutant or emissions from a certain set of sources.

1. Alaska Class I Areas

Alaska has four Class I areas: [24] Denali National Park and Preserve (Denali National Park), Tuxedni National Wildlife Refuge/National Wilderness Area (Tuxedni Wilderness Area), Simeonof National Wildlife Refuge/National Wilderness Area (Simeonof Wilderness Area), and the Bering Sea National Wildlife Refuge/National Wilderness Area (Bering Sea Wilderness Area). These areas are described in the following paragraphs.

a. Denali National Park

Denali National Park comprises more than six million acres in the Alaska interior managed by the National Park Service. Mountains are a prominent feature of the park, reaching 20,320 feet elevation.[25] The surrounding tundra and taiga are home to dozens of mammals, including Dall sheep, caribou, grizzly bears, moose, foxes, lynx, and marmots, to name a few. Over 400 flowering plants grow there, and over 100 bird species have been sighted.[26]

b. Simeonof Wilderness Area

The Simeonof Wilderness Area is managed by the U.S. Fish and Wildlife Service.[27] It covers 25,855 acres, including the water, shoals, and kelp beds within one mile of Simeonof Island.[28] The wilderness area is home to over 55 species of birds as well as sea otters, hair seals, walruses, and whales.[29] Sandpoint, population 652, is the nearest community, located on an island approximately 60 miles northwest of the wilderness area.[30]

c. Tuxedni Wilderness Area

The Tuxedni Wilderness Area was established on Chisik and Duck islands at the mouth of Tuxedni Bay.[31] The 5,566-acre wilderness area is managed by the U.S. Fish and Wildlife Service. The remote area is a refuge for seabirds, bald eagles and peregrine falcons. Access is limited to small boats and planes, when the weather allows.[32]

d. Bering Sea Wilderness Area

The Bering Sea Wilderness Area is the most isolated and remote Class I area in the U.S.[33] It is located on a collection

[17] 83 FR 7002, February 16, 2018.

[18] CAA sections 169A; 40 CFR 51.308(f).

[19] Alaska submission, regional haze public notice document dated March 30, 2022, and regional haze affidavit of oral hearing document dated July 1, 2022.

[20] Alaska submission, regional haze response to comments (RTC) document dated July 5, 2022.

[21] Determinations of Attainment by the Attainment Date, Determinations of Failure To Attain by the Attainment Date and Reclassification for Certain Nonattainment Areas for the 2006 24-Hour Fine Particulate Matter National Ambient Air Quality Standards, published May 10, 2017 (82 FR 21711).

[22] The EPA's concerns were detailed in the Agency's proposed disapproval of the plan on January 10, 2023, at 88 FR 1454.

[23] The 2024 Fairbanks plan submission may be found in docket EPA–R10–OAR–2024–0595 at *https://www.regulations.gov/docket/EPA-R10-OAR-2024-0595/*.

[24] Section 169A of the CAA was established in 1977 to protect visibility in all wilderness areas over 5,000 acres and all national parks over 6,000 acres. 156 such areas were designated throughout the U.S.

[25] See National Park Service web page for Denali National Park and Preserve at *https://www.nps.gov/dena/index.htm/*.

[26] See Wilderness Connect website at *https://wilderness.net/visit-wilderness/?ID=153/*.

[27] See Alaska Maritime National Wildlife Refuge Wilderness Areas web page, which includes Simeonof Wilderness, on the U.S. Fish and Wildlife Service website at *https://www.fws.gov/node/267174/*.

[28] See Wilderness Connect website at *https://wilderness.net/visit-wilderness/?ID=555/*.

[29] Alaska submission, Combined Section III.K.13, Page A–8.

[30] U.S. census data, available in the docket for this action and *https://live.laborstats.alaska.gov/pop/index.cfm/*.

[31] See Alaska Maritime National Wildlife Refuge Wilderness Areas web page, which includes Tuxedni Wilderness, on the U.S. Fish and Wildlife Service website at *https://www.fws.gov/node/267174/*.

[32] Wilderness Connect website at *https://wilderness.net/visit-wilderness/?ID=614/*.

[33] See Alaska Maritime National Wildlife Refuge Wilderness Areas web page, which includes Bering Sea Wilderness, on the U.S. Fish and Wildlife Service website *https://www.fws.gov/node/267174/*.

of islands in the Bering Sea, 350 miles southwest of Nome, Alaska. The U.S. Fish and Wildlife Service manages the 81,340 acres, where millions of seabirds congregate, as well as northern sea lions, seals, and walruses.[34]

2. Alaska Visibility Monitors

Haze species at Alaska Class I areas are measured and analyzed via the IMPROVE network.[35] Table 1 of this document lists the IMPROVE monitors representing visibility at Alaska Class I areas.

TABLE 1—MONITORS REPRESENTING VISIBILITY AT ALASKA CLASS I AREAS[36]

Monitor ID	Sponsor	Class I area	Years operated
DENA1	National Park Service	Denali National Park	1988–present.
SIME1	U.S. Fish and Wildlife Service	Simeonof Wilderness Area	2001–present.
TUXE1	U.S. Fish and Wildlife Service	Tuxedni Wilderness Area	2001–2014.
KPBO1	U.S. Fish and Wildlife Service	Tuxedni Wilderness Area	2016–present.

We note that, due to its extremely remote location and lack of reliable power, there is no visibility monitoring at the Bering Sea Wilderness Area.[37] No electricity or other infrastructure exists to support a monitoring effort on the uninhabited islands that make up this wilderness area. A DELTA–DRUM mobile sampler was installed during a field visit in 2002, but due to power supply issues, no viable baseline data were collected.[38] We acknowledge that the RHR contemplates that for areas without onsite monitoring, States should work with the EPA to use other available, representative monitoring data to establish a baseline.[39] However, because this wilderness area is in the middle of the Bering Sea, hundreds of miles from the mainland and any other monitoring locations, data from other sites in Alaska are not considered representative of visibility at the Bering Sea Wilderness Area.

In the regional haze plan for the first implementation period, Alaska evaluated and discussed the potential for future anthropogenic emissions to impact visibility at the Bering Sea Wilderness Area, and concluded that future impacts from any local industrial, commercial, or community developments were highly unlikely.[40] The State acknowledged that visibility in the area would continue to be influenced by international sources beyond Alaska's control, and may also be influenced by future emissions from international commercial shipping and oil and gas development in the Bering Sea. However, these latter source categories are under Federal jurisdiction. With respect to global shipping, the International Marine Organization (IMO) global sulfur limit rule went into effect on January 1, 2020.[41] This rule applies to all commercial shipping and limits fuel sulfur content to 0.5%.[42] This is a seven-fold decrease in fuel sulfur content from the prior IMO limit of 35,000 part per million. While the EPA cannot estimate the exact impact of the sulfur limits on visibility impairment at Bering Sea, this new rule is likely to reduce sulfate formation in the area.[43] Based on this information, the EPA approved Alaska's approach to the Bering Sea Wilderness Area in the first implementation period.

For the second implementation period, Alaska stated in its regional haze plan submission that, due to the logistical challenges associated with monitoring this remote location, there have been no monitoring attempts since 2002, and none are currently planned.[44] Consistent with our action on Alaska's first implementation period regional haze plan, we have determined that Alaska's approach to the Bering Sea Wilderness Area in the second implementation period is reasonable.

In addition, we note that Alaska operates an IMPROVE protocol site south of Denali National Park at Trapper Creek (TRCR1), which is sited to evaluate potential transport of pollution into the park from Anchorage and areas to the south.[45] While data from this protocol site may be compared to data from the DENA1 site, the DENA1 site remains the official IMPROVE site representative of visibility conditions in Denali National Park.[46]

As detailed in the submission, Alaska determined there are no Class I areas in other States affected by emissions from Alaska sources.[47] Alaska borders no other State and is geographically distant from all other States.[48] We concur with the State's finding that emissions from Alaska sources do not impact Class I areas outside the State.[49]

D. Calculations of Baseline, Current, and Natural Visibility Conditions; Progress to Date; and the Uniform Rate of Progress

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 most impaired and clearest days, natural visibility conditions for the most impaired and clearest days, progress to date for the most impaired and clearest 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. 40 CFR 51.308(f)(1)(vi)(B).

[34] See Wilderness Connect website at *https://wilderness.net/visit-wilderness/?ID=36/*.

[35] See IMPROVE website at *https://vista.cira.colostate.edu/Improve/*.

[36] Sources: Alaska submission, Combined Section III.K.13, Page III.K.13.C1 through C–4 and FLM Environmental Database, available online at *https://views.cira.colostate.edu/fed/* using Query Wizard, Sites Tab.

[37] See IMPROVE website at *https://vista.cira.colostate.edu/Improve/improve-program/*.

[38] See our proposed action on the first implementation period SIP submission on February 24, 2012, 77 FR 11022, at pages 11028–29.

[39] 40 CFR 51.308(d)(2)(i).

[40] See Alaska Regional Haze Plan submission for the first implementation period, February 11, 2011, at *https://www.regulations.gov* docket EPA–R10–OAR–2011–0367, document EPA–R10–OAR–2011–0367–0002 at pages III.K.4–120 through 121.

[41] Fuel sulfur limits are codified at 40 CFR part 1043. See 84 FR 69335, 69336 (December 18, 2019).

[42] *Id.*

[43] *See* 88 FR 33555, 33557 (May 24, 2023).

[44] Alaska submission, Combined Section III.K.13, Page III.K.13.C–4.

[45] *Id.,* Page III.K.13.C–1 and Figures III.K.D–2, D–6, D–10, D–14.

[46] See IMPROVE website at *https://vista.cira.colostate.edu/Improve/*.

[47] Alaska submission, Combined Section III.K.13, Page III.K.13.C–1.

[48] *Id.,* Page III.K.13.A–7.

[49] 78 FR 10546, February 14, 2013.

1. Alaska Visibility Conditions

The Alaska regional haze plan submission addressed baseline, current, and natural visibility conditions, and the URP for each Class I area—with the exception of Bering Sea Wilderness Area—as required by the RHR and the EPA's technical guidance on tracking visibility progress.[50] Tables 2 and 3 of this document summarize visibility data provided in the Alaska submission, including adjustments by the EPA to the natural conditions endpoint and URP to account for certain international sources of anthropogenic sulfate.[51] We note that, to attempt to further quantify out-of-State and natural sources of sulfate, Alaska worked with the University of Alaska Fairbanks to run GEOS-Chem, a global 3-dimensional chemical transport model, and included the modeling results in the submission, as further discussed in section IV.F. of this document.[52]

TABLE 2—CLEAREST DAYS VISIBILITY CONDITIONS AT ALASKA CLASS I AREAS IN DECIVIEWS[53]

Monitor ID	Class I area	Baseline 2000–2004	Current 2014–2018
DENA1	Denali National Park	2.4	2.2
SIME1	Simeonof Wilderness	7.6	7.7
TUXE1	Tuxedni Wilderness	4.0	3.9

TABLE 3—MOST IMPAIRED DAYS VISIBILITY CONDITIONS AT ALASKA CLASS I AREAS IN DECIVIEWS[54]

Monitor ID	Class I area	Baseline 2000–2004	Current 2014–2018	EPA-adjusted URP 2028	EPA-adjusted natural 2064
DENA1	Denali National Park	7.1	6.6	6.5	5.6
SIME1	Simeonof Wilderness	13.7	13.9	13.4	12.9
TUXE1	Tuxedni Wilderness	10.5	10.0	10.3	9.9

a. Denali National Park

The data in Tables 2 and 3 of this document suggest that current visibility at DENA1 has improved since the baseline period for both the clearest and most impaired days.[55] In addition, current conditions at DENA1 appear to be within half of a deciview of the EPA-adjusted URP for 2028 and within one deciview of the EPA-adjusted natural conditions for both the clearest and most impaired days.[56]

Alaska provided data in the submission showing that ammonium sulfate and organic mass are the dominant haze species at DENA1.[57] Anthropogenic and natural sources of sulfate from inside and outside Alaska are thought to contribute to sulfate at DENA1.[58] The submission highlighted a number of anthropogenic sources of pollution located near DENA1, including Denali National Park Headquarters, Park Road, Alaska Railroad, Usibelli Coal Mine, and the Healy Power Plant.[59] We further discuss sulfur dioxide emissions from the Healy Power Plant in section IV.E. of this document.

Alaska stated in the submission that the organic mass contribution at DENA1 may primarily be explained by wildfires in south central Alaska.[60] The EPA fire emissions inventory and the Alaska fire emissions inventory show variability from year to year.[61] Alaska also noted that 2009 was a significant fire wildfire year when 2.9 million acres burned in interior Alaska.[62] The Redoubt volcano in southcentral Alaska, a source of SO_2 emissions and potential sulfate contributions, erupted that same year.[63]

b. Simeonof Wilderness Area

At first glance, the data in Tables 2 and 3 of this document suggest that current visibility at SIME1 may have degraded since the baseline period for both the clearest and most impaired days. However, the EPA reviewed the underlying data used to calculate the average haze indices for SIME1 and found no statistical difference between baseline and current conditions for the clearest and most impaired days at SIME1. The EPA's technical memo documenting the statistical analysis may be found in the docket for this action.[64] In addition, current conditions at SIME1 appear to be within half a deciview of the EPA-adjusted URP for 2028, and within two deciviews of the EPA-

[50] EPA Technical Guidance on Tracking Visibility Progress for the Second Implementation Period of the Regional Haze Program, December 2018.

[51] Specifically, the EPA adjusted natural conditions on the 20% most impaired days from 4.7 to 5.6 deciviews for DENA1, 8.5 to 12.9 deciviews for SIME1, and 7.0 to 9.9 deciviews for TUXE1. See Technical Support Document for the EPA's Updated 2028 Regional Haze Modeling for Hawaii, Virgin Islands, and Alaska. EPA–454/R–21–007. August 2021.

[52] Alaska submission, Appendix III.K.13.G. Modeling.

[53] Sources: Alaska submission, Combined Section III.K.13, Tables III.K.D–3 through D–8 and Tables III.K.13.I–1 and I–2; and Technical Support Document for the EPA's Updated 2028 Regional Haze Modeling for Hawaii, Virgin Islands, and Alaska, EPA–454/R–21–007, August 2021. *Note:* A full dataset was not yet available for KPBO1 at the time Alaska developed the submission and the EPA conducted its modeling.

[54] Sources: Alaska submission, Combined Section III.K.13, Tables III.K.D–3 through D–8 and Tables III.K.13.I–1 and I–2; and Technical Support Document for the EPA's Updated 2028 Regional Haze Modeling for Hawaii, Virgin Islands, and Alaska, EPA–454/R–21–007, August 2021. *Note:* a full dataset was not yet available for KPBO1 at the time Alaska developed the submission and the EPA conducted its modeling.

[55] Technical Support Document for the EPA's Updated 2028 Regional Haze Modeling for Hawaii, Virgin Islands, and Alaska. EPA–454/R–21–007. August 2021.

[56] The data also show that at the TRCR1 protocol site, visibility on the clearest days was 3.5 deciviews at baseline and 3.4 deciviews at current conditions, and visibility on the most impaired days was 9.1 deciviews at baseline, and 8.8 deciviews at current conditions. Alaska submission, Combined Section III.K.13, Tables III.K.D.4 and III.K.D.8.

[57] Alaska submission, Combined Section III.K.13, Figures III.K.D–2 and D–3.

[58] *Id.,* Pages III.K.13.D–8 through D–12.

[59] *Id.,* Page III.K.13.D–8.

[60] *Id.,* Pages III.K.E–11 through E–15.

[61] *Id.,* Table III.K.13.E–5 Data from SmartFire2/BlueSky framework and Table III.K.13.E–6 Data from the Alaska Interagency Coordination Center (AICC).

[62] *Id.,* Page III.K.13.D–13.

[63] See also *The 2009 Eruption of Redoubt Volcano, Alaska, State of Alaska, Department of Natural Resources, 2012.* Available at *https://pubs.usgs.gov/publication/70007150/.*

[64] Statistical analysis comparing the current 2014–2018 visibility conditions to baseline 2000–2004 conditions for the 20% most impaired days and 20% clearest days at the Alaska Simeonof Wilderness (SIME1) IMPROVE monitoring site, U.S. Environmental Protection Agency, Region 10, Laboratory Services and Applied Science Division; Kotchenruther, R. (June 27, 2023).

adjusted natural conditions for both the clearest and most impaired days.

In the submission, Alaska stated that visibility impairment at SIME1 is primarily due to ammonium sulfate followed by sea salt.[65] Alaska further stated that anthropogenic sources of sulfate are likely to include commercial marine vessel emissions from ships transiting the international shipping lane near the monitor, but that natural sources of sulfate at SIME1 are important. The near-ocean location of SIME1 yields significant sea salt contribution, as reflected in the IMPROVE data.[66] Oceanic dimethyl sulfide, a volatile sulfur compound that is produced by plankton and converted to SO_2 in the marine atmosphere, is also understood to contribute.[67] Alaska estimated that roughly 60 percent of oceanic dimethyl sulfide is converted to SO_2 in the Gulf of Alaska, however, the exact contribution of dimethyl sulfide to sulfate at SIME1 is unknown at this time. [68] In addition, Alaska stated that SIME1 is likely influenced by sulfur degassing from nearby active and semi-active volcanoes.[69]

c. Tuxedni Wilderness Area

The data in Tables 2 and 3 of this document suggest that current visibility at TUXE1 has improved since the baseline period for both the clearest and most impaired days.[70] In addition, current conditions at TUXE1 appear to be within half a deciview of the EPA-adjusted URP for 2028 and within one deciview of the EPA-adjusted natural conditions for both the clearest and most impaired days.

We note that the TUXE1 monitor was re-located in 2015, from the west side of Cook Inlet to the east side in the Kenai Peninsula Borough (KPBO1) due to monitor access issues.[71] The last year of complete data for TUXE1 was 2014, therefore, Alaska calculated current conditions for TUXE1 using 2012 through 2014 data. The first full year of data for KPBO1 was 2016. The Alaska submission stated that the next regional haze progress report would include a full dataset and analysis for KPBO1.[72] We find this approach to data handling reasonable for the TUXE1 and KPBO1 monitors. Both the TUXE1 and KPBO1 monitors are IMPROVE monitors that are representative of visibility conditions in the Tuxedni Wilderness Area.

For the clearest days, Alaska found that the annual total light extinction at KPBO1 was slightly higher than TUXE1 and appeared to be more evenly distributed among ammonium sulfate, coarse mass, organic mass, and sea salt.[73] On the most impaired days, the annual extinction at TUXE1 was predominantly ammonium sulfate.[74] Because the monitor only began yielding data in 2016, a full dataset was not available to calculate annual extinction at KPBO1 for the most impaired days. The Alaska submission stated that the next regional haze progress report would include a full dataset and analysis for KPBO1.[75]

Alaska estimated that the largest categories of anthropogenic impairment at TUXE1 and KPBO1 were most likely to include offshore oil drilling platforms and oil and gas facilities in the Cook Inlet. As part of the source selection process, the State reviewed actual sulfur dioxide emissions at a number of platforms and facilities in the Cook Inlet. Please see section IV.E. of this document for further details.

In conclusion, the EPA proposes to find that the Alaska submission meets the requirements of 40 CFR 51.308(f)(1) to calculate baseline, current, and natural visibility conditions; progress to date; and uniform rate of progress for the second implementation period. For this reason, we propose to approve the portions of the Alaska regional haze plan submission relating to 40 CFR 51.308(f)(1).

E. Long-Term Strategy for Regional Haze

The long-term strategy ''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).'' 40 CFR 51.308(f)(2).

The regulation at 40 CFR 51.308(f)(2)(i) provides the requirements for the four-factor analysis. The first step of this analysis entails selecting the sources to be evaluated for emission reduction measures. 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).

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 implementation period.[76] 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.'' CAA section 169A(g)(1). The EPA has explained that the four-factor analysis is an assessment of potential emission reduction measures (*i.e.,* control options) for sources; Thus, for each source it has selected for four-factor analysis, a State must consider a ''meaningful set'' of technically feasible control options for reducing emissions of visibility impairing pollutants.[77]

The 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.[78] 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

[65] Alaska submission, Combined Section III.K.13, Figures III.K.13.D–10 and D–11.

[66] *Ibid.*

[67] *Id.,* Pages III.K.13.E–16, E–17.

[68] *Id.,* Page III.K.13.E–16.

[69] *Id.,* Page III.K.13.D–17.

[70] The EPA adjusted the natural visibility end point for Alaska Class I areas to account for certain international anthropogenic sulfate. See Technical Support Document for the EPA's Updated 2028 Regional Haze Modeling for Hawaii, Virgin Islands, and Alaska. EPA–454/R–21–007. August 2021.

[71] Alaska submission, Section III.K.13 Combined Sections, Page II.K.13.C–3.

[72] *Id.,* Page III.K.13.D–7.

[73] *Id.,* Figure III.K.13.D–18.

[74] *Id.,* Figure III.K.13.D–14.

[75] *Id.,* Page III.K.13.D–7.

[76] The CAA provides that, ''[i]n determining reasonable progress there shall be taken into consideration'' the four statutory factors. CAA section 169A(g)(1). However, in addition to four-factor analyses for selected sources, groups of sources, or source categories, a State may also consider additional emission reduction measures for inclusion in its 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.

[77] ''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 3078, January 10, 2017, at page 3088.

[78] 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, at page 186.

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 towards the national visibility goal must be included in a State's long-term strategy and in its SIP. If the outcome of a four-factor analysis is that an emissions reduction measure is necessary to make reasonable progress towards remedying existing or preventing future anthropogenic visibility impairment, that measure must be included in the SIP.

The following paragraphs describe how the Alaska regional haze plan submission addresses the requirements of 40 CFR 51.308(f)(2) and summarize the EPA's evaluation.

1. Alaska Focus on Sulfur Dioxide Emissions

In the regional haze plan for the first implementation period, Alaska evaluated both NO_X and SO_2 potential contributions to haze species at Alaska Class I areas. In the regional haze plan for the second implementation period, Alaska provided data that showed ammonium sulfate is the dominant haze species, comprising approximately 60% of the annual average light extinction composition on the 20% most impaired days.[79] When looking at the most anthropogenically impaired days, Alaska estimated ammonium sulfate comprised over 95% of the annual extinction composition at Alaska Class I areas.[80] Therefore, Alaska focused on SO_2 emissions in the regional haze second implementation period. Based on a review of the submission and a review of IMPROVE data from the FLM Environmental Database,[81] we propose to find that it is reasonable for Alaska to focus on SO_2 emissions in the second implementation period.[82]

2. Alaska Source Selection

Alaska employed a two-step source selection process, as detailed in the submission.[83] In step one, Alaska identified the geographic areas in which a variety of sources may have the potential to impact visibility at Alaska Class I areas. The State relied on HYSPLIT modeling [84] to estimate back trajectories for each IMPROVE station for the most impaired days in 2014 to 2018, and used the back trajectories to perform an Area of Influence (AOI) and Weighted Emissions Potential (WEP) analysis.[85] Step one yielded 26 point and area sources, which Alaska then ranked based on 2014 and 2017 SO_2 emissions and WEP sulfate potential.[86]

In step two, Alaska followed a Q/d methodology, which is a screening method described in the EPA 2019 guidance, where ''Q'' is a source's actual sulfur dioxide emissions, primarily based on the 2017 National Emissions Inventory, and ''d'' is the distance from the source to the nearest Class I area.[87] The sources with SO_2 Q/d values greater than or equal to 1.0 were selected by Alaska for further analysis.[88]

We note that, as stated in the clarification letter, the 2022 regional haze plan submission used 2017 emissions inventory data to select the University of Alaska Fairbanks Campus Power Plant as a source for further evaluation, based on a Q/d value of 1.4. However, the submission failed to account for the fact that, in 2019, the original coal-fired boilers at the power plant were replaced with a new, circulating fluidized bed coal-fired boiler equipped with a limestone injection system to control SO_2 emissions.[89] The source's 2020 SO_2 emissions as reported to the 2020 National Emissions Inventory were approximately 20.6 tons, and 2023 emissions were just 7.4 tons.[90] Because the source is estimated to be 117 kilometers from Denali National Park, the updated Q/d values for the University of Alaska Fairbanks Campus Power Plant for both 2020 and 2023 fall below the State's screening threshold of 1.0.[91] Accounting for this update, the final sources selected by Alaska for further analysis are listed in the following Table 4.

TABLE 4—ALASKA SELECTED SOURCES [92]

Source	Class I area	Distance (d) (km)	2017 SO_2 (Q) (tpy)	SO_2 Q/d
Healy Power Plant	Denali National Park	6	296.4	49.4
Eielson Combined Heating and Power Plant	Denali National Park	133	262.8	2.0
Chena Power Plant	Denali National Park	119	627.6	5.3
Fort Wainwright Central Heating and Power Plant	Denali National Park	119	460.0	3.9
North Pole Power Plant	Denali National Park	122	247.2	2.0

[79] Alaska submission, Section III.K.13 Combined Sections, Figure III.K.13.F–2.

[80] *Id.* Figure III.K.13.F–3.

[81] Annual average extinction composition for the years 2000 through 2021 for DENA1, SIME1, and TUXE1. See ''210 EPA Alaska Sulfate Nitrate Alaska IMPROVE Stations.xls'' in the docket for this action. Data pulled from FED AQRV Summary—Light Extinction Composition—Product #XAQR_BCSB_ANYR. FLM Environmental Database (FED); CSU and the Cooperative Institute for Research in the Atmosphere (CIRA), May 23, 2023.

[82] EPA 2019 Guidance at page 11. See also the EPA's Technical Guidance on Tracking Visibility Progress for the Second Implementation Period of the Regional Haze Program, U.S. Environmental Protection Agency, EPA–454/R–18–010, December 2018. Page 12, Step 3.a.

[83] Alaska submission, Combined Section III.K.13, Pages III.K.13.F–1 through F–12.

[84] Hybrid Single-Particle Lagrangian Integrated Trajectory (HYSPLIT) model, developed by the National Oceanic and Atmospheric Administration Air Resources Lab.

[85] Alaska submission, Appendix III.K.13.G. Modeling.

[86] Alaska submission, Combined Section III.K.13, Pages III.K.13.F–5 through F–12 and Appendix III.K.F-Part-1.

[87] Alaska used 2017 National Emissions Inventory data for ''Q'' because it was considered by the State to be more accurate than 2014v2 National Emissions Inventory data for the sources being evaluated. Some sources screened in step one were found to have significant differences between 2014 and 2017 actual SO_2 emissions due to changes in operation, fuel use, and emissions reporting. See Alaska submission, Appendix III.K.13.F-Part-1 for more information.

[88] The Alaska submission stated that this threshold metric is appropriate, in part because it is more conservative than the threshold metric used in the initial screening criteria detailed in the FLM Air Quality Related Values 2010 Guidance Document for Prevention of Significant Deterioration permitting (SO_2, NO_X, PM_{10}, and H_2SO_4 combined Q/d greater than 10). Alaska submission, Combined Section III.K.13, Page III.K.13.F–11.

[89] See *https://www.uaf.edu/campusmap/for-visitors/buildings/combined-heat-and-power-plant.php/*.

[90] See *https://echo.epa.gov/*.

[91] 20.6 tons divided by 117 kilometers equals 0.2 Q/d, which is less than 1.0 Q/d. 7.4 tons divided by 117 kilometers equals 0.1 Q/d, which is less than 1.0 Q/d.

[92] Source: Alaska submission, Combined Section III.K.13, Table III.K.13.F–8.

As shown in table 4 of this document, the sources selected by Alaska are all power plants with potential visibility impacts at Denali National Park. While Alaska also reviewed sources near the Tuxedni and Simeonof Wilderness Areas, the sources reviewed emitted very little SO_2 and therefore, after applying the source selection methodology used by the State, the sources near the Tuxedni and Simeonof Wilderness Areas screened out.[93] We note there are no sources located near the Bering Sea Wilderness Area because it is extremely remote, undeveloped, and far from industrial activity and human populations.

In the regional haze plan submission, Alaska further supported its source selection by reviewing broader source sectors, including the oil and gas and marine sectors.[94] The main oil and gas facilities in Alaska are in the Cook Inlet and on the North Slope. The Cook Inlet oil and gas platforms are closest to the Tuxedni Wilderness Area, however the submission documented that these platforms already fire low-sulfur fuel gas and ultra-low sulfur diesel (ULSD), and because of low actual SO_2 emissions, none were selected using the State's source selection methodology.[95] The North Slope is extremely remote and distant from Alaska's Class I areas, and these facilities are generally categorized as major stationary sources because they are not connected to a grid and must generate their own power.[96] Due to high distance (d) and low emissions (Q), no oil and gas facilities were selected using the State's source selection methodology.[97] Alaska also noted that commercial marine shipping fuels, as well as aviation and railroad fuels, are regulated at the Federal level.[98] The submission highlighted that recently-implemented Federal and international commercial marine shipping sulfur in fuel restrictions are significant and have the potential to improve visibility in Alaska's Class I areas.

Based on a review of the information provided in the submission, we propose to determine that Alaska adequately documented its review of sources and source selection methodology consistent with 40 CFR 51.308(f)(2)(i).[99]

3. Alaska Control Analyses and Determinations

As stated previously, to address the four statutory factors, the Alaska 2022 regional haze plan relied in part on SO_2 BACT analyses originally conducted and submitted as part of the Fairbanks $PM_{2.5}$ serious nonattainment plan in 2020 and 2021.[100] In 2024, Alaska submitted revisions to the SO_2 BACT analyses to address EPA concerns and to account for more recent vendor quotes and fuel prices.[101] Alaska indicated in the 2025 clarification letter that the updated SO_2 BACT analyses were also intended to satisfy the regional haze four-factor analysis requirements.

Consistent with the EPA 2019 Guidance, it is appropriate for a State to rely on recent SO_2 BACT analyses to also satisfy regional haze four-factor analysis requirements.[102] A BACT analysis is a rigorous pollution control technology review process that makes use of data acquired through vendor quotes and other means to review and select technologically-feasible and cost-effective control technology.[103] Such an analysis is based on a number of factors, including those factors addressed under regional haze—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.[104] We note that an important difference between a BACT analysis and a regional haze four-factor analysis for a source is that a BACT analysis is based on a source's potential to emit a particular pollutant, while a four-factor analysis is most often based on a source's actual emissions of that pollutant, which is often lower.[105] For that reason, regional haze four-factor analyses tend to yield higher cost estimates per ton of pollutant removed.

The following paragraphs describe the State's analysis for each selected source and the EPA's evaluation against the requirements of the CAA and the EPA's RHR. We are proposing to concur with Alaska's finding that, because no retrofit SO_2 controls are cost effective for regional haze purposes, existing effective SO_2 controls are already in place, and SO_2 emissions are unlikely to change over time, no SO_2 controls are necessary for reasonable progress in the regional haze second implementation period.

a. Healy Power Plant

i. Background

The Healy Power Plant is an electric generating facility owned and operated by the Golden Valley Electric Association (GVEA), a power-generating cooperative serving interior Alaska. The plant, part of an isolated system operating without connection to an interstate transmission grid, combusts subbituminous coal from the nearby Usibelli Coal Mine. In 2017, the plant emitted 296 tons of SO_2.[106]

The primary units at the Healy Power Plant are two coal-fired steam generators, a 25-megawatt (MW) Foster-Wheeler boiler installed in 1967 (Emissions Unit (EU) 1) and a 54–MW TRW Integrated Entrained Combustion System installed in 1997 and commercially operated starting in 2018 (EU 2). EU 1 was subject to BART requirements for the first regional haze implementation period.[107] The EPA approved Alaska's determination that the existing SO_2 controls, specifically the requirement to limit SO_2 to 0.30 lb/MMBtu (30-day rolling average) using the existing dry sorbent injection (DSI) system, constituted BART for EU 1 (78 FR 10546, February 14, 2013).[108]

EU 2, originally called the Healy Clean Coal Project, was developed as a demonstration project in partnership

[93] For example, the largest emitting facility near Tuxedni Wilderness emitted 44.7 tons of SO_2 in 2017 and the largest emitting facility near Simeonof Wilderness emitted 2.8 tons of SO_2 in 2017. Alaska submission, Combined Section III.K.13, Page III.K.13.F–7.

[94] Alaska submission, Section III.K.13, Combined Sections, Page III.K.13.H–12.

[95] *Id.,* Page III.K.13.F–8 through F–11 and Alaska submission, Appendix III.K.13.F.

[96] Final Report: 2028 Future Year Oil and Gas Emission Inventory for WESTAR–WRAP States—Scenario #1: Continuation of Historical Trends, by John Grant, Rajashi Parikh, Amnon Bar-Ilan, Ramboll US Corporation. October 2019.

[97] Alaska submission, Combined Section III.K.13, Pages III.K.13.H–13 and H–14.

[98] *Id.,* Pages III.K.H–24 and H–25.

[99] See EPA 2019 Guidance at pages 27 and 28.

[100] Determinations of Attainment by the Attainment Date, Determinations of Failure To Attain by the Attainment Date and Reclassification for Certain Nonattainment Areas for the 2006 24-Hour Fine Particulate Matter National Ambient Air Quality Standards, published May 10, 2017 (82 FR 21711).

[101] The EPA's concerns were detailed in the Agency's proposed disapproval of the plan on January 10, 2023, at 88 FR 1454.

[102] EPA 2019 Guidance at page 23.

[103] See 40 CFR 52.21(b)(12); 40 CFR 52.21(j); 40 CFR 51.1000 (''best available control measure''); U.S. EPA, Office of Air Quality Planning and Standards, New Source Review Workshop Manual, DRAFT, October 1990 at B.1 (''NSR Workshop Manual'').

[104] *Id. See also* 40 CFR 51.1010(a).

[105] See NSR Workshop Manual at B.37; EPA 2019 Guidance at 29.

[106] From the 2017 National Emissions Inventory, available at *https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data/.*

[107] EU 2 was not subject to BART.

[108] The BART determination addressed nitrogen oxides, particulate matter and sulfur dioxide. The BART cost estimate for EU 1 was $29,813 per ton of sulfur dioxide removed for installing and operating a new spray dry absorber system, and $12,033 per ton of sulfur dioxide removed for installing and operating a new wet scrubber system. The cost of optimizing the existing dry sorbent injection system on EU 1 was $4,218 per ton of sulfur dioxide removed.

with the Alaska Legislature, the Alaska Industrial Development and Export Authority (a public corporation of the State of Alaska), and the U.S. Department of Energy Clean Coal Technology Program.[109] The construction of EU 2 was completed in 1997 and first fired coal in 1998, however operations were soon suspended due to technical and operational issues.[110] EU 2 began supplying power commercially in 2018.[111]

We note that, in 2012, GVEA and the Alaska Industrial Development and Export Authority became subject to a Federal consent decree concerning prevention of significant deterioration (PSD) program applicability.[112] If EU 1 continued to operate past 2024, the unit was to be retrofitted with selective catalytic reduction technology to limit NO_X emissions to 0.070 lb/MMBtu (30-day rolling average).[113] The consent decree also required the continued operation of the existing DSI system on EU 1 to limit SO_2 emissions to 0.30 lb/MMBtu (30-day rolling average).[114] For EU 2, the consent decree required the installation of selective catalytic reduction technology to limit NO_X emissions and the continued operation of the existing spray dry absorber system to limit SO_2 emissions to 0.10 lb/MMBtu (30-day rolling average).[115]

ii. Alaska Control Determination

For EU 1, Alaska determined that the unit was effectively controlled, and that it could be excluded from additional control measure review because: (1) the unit was already equipped with DSI technology and (2) the unit already went through a comprehensive BART analysis during the first implementation period.[116]

Alaska relied on the prior BART analysis to determine that additional controls on EU 1 are not necessary for reasonable progress in the second planning period. In the prior BART determination, Alaska evaluated three SO_2 controls: spray dry absorbers, wet scrubbers, and DSI optimization. The State estimated that the incremental cost effectiveness for the addition of a spray dry absorber system was $29,813 per ton of SO_2 removed and for a wet scrubber system was $12,033 per ton of SO_2 removed. Alaska estimated that optimization of the DSI system on EU 1 would cost $4,218 per ton of SO_2 removed.

Alaska speculated that DSI system optimization may be cost-effective upon reevaluation or, alternatively, the unit could meet a 0.20 lb/MMBtu limit without additional controls based on average actual SO_2 emission rate.[117] Therefore, if EU 1 continued to operate, the State provided GVEA with the option to further evaluate optimizing the DSI system, or to take a lower SO_2 limit (0.20 lb/MMBtu (30-day rolling average)).[118]

Subsequent to the 2022 regional haze plan submission, GVEA elected to install selective catalytic reduction on EU 1 and continue operating the unit. Accordingly, Alaska and GVEA evaluated the feasibility of EU 1 meeting a lower SO_2 limit. Alaska determined that EU 1 cannot meet a 0.20 lb/MMBtu SO_2 limit without additional controls or optimizing the existing DSI system.[119] Additionally, Alaska determined that optimizing the DSI system was not necessary for reasonable progress during the second planning period.

The Alaska DEC stated in the clarification letter that the SO_2 BACT analyses conducted under the Fairbanks $PM_{2.5}$ nonattainment plan corroborated what Alaska had found in the prior BART determination for EU 1—that additional SO_2 reductions would be cost prohibitive. Information in the updated 2024 SO_2 BACT analyses confirmed the State's prior determination that a DSI system optimization and retrofit project would not be cost-effective. The State reasoned that optimizing the existing DSI system would have comparable cost effectiveness values to installation of a new system because the total cost would be lower, but the optimized system would not be capable of achieving control efficiencies as high as a new system.[120] Therefore, Alaska determined that the cost effectiveness of optimizing the existing DSI system ranged from over $15,000 per ton of SO_2 removed to over $34,000 per ton of SO_2 removed.[121]

According to Alaska, this information supports a finding that EU 1 remains effectively controlled using the existing DSI system to limit SO_2 to 0.30 lb/MMBtu (30-day rolling average), as specified in the Federal consent decree and as approved as BART in the Alaska regional haze first implementation period plan.[122] Alaska estimated a four-year timeframe to optimize the existing DSI system.[123] The State considered the energy and non-air quality environmental impacts of compliance by including electricity cost attribution, potential for formation of a brown plume from increased sodium bicarbonate injection and additional waste disposal costs. Alaska also considered the remaining useful life of the controls by assuming a 30-year equipment life.[124]

Regarding EU 2, Alaska concluded that the unit remained effectively controlled using the existing spray dry absorber system to limit SO_2 emissions to 0.10 lb/MMBtu (30-day rolling average), as specified in the Federal consent decree.[125]

iii. EPA Evaluation

For EU 1, we concur with the State's finding that the unit is effectively controlled and that optimizing the existing SO_2 controls to meet a lower SO_2 emission limit is not necessary for reasonable progress in the second implementation period. Alaska considered the four statutory factors in making this finding. Alaska reviewed its prior BART cost estimate and more recent information gleaned from the Fairbanks BACT analyses, which were

[109] See *https://www.gvea.com/services/energy/sources-of-power/healy-power-plants/.*

[110] See Healy Operating Permit AQ0173TV03 at page 3, in the Alaska submission, Appendix III.K.13.F-Part 2.

[111] See *https://www.gvea.com/services/energy/sources-of-power/healy-power-plants/.*

[112] *United States* v. *Golden Valley Electric Association and Alaska Industrial Development and Export Authority,* No. 4:12–cv–00025, Consent Decree, November 19, 2012. Alaska submission, Appendix III.K.13.F-Part 2.

[113] Or an alternative nitrogen oxide control technology approved by the EPA.

[114] *United States* v. *Golden Valley Electric Association and Alaska Industrial Development and Export Authority,* No. 4:12–cv–00025, Consent Decree, November 19, 2012. See also condition 44 of Healy Operating Permit AQ0173TVP03. Alaska submission, Appendix III.K.13.F-Part 2.

[115] *Id.* See also condition 45 of Healy Operating Permit AQ0173TVP03. Alaska submission, Appendix III.K.13.F-Part 2.

[116] Alaska submission, Combined Section III.K.13, at page 27; See October 6, 2025, clarification letter in the docket for this action.

[117] *Ibid.* The State based this preliminary finding on the BART analysis conducted during the first implementation period and a review of 2017 through 2019 National Emissions Inventory data collected by the existing continuous emissions monitoring system (CEMS). Alaska found that the average actual SO_2 emission rate for EU 1 was 0.26 lb/MMBtu over this time period.

[118] Alaska submission, Appendix III.K.13.F-Part 2.

[119] See October 6, 2025, clarification letter in the docket for this action, enclosure at page 17.

[120] See October 6, 2025, clarification letter in the docket for this action, enclosure at pages 19 and 20.

[121] *Id.*

[122] *United States* v. *Golden Valley Electric Association and Alaska Industrial Development and Export Authority,* No. 4:12–cv–00025, Consent Decree, November 19, 2012. See also condition 44 of Healy Operating Permit AQ0173TVP03. Alaska submission, Appendix III.K.13.F-Part 2.

[123] See October 6, 2025, clarification letter, in the docket for this action, letter at page 4.

[124] State Air Quality Control Plan, Vol. II, Appendix III.D.7.7–176–182 at *https://www.regulations.gov/document/EPA-R10-OAR-2024-0595-0078 or see file* 127_State_Submission_BACT_Analysis_11_5_2024.pdf at pages 176–182 in the docket for this action.

[125] Alaska submission, Combined Section III.K.13, Table III.K.13.F–22 (Final Determination for GVEA—Healy Power Plant).

based on vendor quotes and methods consistent with the EPA Air Pollution Control Cost Manual. The State considered the energy and non-air quality environmental impacts of compliance by including electricity cost attribution, potential for formation of a brown plume from increased sodium bicarbonate injection and additional waste disposal costs. Alaska used a 30-year equipment life in its cost calculations.[126]

Alaska estimated the time necessary for compliance to be at least four years. Alaska reasonably assumed that GVEA would time any upgrade to the DSI system to coincide with work on the unit to install activated carbon injection ports to ensure compliance with the MATS. Importantly, the requirement to continue operating the DSI system to meet the associated SO_2 limit of 0.30 lb/MMBtu (30-day rolling average) on EU 1 is embodied in a Federal consent decree and title V operating permit and was previously approved by the EPA as BART.

For EU 2, we concur with the State's finding that the requirement to continue operating the spray dry absorber system to meet the associated SO_2 limit of 0.10 lb/MMBtu (30-day rolling average) on EU 2 is an existing effective control, because it is a BACT-level control established as part of a Federal consent decree to resolve issues around PSD applicability.[127] The BACT process takes into consideration the cost of the control, the time necessary to install the control, the non-air quality impacts of the control, and the remaining useful life of the control.[128] The requirement remains embodied in a Federal consent decree and title V operating permit.[129]

b. Eielson Combined Heating and Power Plant

i. Background

The Eielson Air Force Base is located 26 miles southeast of Fairbanks and is comprised of an airfield, housing, office buildings, and supporting facilities. The Eielson Combined Heating and Power Plant is a co-generation plant that provides heat and power to the base. The plant combusts subbituminous coal from the Usibelli Coal Mine and emitted 263 tons of SO_2 in 2017.[130]

The Eielson Combined Heating and Power Plant originally included six stoker type coal-fired boilers, each rated at 160 MMBtu/hr, installed in 1952. In 2010, the Alaska DEC permitted the U.S. Air Force to replace the original boilers in phases. Two of the six original boilers were replaced with modern coal-fired boilers in 2014 and 2016 (EUs 5A and 6A).[131] EUs 5A and 6A are equipped with a DSI system using sodium bicarbonate and are required to limit SO_2 to 0.20 lb/MMBtu (30-day rolling average), consistent with the Federal New Source Performance Standard for Industrial-Commercial-Institutional Steam Generating Units.[132] Four of the original 1950s era boilers continue to operate (EUs 1 through 4).

ii. Alaska Control Determination

For EUs 1 through 4, Alaska provided the U.S. Air Force the option to continue the boiler replacement project, to be completed by December 31, 2024, or submit a four-factor analysis that evaluated retrofit wet scrubbers, spray dry absorber, and DSI systems.[133] The State's clarification letter indicated that the U.S. Air Force submitted a general four-factor analysis concluding that no retrofit SO_2 retrofit controls were cost-effective. DEC revised the cost analyses by: (1) using EPA's April 2024 Retrofit Cost Tool spreadsheet; (2) assuming a retrofit factor of 1.0, (3) assuming a control efficiency of 95% for a wet scrubber and a spray dry absorber, and 98% for DSI, (4) using a waste disposal cost of $30 per ton, and (5) using an operating labor rate of $60 per hour.[134] Using these factors, DEC determined that the cost effectiveness of a wet scrubber and a spray dry absorber exceeded $50,000 per ton of SO_2 removed. DEC also determined that DSI had a cost effectiveness of over $12,000 per ton.[135]

Alaska DEC also compared these cost analyses with the updated SO_2 BACT analysis for similar 1950s era stoker type coal-fired boilers for the nearby Fort Wainwright Central Heating and Power Plant (EUs 1 through 6) that the State recently submitted to the EPA as part of the Fairbanks $PM_{2.5}$ serious nonattainment area plan.

The Fort Wainwright updated SO_2 BACT analysis, which was reviewed by the EPA, revised according to EPA comments, and ultimately included conservative assumptions and recent vendor quotes, considered the cost of compliance, the time necessary for compliance, the energy and non-air quality impacts, and the remaining useful life of the controls.[136] Specifically, Alaska considered the time necessary for compliance to be less than one year for dry sorbent injection and spray dry absorber systems, and approximately three years for a wet flue gas desulfurization system.[137] The State also considered the energy and non-air quality environmental impacts of operating the controls, including electricity cost attribution, potential for formation of ice fog, and possible need for waste and wastewater disposal, and remaining useful life of the controls as estimated in the BACT analysis (30-year equipment life).[138]

Alaska found that dry sorbent injection constituted SO_2 BACT at a cost effectiveness of $6,636 per ton of SO_2 removed, based on potential to emit.[139] Alaska also found that the cost effectiveness of retrofitting with circulating dry scrubbers, wet flue gas desulfurization, and spray dry absorbers ranged from over $13,000 per ton to over $20,000 per ton of SO_2 removed based on potential to emit. As stated in the clarification letter, because the SO_2 BACT analysis was based on the potential to emit 1,470 tons of SO_2 combined from Fort Wainwright EUs 1 through 6, the retrofit costs for Eielson EUs 1 through 4 would be even higher based on lower actual emissions (212 tons of SO_2 combined).[140] Alaska therefore concluded that retrofitting Eielson EUs 1 through 4 with any SO_2 controls would be cost prohibitive for the regional haze second implementation period.

For Eielson EUs 5A and 6A, Alaska determined that the existing SO_2 limit of

[126] See October 6, 2025, clarification letter in the docket for this action, enclosure at page 19.

[127] EPA 2019 guidance at pages 22 and 23.

[128] 40 CFR 52.21(b)(12); NSR Workshop Manual, at B.6.

[129] *United States* v. *Golden Valley Electric Association and Alaska Industrial Development and Export Authority,* No. 4:12–cv–00025, Consent Decree, November 19, 2012. See also conditions 44 and 45 of Healy Operating Permit AQ0173TVP03. See also Alaska submission, Appendix III.K.13.F-Part 2.

[130] From the 2017 National Emissions Inventory, available at *https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data.*

[131] See Minor Permit AQ0264MSS05, issued August 9, 2010, in the docket for this action. According to the Alaska submission, the U.S. Air Force estimated that all six boilers would be replaced by 2020. To date, two of the boilers were replaced. See Alaska submission, Combined Section III.K.13, Pages III.K.13.F–32 through F–40.

[132] 40 CFR part 60, subpart Db. Eielson Air Force Base, Air Quality Operating Permit No. AQ0264TVP02, April 15, 2013, Condition 54.

[133] Alaska submission, Combined Section III.K.13, Table III.K.13.F–30.

[134] See October 6, 2025, clarification letter in the docket for this action, enclosure at pages 34 and 35.

[135] Id. at page 35.

[136] See State Air Quality Control Plan, Vol. II, Appendix III.D.7.7–225–229 at *https://www.regulations.gov/document/EPA-R10-OAR-2024-0595-0078* or see file 127_State_Submission_BACT_Analysis_11_5_2024.pdf at pages 225–229 in the docket for this action.

[137] *Id.;* See October 6, 2025, clarification letter in the docket for this action, enclosure at pages 35 and 36.

[138] *Id.*

[139] *Id.*

[140] 2023 actual emissions.

0.20 lb/MMBtu (30-day rolling average) is an existing effective control.[141] Alaska further concluded that, while it may be technically feasible to improve the efficiency of the existing DSI system, actual emissions from EUs 5A and 6A have been extremely low (5.9 tons in 2017, 22 tons in 2018, and 3.7 tons in 2019), and therefore work to further reduce emissions would not be cost-effective.[142] Alaska stated in the clarification letter that the 0.20 lb/MMBtu (30-day rolling average) limit is not necessary for reasonable progress because actual emissions from EUs 5A and 6A have been consistently low with little variation and because the limit is already embodied in the Federal New Source Performance Standard for Industrial-Commercial-Institutional Steam Generating Units.[143]

iii. EPA Evaluation

For Eielson EUs 1 through 4, we propose to approve the State's finding that no SO_2 controls are necessary for reasonable progress, based on the State's consideration of the four factors. Alaska considered cost by conducting new analyses and reviewing BACT analysis data for similar units at the nearby Fort Wainwright.[144] As discussed in the preceding paragraphs, Alaska considered the cost of compliance, time necessary for compliance, the energy and non-air quality environmental impacts of compliance, and remaining useful life of the controls.[145] The BACT process takes into consideration the cost of the control, the time necessary to install the control, the non-air quality impacts of the control, and the remaining useful life of the control.[146]

With respect to EUs 5A and 6A, we concur with the State's finding that the existing requirement to limit SO_2 emissions to 0.20 lb/MMBtu (30-day rolling average) is not necessary for reasonable progress. These units are currently subject to the applicable SO_2 limit in the Federal New Source Performance Standard for Industrial-Commercial-Institutional Steam Generating Units.[147] Actual emissions from EUs 5A and 6A have been consistently low with little variation, therefore, we expect SO_2 emissions from EUs 5A and 6A are unlikely to increase over time. Between 2014 and 2019, SO_2 emissions from all coal-fired boilers at Eielson ranged between 211.77 tons per year and 267.3 tons per year, with a general downward trend.[148] In addition, EUs 1–4 and 5A and 6A are subject to a coal combustion limit of 220,000 tons per 12 consecutive months.[149]

c. Chena Power Plant

i. Background

The Chena Power Plant is a co-generation plant owned and operated by Aurora Energy, LLC. The plant, part of an isolated power-generating system operating without connection to an interstate transmission grid, fires subbituminous coal from the Usibelli Coal Mine and emitted 628 tons of SO_2 in 2017.[150] The Chena Power Plant consists of four coal-fired boilers (EUs 4 through 7) that produce steam for district heating and electricity in the city of Fairbanks. EUs 4, 5, and 6, installed in the early 1950s, are overfeed traveling grate stoker type boilers rated at 76 MMBtu/hr each. EU 7, installed in 1970, is a spreader-stoker type boiler rated at 269 MMBtu/hr. EUs 4 through 7 were subject to SO_2 BACT as part of the Fairbanks $PM_{2.5}$ nonattainment area plan, as summarized in the following paragraphs.

ii. Alaska Control Determination

For EUs 4 through 7, Alaska determined based on recent SO_2 BACT analyses that no retrofit SO_2 controls at Chena Power Plant EUs 4 through 7 are necessary for reasonable progress in the second implementation period. Alaska relied on the SO_2 BACT analysis conducted for these units as part of the Fairbanks $PM_{2.5}$ nonattainment area plan [151] to also satisfy the regional haze plan four-factor analysis requirements.[152] The Alaska 2022 regional haze plan pointed to the original SO_2 BACT control analysis and determination (limiting the sulfur content of coal fired in EUs 4 through 7 to 0.25% sulfur by weight and limiting SO_2 emissions from EUs 4 through 7 to no more than 0.301 lb/MMBtu (3-hour average)).[153] However, the Alaska DEC subsequently withdrew the original SO_2 BACT analysis included in the Fairbanks $PM_{2.5}$ nonattainment area plan.[154]

On December 4, 2024, Alaska submitted revisions to the Fairbanks $PM_{2.5}$ nonattainment area plan that updated the original SO_2 BACT analysis for Chena Power Plant EUs 4 through 7, among other elements.[155] The SO_2 BACT analysis —which was reviewed by the EPA, revised according to EPA comments, and ultimately included conservative assumptions and recent vendor quotes—considered the cost of compliance, the time necessary for compliance, the energy and non-air quality impacts, and the remaining useful life of the controls.[156] Specifically, Alaska considered the time necessary for compliance to be one year for dry sorbent injection and spray dry absorber systems, and three years for a wet flue gas desulfurization system.[157] The State also considered the energy and non-air quality environmental impacts of operating the controls, including ash disposal and wastewater disposal requirements, and remaining useful life of the controls as estimated in the BACT analysis (30-year equipment life).[158] The updated BACT analysis indicated that the least costly SO_2 control, DSI, was estimated to cost $13,368 per ton of SO_2 reduced, based on potential to emit.[159] The updated analysis also indicated that wet flue gas desulfurization and spray dry absorbers would be more costly. Alaska therefore concluded that additional SO_2 controls

[141] Alaska submission, Combined Section III.K.13, Table III.K.13.F–30.

[142] *Id.*

[143] 40 CFR part 60, subpart Db. Eielson Air Force Base, Air Quality Operating Permit No. AQ0264TVP02, April 15, 2013, Condition 54; See October 6, 2025, clarification letter in the docket for this action, enclosure at page 37.

[144] See the Fort Wainwright Central Heating and Power Plant SO_2 reduction analysis report, May 21, 2021, in the docket for this action or at *https://www.regulations.gov/document/EPA-R10-OAR-2022-0115-0251* and State Air Quality Control Plan, Vol. II, Appendix III.D.7.7–225–229 at *https://www.regulations.gov/document/EPA-R10-OAR-2024-0595-0078* or see file 127_State_Submission_BACT_Analysis_11_5_2024.pdf at pages 225–229 in the docket for this action.

[145] *Ibid.*

[146] 40 CFR 52.21(b)(12); NSR Workshop Manual, at B.6.

[147] 40 CFR part 60, subpart Db; Eielson Air Force Base, Air Quality Operating Permit No. AQ0264TVP02, April 15, 2013, Condition 54.

[148] See October 6, 2025, clarification letter in the docket for this action, enclosure at page 30.

[149] Air Quality Operating Permit, Permit No. AQ0264TVP02, Rev. 2, November 10, 2014, Condition 35.1. This condition effectively caps the SO_2 emissions from the central heat and power plant. Note, Eielson requested this limit to avoid classification as a major source of hazardous air pollutants.

[150] From the 2017 National Emissions Inventory, available at *https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data/.*

[151] Fairbanks $PM_{2.5}$ serious area SIP revisions submitted on December 13, 2019, and December 15, 2020.

[152] Alaska submission, Combined Section III.K.13, Pages III.K.13.F–29 through 32.

[153] *Id.,* Pages III.K.13.F–29 through 32.

[154] See Alaska BACT withdrawal letter dated September 26, 2023, in the docket for this action.

[155] State Air Quality Control Plan, Vol. II, Appendix III.D.7.7–176–182 at *https://www.regulations.gov/document/EPA-R10-OAR-2024-0595-0078* or see file 127_State_Submission_BACT_Analysis_11_5_2024.pdf at pages 176–182 in the docket for this action.

[156] *Ibid.*

[157] *Ibid.*

[158] *Ibid.*

[159] *Ibid.*

were not economically feasible as BACT.

Based on the updated SO_2 BACT analysis, Alaska found no retrofit SO_2 controls at Chena Power Plant EUs 4 through 7 to be necessary for reasonable progress in the second implementation period.

iii. EPA Evaluation

Relying on recent SO_2 BACT analyses to also satisfy regional haze requirements is appropriate and consistent with the EPA 2019 Guidance.[160] We concur with the State's finding that no SO_2 controls are necessary for reasonable progress, based on the State's reasonable consideration of the four factors. Alaska's BACT analysis for dry sorbent injection is based on a site-specific vendor cost estimate.[161] Additionally, the State noted that there is limited available land at the power plant for construction of larger SO_2 controls, such as wet scrubbers.[162] As part of its SO_2 BACT analysis described in the previous paragraphs, the State considered the energy and non-air quality impacts of installing dry sorbent injection, the time necessary to install the controls, and the remaining useful life of the controls. We acknowledge that the 2022 regional haze plan indicated the State's original SO_2 BACT coal sulfur limit also satisfied reasonable progress requirements, however, we believe this coal sulfur limit is not necessary for reasonable progress, because the plant burns coal exclusively from the Usibelli Coal Mine in Healy, Alaska. The coal sulfur content is thus inherent to the type of coal from this mine.[163]

d. Fort Wainwright Central Heating and Power Plant

i. Background

Fort Wainwright is a U.S. Army base located in Fairbanks, Alaska. The Fort Wainwright Central Heating and Power Plant provides heat and power to the base. The plant combusts subbituminous coal from the Usibelli Coal Mine and emitted a total of 460 tons of sulfur dioxide in 2017.[164]

The Fort Wainwright Central Heating and Power Plant is made up of six spreader-stoker type coal-fired boilers installed in 1953, each rated at 230 MMBtu/hr, that produce steam to heat and power the base (EUs 1 through 6). The plant is owned and operated by Doyon Utilities, LLC, a subsidiary of Doyon Limited, the regional Alaska Native corporation for Interior Alaska. EUs 1 through 6 were subject to SO_2 BACT as part of the Fairbanks $PM_{2.5}$ nonattainment area plan, as summarized in the following paragraphs.

ii. Alaska Control Determination

For EUs 1 through 6, Alaska determined based on recent SO_2 BACT analyses conducted for these units as part of the Fairbanks $PM_{2.5}$ nonattainment area plan [165] that no SO_2 emissions controls are necessary for reasonable progress. Alaska based this decision on SO_2 BACT determinations included in its latest SIP submission for the Fairbanks $PM_{2.5}$ Nonattainment area. Prior to this SIP submission, Alaska had determined that installation of a new dry sorbent injection system to meet a 0.12 lb/MMBtu SO_2 emissions limit (averaged over a 3-hour period) was BACT for EUs 1 through 6. In its 2022 regional haze plan submission, Alaska purported to rely on this prior SO_2 BACT determination to satisfy, in part, regional haze requirements on EUs 1 through 6.[166] However, the Alaska DEC withdrew the SO_2 BACT analysis.[167]

On December 4, 2024, Alaska submitted revisions to the Fairbanks $PM_{2.5}$ nonattainment area plan that included an updated SO_2 BACT analysis for the Fort Wainwright Central Heating and Power Plant EUs 1 through 6, among other elements.[168]

The SO_2 BACT analysis was reviewed by the EPA, revised according to EPA comments, and ultimately included conservative assumptions and recent vendor quotes.[169] Based on the updated analysis, Alaska concluded that dry sorbent injection constituted SO_2 BACT at a cost effectiveness of $6,636 per ton of SO_2 removed, based on potential to emit.[170] The Alaska DEC also found that the cost effectiveness of retrofitting with circulating dry scrubbers, wet flue gas desulfurization, and spray-dry adsorbers ranged from over $13,000 per ton to over $20,000 per ton of SO_2 removed based on potential to emit. In addition, as stated in the clarification letter, because the Fort Wainwright SO_2 BACT analysis was based on the potential to emit 1,470 tons of SO_2 combined from EUs 1 through 6, Alaska found that the retrofit cost per ton reduced based on actual emissions would triple.[171] Alaska assumed a remaining useful life of 30 years for circulating dry scrubbers, wet flue gas desulfurization, spray-dry adsorbers, and dry sorbent injection.[172] Regarding energy and non-air quality impacts, the State determined that wet flue gas desulfurization consumed the most energy due to reagent preparation, such as grinding limestone.[173] The dry systems (dry sorbent injunction and circulating dry scrubbers) required additional energy due to pressure drop from pulse jet fabric filters.[174] According to Alaska, wet scrubbers also demand significant water, which could lead to potential ice fog formation.[175] These systems also produce wastewater.[176] The dry systems have the potential to increase solid waste generation due to sorbent disposal.[177] Alaska considered the time necessary to install controls to be less than one year for dry sorbent injection and spray dry absorber systems, and approximately three years for a wet flue gas desulfurization system, based on the BACT analysis.[178] Alaska ultimately found that retrofitting Fort Wainwright EUs 1 through 6 with any SO_2 controls would be cost prohibitive for the regional haze second implementation period.

[160] At page 23.

[161] State Air Quality Control Plan, Vol. II, Appendix III.D.7.7–176–182 at *https://www.regulations.gov/document/EPA-R10-OAR-2024-0595-0078* or see file 127_State_Submission_BACT_Analysis_11_5_2024.pdf at pages 176–182 in the docket for this action.

[162] *Ibid.*

[163] State Air Quality Control Plan, Appendix III.D.7.7–75 (''the Usibelli Coal Mine is the source of all coal marketed and burned in Fairbanks. Their factsheet73 indicates the sulfur content of coal from the Healy mine is typically 0.2% with a range of 0.08%–0.28%. The Healy mine supplies the coal burned in Fairbanks.'').

[164] From the 2017 National Emissions Inventory, available at *https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data/.*

[165] Fairbanks $PM_{2.5}$ serious area SIP revisions submitted on December 13, 2019, and December 15, 2020.

[166] *Ibid.*

[167] See Alaska BACT withdrawal letter dated September 26, 2023, in the docket for this action.

[168] State Air Quality Control Plan, Vol. II, Appendix III.D.7.7–202 at *https://www.regulations.gov/document/EPA-R10-OAR-2024-0595-0078* or see file 127_State_Submission_BACT_Analysis_11_5_2024.pdf at page 202 in the docket for this action.

[169] See State Air Quality Control Plan, Vol. II, Appendix III.D.7.7–225–229 at *https://www.regulations.gov/document/EPA-R10-OAR-2024-0595-0078* or see file 127_State_Submission_BACT_Analysis_11_5_2024.pdf at pages 225–229 in the docket for this action.

[170] *Ibid.*

[171] See October 6, 2025, clarification letter in the docket for this action, enclosure at page 42. 2023 actual emissions.

[172] See Final CHPP SO_2 Reduction Analysis Fort Wainwright, B&V Project No. 406418, Prepared for Doyon Utilities, 25 August 2021 at ES–3, available at *https://www.regulations.gov/document/EPA-R10-OAR-2022-0115-0249/.*

[173] *Id.* at 6–1.

[174] *Id.*

[175] *Id.* at 6–2—6–7.

[176] *Id.* at 6–8.

[177] *Id.* at 6–1; 6–8.

[178] *Ibid.*

iii. EPA Evaluation

As stated previously, relying on recent SO_2 BACT analyses to also satisfy regional haze requirements is appropriate and consistent with the EPA 2019 Guidance.[179] We concur with the State's finding that no SO_2 controls are necessary for reasonable progress, based on Alaska's reasonable evaluation of the four statutory factors. Alaska considered cost by reviewing BACT analysis data originally developed by the facility and updated by the State to address EPA comments and to include recent vendor quotes for various SO_2 emissions controls, including dry sorbent injection and wet flue gas desulfurization.[180] Alaska considered the time necessary to install controls to be less than one year for dry sorbent injection and spray dry absorber systems, and approximately three years for a wet flue gas desulfurization system, based on the BACT analysis.[181] The State also considered the energy and non-air quality environmental impacts of operating the controls, including electricity cost attribution, potential for formation of ice fog and possible need for waste and wastewater disposal. Finally, Alaska determined the remaining useful life of the controls as estimated in the BACT analysis (30-year equipment life).[182]

e. North Pole Power Plant

i. Background

The North Pole Power Plant is an electric generating facility owned and operated by Golden Valley Electric Association (GVEA). The plant is located in North Pole, near Fairbanks, and is part of an isolated power-generating system operating without connection to an interstate transmission grid. The plant combusts fuel oil supplied by the local PetroStar Refinery and in 2017 emitted 247 tons of SO_2.[183]

The primary units at the North Pole Power Plant include two fuel oil-fired GE Frame 7000 Series regenerative simple cycle gas combustion turbines rated at 672 MMBtu/hr each (EUs 1 and 2) that burn high sulfur diesel and two GE LM600PC combined cycle gas combustion turbines rated at 455 MMBtu/hr each (EUs 5 and 6) that burn light straight run, a low sulfur naphtha fuel. We note that EU 6 is not yet operational. EUs 1, 2, 5 and 6 were subject to SO_2 BACT as part of the Fairbanks $PM_{2.5}$ nonattainment area plan, as summarized in the following paragraphs.

ii. Alaska Control Determination

Based on the State's recent SO_2 BACT analyses and consideration of the four factors, Alaska determined that no SO_2 emission controls are necessary on EUs 1, 2, 5 or 6 in the second planning period. In its 2022 regional haze plan submission, Alaska relied in part on older SO_2 BACT analysis conducted and documented for EUs 1, 2, 5 and 6 as part of the Fairbanks $PM_{2.5}$ nonattainment area plan, as well as supplemental four factor analyses to satisfy the regional haze requirements for the second planning period. Specifically, Alaska previously determined the following with respect to regional haze requirements at the North Pole Power Plant:

- *EUs 1 and 2:* Switching to Alaska No. 1 fuel oil (1000 ppmw) in EUs 1 and 2 from April through September was necessary for reasonable progress (provided GVEA can purchase No. 1 fuel oil from the Petro Star North Pole Refinery).[184]
- *EUs 5 and 6:* Switching from 50 ppmw sulfur naphtha or light straight run to 15 ppmw ULSD in EUs 5 and 6 was not cost-effective (greater than $1 million per ton SO_2 removed).[185]

Based on updated SO_2 BACT analyses, Alaska determined that no controls at the North Pole Power Plant are necessary for reasonable progress in the second planning period.

On December 4, 2024, as part of the revisions to the Fairbanks $PM_{2.5}$ nonattainment area plan to address the EPA's partial disapproval action, Alaska included an updated SO_2 BACT analysis for North Pole Power Plant EUs 1 and 2, among other elements.[186] The Alaska DEC determined in this updated analysis that requiring EUs 1 and 2 to fire ULSD would cost approximately $6,629 to $13,932 per ton for EU 1 based on potential to emit and between $6,723 and $14,026 per ton for EU 2, depending on fuel price.[187]

The State also noted that there is no local supply of ULSD in Fairbanks. Therefore, in order to comply with a requirement to burn only ULSD in EUs 1, 2, 5 and 6, GVEA would have to source the ULSD from southern Alaska, *e.g.,* Valdez.[188] Increased highway or rail trucking of ULSD to Fairbanks increases on-road and rail air pollutant emissions and the potential for fuel spills.[189] Both of these could be ameliorated by construction of a local tank farm. GVEA commissioned a cost and feasibility study of constructing a tank farm as part of the Fairbanks $PM_{2.5}$ nonattainment area plan.[190] The State incorporated the capital costs from this estimate into its cost-effectiveness calculations discussed previously. The Alaska DEC determined that GVEA would need three years to comply with lower sulfur fuel content requirements.[191]

In the 2025 clarification letter, Alaska updated the cost analyses based on the latest price per gallon of ULSD and No. 1 fuel oil. For both EU 1 and EU 2, Alaska determined that switching to ULSD would have a cost effectiveness of $29,646 per ton of SO_2 removed and switching to No. 1 fuel oil would have a cost effectiveness of $23,110 per ton of SO_2 removed.[192] Thus, according to Alaska, the updated analysis showed that requiring either ULSD or No. 1 fuel oil was not cost effective. The State also noted that Petro Star is unable to supply GVEA with No. 1 fuel oil because it

[179] EPA 2019 Guidance and page 23.

[180] See the Fort Wainwright Central Heating and Power Plant SO_2 reduction analysis report, May 21, 2021, in the docket for this action or at *https://www.regulations.gov/document/EPA-R10-OAR-2022-0115-0251* and State Air Quality Control Plan, Vol. II, Appendix III.D.7.7–225–229 at *https://www.regulations.gov/document/EPA-R10-OAR-2024-0595-0078* or see file 127_State_Submission_BACT_Analysis_11_5_2024.pdf at pages 225–229 in the docket for this action.

[181] *Ibid.*

[182] *Ibid.*

[183] From the 2017 National Emissions Inventory, available at *https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data/.*

[184] *Id.* Page III.K.13.F–19. This finding is predicated on the assumption that GVEA will be able to purchase No. 1 fuel oil from the Petro Star North Pole Refinery. If the North Pole Refinery is not able to supply GVEA with No. 1 fuel oil due to shortages in supply, the North Pole Power Plant may continue to burn No. 2 fuel oil in EUs 1 and 2 until such time as No. 1 fuel oil is again available. The analysis also assumed that EUs 1 and 2 were already subject to a now rescinded requirement to burn ULSD October through March under Alaska Fairbanks $PM_{2.5}$ nonattainment plan.

[185] Based on actual emissions.

[186] See State Air Quality Control Plan, Vol. II, Appendix III.D.7.7–301–307 at *https://www.regulations.gov/document/EPA-R10-OAR-2024-0595-0078* or see file 127_State_Submission_BACT_Analysis_11_5_2024.pdf at pages 301–307 in the docket for this action.

[187] The documentation for this finding can be found at *https://www.regulations.gov/document/EPA-R10-OAR-2024-0595-0078/.*

[188] See Response to Comments Regarding Best Available Control Measure Requirements for Residential and Commercial Fuel Oil Combustion, November 2. 2023 at 3–4, available at *https://www.regulations.gov/document/EPA-R10-OAR-2022-0115-0379/.*

[189] *Id.* at 3–11.

[190] GVEA Alternative BACT November 2018; Attachment 2 Technical Memo from PDC Regarding Bulk Fuel Storage available at *https://www.regulations.gov/document/EPA-R10-OAR-2022-0115-0252/.*

[191] State Air Quality Control Plan, III.D.7.7–79 (November 19, 2019) available at *https://www.regulations.gov/document/EPA-R10-OAR-2022-0115-0076/.*

[192] See October 6, 2025, clarification letter in the docket for this action, enclosure at page 11.

must meet increased local demand.[193] Alaska's Fairbanks $PM_{2.5}$ nonattainment plan restricts the fuel oil sulfur content for residents and business to less than 1,000 ppm.[194] As a result of this requirement, these customers have consumed the majority of the available supply of No. 1 fuel oil in the area.[195]

Alaska also confirmed its prior analysis that requiring USLD at EU 5 would have a cost effectiveness of over $1 million.[196] Alaska thus determined that no controls are necessary on EUs 5 or 6 in the second planning period.

Therefore, based on the updated BACT analysis and updated fuel cost data, the State determined that no SO_2 controls were necessary for reasonable progress in the second implementation period at the North Pole Power Plant.

iii. EPA Evaluation

As previously stated, relying on recent SO_2 BACT analyses to also satisfy regional haze requirements is appropriate and consistent with the EPA 2019 Guidance.[197] We concur with the State's finding that no SO_2 controls are necessary for reasonable progress, based on Alaska's reasonable evaluation of the four statutory factors. Alaska derived the cost of firing lower sulfur fuels based on two primary factors: (1) the cost of building fuel oil storage; and (2) the variability in fuel prices.[198] Currently, there is no local low sulfur fuel oil refining in Fairbanks. Petro Star supplies fuel oil to the region, but its facility lacks desulfurization capabilities. Thus, requiring sources in Fairbanks to fire lower sulfur fuel necessarily means transporting that fuel by truck or rail from southern Alaska. The Alaska DEC pointed out the costs and logistical challenges of doing so. Given these challenges, building out large volume storage in Fairbanks would be necessary to comply with any lower sulfur fuel requirements, *e.g.* ULSD. In its 2024 SIP submission for the Fairbanks $PM_{2.5}$ nonattainment area, Alaska estimated that the cost of switching to ULSD was approximately $13,838 per ton for EU 1, $13,923 per ton for EU 2, and $1,040,822 per ton for EUs 5 and 6.[199] Alaska's most recent cost estimates indicate that the cost of switching to USLD across each of these units is even higher. Thus, Alaska evaluated the cost, energy and non-air quality impacts of building fuel oil storage in Fairbanks, as well as the time needed to construct the storage tanks and their remaining useful life.[200]

Recent developments impacting the cost and availability of Alaska No. 1 fuel oil make firing lower sulfur fuel oil in EUs 1 and 2 impractical and cost prohibitive. The Fairbanks $PM_{2.5}$ nonattainment plan requires home heating oil to meet lower sulfur content requirements, and this control measure has restricted the availability of No. 1 fuel oil for industrial use and caused further variability in fuel oil prices in interior Alaska.[201] Therefore, the State's finding, that current fuel prices suggest a fuel switch to No. 1 fuel oil in EUs 1 and 2 would be cost prohibitive for the regional haze second implementation period, also appears reasonable.

With respect to EUs 5 and 6, we concur with the State's finding that no SO_2 controls are necessary for reasonable progress, based on Alaska's reasonable evaluation of the four statutory factors.[202] The EPA previously reviewed Alaska's determination—that continued use of light straight run constituted SO_2 BACT—as part of its review of the Fairbanks $PM_{2.5}$ nonattainment area plan. This analysis, as well as the analysis in the Alaska regional haze plan, supports the finding that no additional controls are cost effective. Additionally, because light straight run is the normal operating fuel for EUs 5 and 6 and GVEA is under long-term contract to purchase light straight run from Petro Star via direct pipeline, it is reasonable to assume the long-standing, current requirement to fire light straight run (50 ppmw) year-round, except during startup (Jet-A, 300 ppmw), is unlikely to change.[203]

4. Additional Long-Term Strategy Requirements

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.

Alaska participated in and provided documentation of the WRAP intra- and inter-regional planning organization consultation processes in the submission.[204] Alaska has not identified any other State that is impacting Alaska's Class I areas, and Alaska has not been identified as a contributor to impacts in other States' Class I areas.[205] To address 40 CFR 51.308(f)(2)(ii)(A), (B), and (C), the Alaska DEC participated in the WRAP-facilitated process during which no disagreements were raised by other States with respect to Alaska's planning efforts for the regional haze second implementation period. Considering these facts, we agree that Alaska has adequately satisfied the consultation requirements of 40 CFR 51.308(f)(2)(ii).

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 reduction measures that are necessary to make reasonable progress through a regional planning organization, as long as the process has been ''approved by all State participants.'' As explained previously, Alaska relied on WRAP technical information, modeling, and analysis to support development of its long-term strategy as described in the submission.[206] Alaska built on the WRAP technical tools and contracted out additional modeling for purposes of the submission.[207]

Section 51.308(f)(2)(iii) also requires that the emissions information considered to determine the measures

[193] *Id.* Enclosure at page 9.

[194] 18 AAC 50.078; 40 CFR 52.70(c).

[195] See October 6, 2025, clarification letter in the docket for this action, enclosure at page 9.

[196] *Id.* Enclosure at pages 11 and 12.

[197] EPA 2019 Guidance at page 23.

[198] State Air Quality Control Plan, Vol. II, Section III.D.7.7.13.8.5.3 at *https://www.regulations.gov/document/EPA-R10-OAR-2024-0595-0027* or see file 128_State_Submission_Fairbanks_Control_Strategies_11_5_2024.pdf at pages 75–76 in the docket for this action.

[199] *Ibid.*

[200] *Ibid.*

[201] State Air Quality Control Plan, Appendix III.D.7.7 in EPA docket EPA–R10–OAR–2024–0595 or see file 129_State_Submission_Fairbanks_Control_Strategies_Appendix_11_5_2024.pdf at pages 76–84 in the docket for this action.

[202] The documentation for this finding can be found in State Air Quality Control Plan, Vol. II, Appendix III.D.7.7–301–307 at *https://www.regulations.gov/document/EPA-R10-OAR-2024-0595-0078* or see file 127_State_Submission_BACT_Analysis_11_5_2024.pdf at pages 301–307 in the docket for this action.

[203] 130_State_Submission_North_Pole_Power_Plant_Fuel_Information.xlsx in the docket for this action. Note this information was submitted as part of the Fairbanks $PM_{2.5}$ nonattainment plan and may also be found in EPA docket EPA–R10–OAR–2020–0060.

[204] Alaska submission, Combined Section III.K.13, Section III.K.13.K. State, Tribe, and Federal Land Manager Consultation.

[205] *Id.* Page III.K.13.K–3.

[206] *Id.* Section III.K.13.G.

[207] *Ibid.*

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.

The 2017 National Emissions Inventory is considered a representative recent triennial inventory and therefore, the EPA has included in the docket for this action the 2017 National Emissions Inventory data for Alaska.[208] Based on the documentation provided by Alaska and the EPA's supplemental inventory data, we agree that Alaska has adequately satisfied the requirements of 40 CFR 51.308(f)(2)(iii).

5. Five Additional Factors

In developing its long-term strategy, a State must also consider five additional factors set forth at 40 CFR 51.308(f)(2)(iv). The factors are: (1) Emission reductions due to ongoing air pollution control programs, including measures to address reasonably attributable visibility impairment; (2) Measures to mitigate the impacts of construction activities; (3) Source retirement and replacement schedules; (4) Smoke management practices for agricultural and forestry burning; and (5) Anticipated net effect on visibility over the period of the long-term strategy. The following paragraphs address each of the five additional factors.

a. Emissions Reductions Due to Ongoing Programs

Alaska implements ongoing programs and regulations that protect visibility. Historically, there were specific vistas established as special protection areas in State regulation, including Mt. Deborah and the Alaska Range East, as viewed from approximately the Savage River Campground area, and Denali, Alaska Range, and the Interior Lowlands, as viewed from the vicinity of Wonder Lake, in addition to the Alaska Class I areas.[209] Additionally, Alaska implements a SIP-approved new source review program for both major and minor stationary sources as laid out in Articles 3 and 5 of 18 AAC 50, respectively. Importantly, Federal diesel fuel regulations limit the sulfur content of fuel[210] including fuel powering commercial marine vessels.[211]

The State has implemented a comprehensive $PM_{2.5}$ control program for the Fairbanks nonattainment area, which includes controlling pollutants from residential wood heaters, power plants and other sources in the area.[212] In addition, the submission pointed to Federal mobile source regulations that apply nationwide and that are expected to reduce haze-forming pollutants over time as requirements phase in and fleets turn over.[213]

b. Measures To Mitigate the Impacts of Construction Activities

Alaska's SIP includes measures to mitigate the impacts of construction activities, such as standards to reduce fugitive dust emissions from construction[214] and dust management plans for new construction permitting.[215] The submission stated that the Alaska DEC also reviews and comments on draft environmental impact statements for required dust mitigation plans.[216]

c. Source Retirement and Replacement Schedules

Source retirements and replacements were considered throughout the Alaska submission. The Alaska submission stated that the Harvest Alaska, LLC Drift River Platform/Christy Lee Platform was decommissioned as of October 2019.[217] The Alaska DEC issued a Rescission Request Approval Letter for the source's title V Operating Permit AQ0190TVP03 Revision 1 on December 12, 2019. Additionally, the Alaska submission stated that the U.S. Air Force decommissioned the three 177 MMBtu/hr coal-fired boilers that made up the Clear Space Force Station Combined Heat and Power Plant, located approximately 12 km from Denali National Park.[218] The old boilers were retired in 2016, and the Clear Space Force Station is now connected to the local GVEA power grid. The source emitted 213 tons sulfur dioxide in 2014 and after the shutdown, emitted less than 0.1 tons sulfur dioxide in 2019.[219] Finally, in 2019, the University of Alaska Fairbanks replaced the Campus Power Plant's aging coal-fired boilers with a new coal-fired boiler equipped with an integrated fluidized bed limestone injection system to control SO_2 emissions. Estimated SO_2 emissions fell from 163.8 tpy in 2017 to 20.6 tpy in 2020.[220]

d. Smoke Management Practices

Alaska addressed smoke management in the submission by citing the State's enhanced smoke management practices for agricultural and forestry burning.[221] The enhanced smoke management plan outlines the process, practices, and procedures to manage smoke from prescribed and other open burning. The plan was most recently updated on December 1, 2021.[222] In addition, Alaska's SIP-approved open burning regulations are found at 18 AAC 50.065. The open burning rules address types of open burning within the State and, among other things, limit the materials that may be burned, prescribe how a burn must be conducted, limit smoldering, and prohibit black smoke.

e. Anticipated Net Effect on Visibility

In the submission, Alaska considered the anticipated net effect of projected changes in emissions by discussing the photochemical modeling for the 2018 through 2028 period it conducted in collaboration with the WRAP, the EPA, and the University of Alaska Fairbanks.[223] Emissions inventories in the Alaska submission indicated that anthropogenic SO_2 emissions in Alaska were anticipated to decline significantly through 2028, primarily due to Federal regulation of sulfur in fuel.[224] The submission stated that the overall visibility benefits of these reductions are expected to be offset to some degree by natural sources of SO_2, including wildfires, and the continued transport of international anthropogenic emissions from Asia across the Pacific Ocean.[225]

[208] See Excel spreadsheet of EPA National Emissions Inventory NO_X and SO_2 data trends for Alaska in the docket for this action.

[209] 18 AAC 50.025 Visibility and Special Protection Areas.

[210] See *https://www.epa.gov/diesel-fuel-standards.*

[211] Fuel sulfur limits are codified at 40 CFR part 1043. See 84 FR 69335, December 18, 2019, at page 69336.

[212] Alaska submission, Combined Section III.K.13, Page III.K.13.H–10.

[213] *Id.,* Page III.K.13.H–9.

[214] 18 AAC 50.045(d).

[215] Alaska submission, Combined Section III.K.13, Page III.K.13.H–28.

[216] *Ibid.*

[217] *Id.,* Appendix III.K.13.F–12.

[218] *Id.* Appendix III.K.13.F–10.

[219] *Ibid.*

[220] Based on 2017 and 2020 National Emissions Inventory data.

[221] Alaska submission, Combined Section III.K.13, Page III.K.13.H–28 through H–31.

[222] *Id.,* Page III.K.13.H–30.

[223] *Id.,* Section III.K.13.G.

[224] *Id.,* Section III.K.13.E.

[225] *Id.,* Page III.K.13.H–31.

We find that Alaska has reasonably considered each of the five additional factors and has adequately satisfied the requirements of 40 CFR 51.308(f)(2)(iv).

6. Conclusion

As described in the preceding paragraphs, the EPA proposes to approve the Alaska submission as meeting the long-term strategy requirements of 40 CFR 51.308(f)(2).

F. Reasonable Progress Goals

Section 51.308(f)(3) contains the requirements pertaining to reasonable progress goals for each Class I area. Because Alaska is host to Class I areas, it is subject to both 40 CFR 51.308(f)(3)(i), and potentially, to (ii). Section 51.308(f)(3)(i) requires a State in which a Class I area is located to establish reasonable progress goals—one each for the most impaired and clearest days—reflecting the visibility conditions that will be achieved at the end of the implementation period as a result of the emission limitations, compliance schedules and other measures required under 40 CFR 51.308(f)(2) to be in States' long-term strategies, as well as implementation of other CAA requirements. The long-term strategies as reflected by the reasonable progress goals 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 reasonable progress goals 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 51.308(f)(3)(ii)(A), if the State in which a Class I area is located establishes a reasonable progress goal for the most impaired days that provides for a slower rate of visibility improvement than the uniform rate of progress, 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 long-term strategy.

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 reasonable progress goal for the most impaired days in that Class I area is above the uniform rate of progress, the upwind State must provide the same demonstration.

1. Adjusted Uniform Rate of Progress

To address 40 CFR 51.308(f)(3)(i), the Alaska submission stated that visibility on the 20% clearest days at all Class I areas in Alaska is projected to be below the baseline visibility condition satisfying the Regional Haze Rule requirement of no degradation in visibility for the clearest days since the baseline period.[226] For the most impaired days, Alaska compared the 2028 RPGs to the EPA-adjusted uniform rate of progress (URP) for 2028. To arrive at the EPA-adjusted URP, the EPA conducting photochemical grid modeling using the CMAQ modeling platform, taking into account certain international anthropogenic sulfate emissions.[227] The EPA's modeling made use of 2016 emissions inventory data to represent emissions for the current visibility period and projected the data to 2028 to represent emissions for the end of the second planning period. The projection was based on predicted economic growth, population expansion or contraction, and other factors.[228] The EPA's adjustments yielded a relatively flat URP.[229] The EPA also ran a 2028 zero-out U.S. anthropogenic emissions CMAQ modeling scenario. This zero-out U.S. model run indicated that even when all U.S. anthropogenic emissions were eliminated from the model, Alaska Class I areas saw essentially no visibility benefit.[230] This EPA zero-out U.S. model run provides additional support for the State's conclusion that no retrofit controls are necessary for reasonable progress in the second implementation period.

To further investigate the role of international and natural emissions, Alaska conducted a supplemental modeling analysis that screened out days with measured high ammonium sulfate, under the assumption that high sulfate is a proxy for volcanic emissions impacts at the monitor, similar to the screening for wildfire contributions using carbon and crustal measurements as proxies.[231] Alaska used this screened data to develop alternative URPs and RPGs on the most impaired days. Alaska stated in the submission that this process was done to attempt to account for volcanic-caused sulfate and resulted in 2028 RPGs below the URP for 2028.[232]

Tables 7 and 8 of this document compare the baseline, 2028 projected RPG, adjusted URP for 2028, and 2028 zero-out U.S. scenario for each Class I area.

TABLE 7—CLEAREST DAYS 2028 PROJECTED REASONABLE PROGRESS GOAL (RPG) COMPARED TO EPA-ADJUSTED UNIFORM RATE OF PROGRESS (URP) FOR 2028 IN DECIVIEWS[233]

IMPROVE station	Baseline	2028 Projected RPG
DENA1	2.43	2.16
TUXE1	3.99	3.79
SIME1	7.90	7.56

TABLE 8—MOST IMPAIRED DAYS 2028 PROJECTED REASONABLE PROGRESS GOAL (RPG) COMPARED TO EPA AND ALASKA-ADJUSTED UNIFORM RATE OF PROGRESS (URP) FOR 2028 IN DECIVIEWS[234]

IMPROVE station	Baseline	2028 Projected RPG	2028 EPA zero-out U.S.	2028 Un-adjusted URP	2028 EPA-adjusted URP	2028 Alaska-adjusted URP
DENA1	7.08	6.53	6.41	6.14	6.46	6.92

[226] *Id.,* Figure II.K.13.I–1.

[227] Technical Support Document for the EPA's Updated 2028 Regional Haze Modeling for Hawaii, Virgin Islands, and Alaska. EPA–454/R–21–007. August 2021.

[228] *Ibid.*

[229] Alaska submission, Combined Section III.K.13, Figure III.K.13.I–2.

[230] Technical Support Document for the EPA's Updated 2028 Regional Haze Modeling for Hawaii, Virgin Islands, and Alaska. EPA–454/R–21–007. August 2021.

[231] Alaska submission, Combined Section III.K.13, Page III.K.13.I–8.

[232] *Id.,* Appendix III.K.13.I.

[233] Source: Alaska submission, Combined Section III.K.13, Table III.K.13.I–1.

TABLE 8—MOST IMPAIRED DAYS 2028 PROJECTED REASONABLE PROGRESS GOAL (RPG) COMPARED TO EPA AND ALASKA-ADJUSTED UNIFORM RATE OF PROGRESS (URP) FOR 2028 IN DECIVIEWS [234]—Continued

IMPROVE station	Baseline	2028 Projected RPG	2028 EPA zero-out U.S.	2028 Un-adjusted URP	2028 EPA-adjusted URP	2028 Alaska-adjusted URP
TUXE1	10.47	10.66	10.01	9.07	10.25	10.37
SIME1	13.67	13.57	14.05	11.60	13.35	13.04

Table 7of this document appears to indicate that the projected 2028 RPGs on the clearest days are below the baseline. Table 8 appears to show that projected 2028 RPGs on the most impaired days are within half of a deciview of the EPA and Alaska adjusted URPs for 2028. We note that when all U.S. anthropogenic emissions were eliminated from the EPA CMAQ modeling (EPA zero-out U.S. for 2028), DENA1 and TUXE1 saw little to no visibility benefit and SIME1 saw a modeled visibility degradation.[235] Alaska included data and modeling in the submission to support the State's assertion that this unusual zero-out modeling result may be explained by unaccounted for natural haze pollutant sources, international emissions contributions, uncertainties with model inputs, and model performance issues, among other factors.[236]

2. URP Glidepath Check

The EPA proposes to find that Alaska's Regional Haze Plan satisfies the requirements in 40 CFR 51.308(f)(3)(ii). While Alaska's 2028 RPG appears to provide for a slower rate of improvement in visibility than the URP, in accordance with 40 CFR 51.308(f)(3)(ii)(A), Alaska: (1) demonstrated that there are no additional emission reduction measures that would be reasonable to include in its long-term strategy; and (2) provided a robust demonstration, including documenting the criteria used to determine which sources or groups of sources were evaluated, detailing how the four factors were taken into consideration in selecting the measures for inclusion in its long-term strategy.

With respect to the Tuxedni and Simeonof Wilderness Areas, Alaska determined that there were no significant anthropogenic sources contributing to visibility in those areas. The State used a conservative Q/d >1.0 threshold for selecting sources. Even with this very low threshold, no sources had a Q/d of >1.0. Alaska verified that the sources potentially impacted these Class I Areas have very low actual emissions. See section IV.E. of this document for more details.

With respect to Denali National Park all sources except for the Healy Power Plant are located over 100 km away from the Park. For the three sources located within the Fairbanks $PM_{2.5}$ nonattainment area, Alaska relied upon extensive SO_2 nonattainment BACT analyses to demonstrate its consideration of the four statutory factors for regional haze. For Eielson Air Force Base and Healy Power Plant, the State determined through consideration of the four factors that the largest emission units were already well controlled.

Moreover, Alaska included evidence indicating that additional SO_2 controls at these sources are unlikely to improve visibility in Denali National Park. Specifically, natural sulfate contributions may not be properly accounted for in the EPA's CMAQ modeling which adds uncertainty to the results of the visibility modeling in Alaska, and emissions inventory information that supports the argument that much of the sulfate contributions to the IMPROVE monitors in Alaska are from source categories outside the State's control (emissions transported from Asia, commercial marine shipping emissions, wildfire emissions, sea salt and oceanic dimethyl sulfide). Therefore, the EPA finds that no additional requirements apply under 40 CFR 51.308(f)(3)(ii)(A).

Under 40 CFR 51.308(f)(3)(ii)(B), a State that contains sources that are reasonably anticipated to contribute to visibility impairment in a Class I area in another State for which a demonstration by the other State is required under 40 CFR 51.308(f)(3)(ii)(B) must demonstrate that there are no additional emission reduction measures that would be reasonable to include in its long-term strategy. Alaska has not identified any other State that is impacting Alaska's Class I areas, and no other State has identified Alaska as a contributor to impacts in other States' Class I areas. Therefore, 40 CFR 51.308(f)(2)(ii)(B) and (C) do not apply to Alaska.

As noted in the RHR at 40 CFR 51.308(f)(3)(iii), the RPGs are not directly enforceable but will be considered by the Administrator in evaluating the adequacy of the measures in the implementation plan in providing for reasonable progress towards achieving natural visibility conditions at that area. As discussed in the preceding paragraphs, we are proposing to approve the Alaska submission for purposes of the long-term strategy control requirements in 40 CFR 51.308(f)(2). Compliance with the RPGs is dependent on compliance with the long-term strategy. Because the RPGs reflect the visibility conditions that are projected to be achieved by the end of the second implementation period as a result of the long-term strategy, we are proposing to approve the submission for the applicable requirements of 40 CFR 51.308(f)(3) relating to reasonable progress goals for Alaska Class I areas.

G. Monitoring Strategy and Other Implementation Plan Requirements

Section 51.308(f)(4) requires that if the EPA or the affected FLM has advised a State of a need for additional monitoring to assess reasonably attributable visibility impairment at the mandatory Class I area in addition to the monitoring currently being conducted, the State must include in the plan revision an appropriate strategy for evaluating reasonably attributable visibility impairment in the mandatory Class I area by visual observation or other appropriate monitoring techniques. The EPA and the FLMs have not advised Alaska that additional monitoring is needed to assess reasonably attributable visibility impairment. Therefore, the requirements under 40 CFR 51.308(f)(4) are not applicable. Accordingly, the EPA proposes to approve the portions of the Alaska submission relating to 40 CFR 51.308(f)(4).

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

[234] Sources: Alaska submission, Combined Section III.K.13, Table III.K.13.I–2.

[235] *Ibid.*

[236] See Alaska submission, Combined Section III.K.13, Section III.K.13.I. Reasonable Progress Goals.

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.

The Alaska submission highlighted the significant challenge of monitoring visibility at extremely remote Class I areas.[237] Reliable power is a concern, in addition to problems with site access and equipment maintenance. Most notably, the Bering Sea Wilderness Area is so remote that visibility monitoring could not be established, making it the only Class I area in the U.S. without an IMPROVE monitor.[238] Despite these challenges, the IMPROVE network in Alaska continues to provide representative data from three IMPROVE monitors, DENA1, SIME1, and KPBO1.

We note that Alaska also operates a protocol site at Trapper Creek near Denali National Park (TRCR1).[239] The submission stated that Alaska established this protocol site to evaluate the long-range transport of pollution into the park from more densely populated and industrialized areas to the south.[240] Data from protocol sites may be compared to data from IMPROVE stations, however, protocol sites are not considered representative of visibility in Class I areas.[241] National Park Service comments submitted on the draft submission and the Alaska DEC responses to those comments make clear that DENA1 is the representative IMPROVE station for Denali National Park, while TRCR1 remains a protocol site.[242]

We propose to find that the visibility monitoring network in Alaska is appropriate for the unique logistical challenges and extremely remote locations of the Class I areas in the State. The network is designed as well as possible to ensure the air monitoring data collected is representative of the air quality within the Alaska Class I areas.

Section 51.308(f)(6)(i) requires SIPs to provide for the establishment of any additional monitoring sites or equipment needed to assess whether reasonable progress goals to address regional haze for all Class I areas within the State are being achieved.

As listed in Table 1 of this document, according to Alaska, visibility data for Alaska's Class I areas are collected at IMPROVE stations currently operated by the National Park Service at Denali National Park Headquarters (DENA1) and the U.S. Fish and Wildlife Service in Sandpoint (SIME1) and the Kenai Peninsula Borough south of Ninilchik (KPBO1). The Alaska DEC also operates the protocol site at Trapper Creek (TRCR1). In addition, several other monitoring networks have sites at the Denali National Park Headquarters. These include the Clean Air Status and Trends Network (CASTNET) monitor, the National Atmospheric Deposition Program, and the National Park Service's meteorological monitoring equipment.[243] Therefore, the EPA finds that Alaska has adequately satisfied 40 CFR 51.308(f)(6)(i).

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 Class I areas both within and outside the State.

Alaska relied on WRAP emissions inventory and technical tools, EPA modeling, and modeling conducted by the University of Alaska Fairbanks to assess the impact of emissions from within the State on Class I areas in the State. The tools and analyses included the EPA's three-dimensional grid-based Eulerian air quality model (CMAQ), a global 3–D chemical transport model (GEOS–CHEM), as well as a variety of data analysis techniques that include back trajectory calculations, area of influence and weighted emissions potential analysis, and the use of monitoring and inventory data. Therefore, we find that Alaska has adequately satisfied the requirements of 40 CFR 51.308(f)(6)(ii).

We note that 40 CFR 51.308(f)(6)(iii) does not apply to Alaska because it has 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. To satisfy 40 CFR 51.308(f)(6)(iv), the Alaska regional haze plan states that Alaska complies with this requirement by participating in the IMPROVE program.[244] IMPROVE filters are collected routinely every third day. The IMPROVE sampler consists of four independent modules, each of which incorporates a separate inlet, filter pack, and pump assembly. Modules A, B, and C are equipped with 25 mm diameter filters and 2.5 μm cyclones that allow for sampling of particles with aerodynamic diameters less than 2.5 μm ($PM_{2.5}$). Module D is fitted with a PM_{10} inlet to collect particles with aerodynamic diameters less than 10 μm. Each module contains a filter substrate specific to the planned chemical analysis. All analytical results are compiled by the laboratory responsible for network operations and for initial processing and validation. Data are delivered to the Environmental Protection Agency (EPA) Air Quality System database and to the Cooperative Institute for Research in the Atmosphere (CIRA) Federal Land Manager Environmental Database (FED).[245]

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.

The Alaska submission relied on a 2016 inventory to represent emissions for the current visibility period (2014–2018) and a future forecast 2028 inventory to represent the end of the second planning period. Alaska put together the 2028 inventory using a 2016 base dataset adjusted to predict emissions in 2028 based on economic growth, population expansion or contraction, and other factors.[246]

Alaska broke down pollution inventories in the 2016 inventory by source category and air pollutant, including volatile organic compounds (VOCs), carbon monoxide (CO), nitrogen oxides (NO_X), sulfur oxides (SO_X), ammonia (NH_3), and particulate matter (PM_{10} and $PM_{2.5}$).[247] The inventories represented sources and source categories Statewide including

[237] *Id.,* Page III.K.13.C–4.

[238] See *https://vista.cira.colostate.edu/Improve/improve-program/.*

[239] Alaska submission, Combined Section III.K.13, Figures III.K.D–2, D–6, D–10, D–14.

[240] Ibid.

[241] See IMPROVE website at *https://vista.cira.colostate.edu/Improve/.*

[242] Alaska submission, Combined Section III.K.13, Pages III.K.C–1 and C–2.

[243] *Ibid.*

[244] See *https://vista.cira.colostate.edu/Improve/data-acknowledgment/.* IMPROVE is a collaborative association of State, Tribal, and Federal agencies, and international partners. The EPA is the primary funding source, with contracting and research support from the National Park Service. The Air Quality Research Center at the University of California, Davis is the central analytical laboratory, with ion analysis provided by Research Triangle Institute, and carbon analysis provided by Desert Research Institute.

[245] See *https://vista.cira.colostate.edu/Improve/wp-content/uploads/2023/10/IMPROVE_Data_User_Guide_24October2023.pdf/.*

[246] Alaska submission, Combined Section III.K.13, Section III.K.III.E. Emission Inventory.

[247] Carbon monoxide is not considered a haze pollutant, but was included in the datasets because it is one of the criteria pollutants.

stationary point and areas sources, fugitive dust, anthropogenic and natural fires, and on-road and non-road mobile sources. The EPA used these inventories to complete modeling for Alaska using the CMAQ modeling platform. See section IV.F. of this document for more information on the EPA's CMAQ modeling for Alaska.

The Alaska submission noted that Alaska reviewed the raw inventory data, focusing in part on maritime emissions. The maritime industry operates throughout the State and provides critical transportation services to communities.[248] There is also a major international shipping lane through the Gulf of Alaska. In general, marine sector emissions are understood to contribute to sulfate and potential visibility impairment at coastal Class I areas. For future forecasting purposes, the EPA's modeling used 2016 emissions as the 2028 baseline and adjusted for emissions reductions predicted by Federal and international sulfur content limits on commercial marine fuel.[249]

The Alaska submission included tables that illustrated Statewide annual emissions (in tons/year) by source sector and pollutant for the 2016 and projected 2028 inventories and also included anthropogenic emissions fractions.[250] We have summarized the emissions data in Tables 9 and 10 of this document.

TABLE 9—2016 ALASKA EMISSIONS INVENTORY SUMMARY

[Tons per year]

Sector	VOC	CO	NO_X	$PM_{2.5}$	SO_2	NH_3
Agriculture	9	.....	.....	.....	.....	109
Airports	2,008	13,478	4,417	271	576	.....
Rail	17	48	386	11	0	0
Commercial Marine Vessel C1/C2	216	956	6,317	160	11	3
Commercial Marine Vessel C3	1,998	4,310	46,238	3,123	23,736	60
Non-road	8,600	34,126	2,580	358	7	6
On-road	8,228	60,101	11,977	489	33	153
Non-point	8,224	28,956	6,307	2,500	1,510	564
Residential Wood Combustion	820	5,073	90	712	16	34
Fugitive Dust	.....	.....	.....	1,054	.....	.....
Oil and Gas	26,974	13,128	42,779	540	1,702	0
Electric Generating Units	307	2,445	7,793	240	1,304	2
Other Points	800	2,562	7,291	478	1,394	48
Fires	743,060	3,165,511	29,644	262,648	19,646	51,691
Total	801,260	3,330,692	165,819	272,583	49,935	52,670
Anthropogenic Fraction	7%	5%	82%	4%	61%	2%

TABLE 10—2028 ALASKA EMISSIONS INVENTORY SUMMARY

[Tons per year]

Sector	VOC	CO	NO_X	$PM_{2.5}$	SO_2	NH_3
Agriculture	10	.....	.....	.....	.....	119
Airports	1,945	14,915	4,371	257	598	.....
Rail	18	48	391	11	0	0
Small Commercial Marine Vessel (C1/C2)	114	958	3,500	91	4	2
Large Commercial Marine Vessel C3	2,836	6118	59,990	2,430	7.080	47
Non-road	5,297	30,035	1,722	201	4	7
On-road	4,142	30,961	4,789	217	23	136
Non-point	8,043	29,242	6,725	2,518	1,524	650
Residential Wood Combustion	759	4,731	93	647	13	30
Fugitive Dust	.....	.....	.....	1,063	.....	.....
Oil and Gas	26,606	13,101	42,703	537	1,697	0
Electric Generating Units	307	2,445	7,793	240	1,304	2
Other Points	736	2,559	7,269	483	1,404	48
Fires	743,060	3,165,511	29,644	262,648	19,646	51,691
Total	793,874	3,300,624	168,989	271,342	33,296	52,732
Anthropogenic Fraction	6%	4%	82%	3%	41%	2%

[248] Alaska submission, Combined Section III.K.13, Page III.K.13.E–4 and E–5.

[249] The International Marine Organization (IMO) established emission standards for vessels operating in designated waters off the coast of North America. MARPOL Annex VI is codified at 33 U.S.C. 1901 *et seq.* Pursuant to 33 U.S.C. 1907 it is unlawful to act in violation of the MARPOL Protocol. The North American Emissions Control Area (ECA) covers most coastal areas of the United States, including southeast Alaska and the Gulf of Alaska. Vessels operating in the area must burn low sulfur marine fuel, 1,000 ppm sulfur content (0.10% sulfur by weight). As of January 1, 2020, the IMO limited sulfur in fuel for ships operating outside designated ECAs to 5,000 ppm sulfur content (0.50% sulfur by weight. Fuel sulfur limits are codified at 40 CFR part 1043. See 84 FR 69335, 69336 (December 18, 2019). This limit represents a substantial reduction from the prior IMO limit of 35,000 ppm sulfur content (3.5% sulfur by weight).

[250] Alaska submission, Combined Section III.K.13, Tables III.K.13.E–1 and III.K.13.E–2 and Figures III.K.13.E–2 and III.K.13.E–3.

In reviewing these inventories, Alaska noted that fire emissions are several orders of magnitude larger than emissions from other source sectors. Alaska stated that fire emissions appeared steady from 2016 to the 2028 projection, however, there was significant variability from year to year. Regarding individual pollutants, according to Alaska, the most notable change was an estimated 30% decrease in anthropogenic SO_2 emissions from all sources from 2016 to the 2028 projection. Based on Alaska's consideration and analysis of emissions data in the submission, the EPA proposes to find that Alaska has satisfied the emissions information requirement in 40 CFR 51.308(f)(6)(v).

In sum, the EPA proposes to approve Alaska's submission as meeting the requirements of 40 CFR 51.308(f)(6), as described in section IV.G. of this document, including through the State's continued participation in the IMPROVE network and the WRAP and the State's on-going compliance with the Air Emissions Reporting Rule, and that no further elements are necessary at this time for Alaska to assess and report on visibility pursuant to 40 CFR 51.308(f)(6)(vi).

H. Requirements for Periodic Reports Describing Progress Towards the Reasonable Progress Goals

Section 51.308(f)(5) requires that periodic comprehensive revisions of States' regional haze plans also address the progress report requirements of 40 CFR 51.308(g)(1) through (5). The purpose of these requirements is to evaluate progress towards the applicable reasonable progress goals 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 implementation 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 implementation 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 implementation 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 implementation period progress report, including whether such changes were anticipated and whether they have limited or impeded expected progress towards reducing emissions and improving visibility.

1. Alaska Progress Report

As part of the submission, Alaska included a progress report covering the second half of the first implementation period. The Alaska submission included five-year averages of the annual values for the most impaired and clearest days and described the status of measures of the long-term strategy from the first implementation period.[251] In the progress report, Alaska concluded that sufficient progress was made toward the reasonable progress goals during the first implementation period.[252] Alaska stated that the most significant reductions in sulfur dioxide emissions occurred as a result of the Federal regulation of sulfur in fuels and the implementation of sulfur fuel limits in Alaska and internationally with respect to commercial marine vessels. Alaska's progress report also included emissions data demonstrating the reductions achieved due to State and Federal controls.[253]

The EPA proposes to find that Alaska has met the requirements of 40 CFR 51.308(g)(1) and (2) because the submission included a progress report that described the measures included in the long-term strategy from the first implementation period, as well as the implementation status and the emission reductions achieved through such implementation. The EPA also proposes to find that Alaska has satisfied the requirements of 40 CFR 51.308(g)(3) because the progress report included summaries of the visibility conditions and the trend of the 5-year averages through 2018 at the Alaska Class I areas.[254]

Pursuant to section 51.308(g)(4), Alaska provided a summary of emissions data from sources and activities, including point, nonpoint, non-road mobile, on-road mobile sources, wildfires, and volcanic emissions.[255] Additionally, the EPA included a spreadsheet that tracks Alaska air pollutant emissions trends data through 2017 for all National Emissions Inventory pollutants.[256] The EPA is proposing to find that this information satisfies the requirements of 51.308(g)(4) and (5). Therefore, the EPA proposes to approve the progress report elements pursuant to Alaska's submission as meeting the requirements of 40 CFR 51.308(f)(5) and (g).

I. Requirements for State and Federal Land Manager Coordination

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 FLM conclusions and recommendations in the notice to the public. Section 51.308(i)(2)'s FLM consultation provision requires a State to provide 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 long-term strategy. 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 sixty days before a public hearing or public comment period at the State level. Section 51.308(i)(2) also provides two substantive topics on which FLMs must be provided an opportunity to discuss with States: assessment of visibility impairment in any Class I area and recommendations on the development and implementation of strategies to address visibility impairment. Section 51.308(i)(3) requires States, in developing their implementation plans, to include a description of how they addressed FLM comments.

1. Alaska Consultation and Coordination

The submission made clear that Alaska consulted and coordinated with the FLMs early and often in the State's

[251] Alaska submission, Combined Section III.K.13, Section III.K.13.J.

[252] *Id.,* Page III.K.13.J–10.

[253] *Id.,* Table III.K.13.J–1.

[254] *Id.,* Figures III.K.13.J–1, J–2, and J–3.

[255] *Id.,* Section III.K.13.E Emissions Inventory.

[256] See Excel spreadsheet of Alaska Air Pollutant Emissions Trends Data in the docket for this action.

planning process.[257] The WRAP hosted State and Federal coordination calls and technical support system development calls on a routine basis and representatives from the Alaska DEC regularly participated. The Alaska DEC gave the FLMs the opportunity to review and comment on both WRAP-produced technical support system data and technical documentation developed by contractors supporting the development of the Alaska submission.[258]

In 2020 and 2021, the Alaska DEC held six consultation meetings with the National Park Service, U.S. Forest Service and U.S. Fish and Wildlife Service.[259] After two years of engagement, the FLMs agreed to a 60-day review period for the draft Alaska submission (from May 27, 2021 through July 27, 2021).[260] Alaska received and responded to comments from the National Park Service, U.S. Fish and Wildlife Service, and the EPA during the FLM review period. On March 30, 2022, Alaska published notice of the availability of the draft submission and public hearing on the Alaska website.[261] The Alaska DEC notified the public, interested parties, the FLMs, air quality contacts from other States and regions, and the EPA of the availability of the State's draft submission.[262] A public hearing on the proposed SIP revision was held on May 10, 2022, via teleconference. Written comments relevant to the proposal were accepted until the close of business May 24, 2022. The Alaska DEC included the comments and responses in the Alaska submission in Appendix III.K.13.K, which may be found in the docket for this action.

Therefore, Alaska complied with the requirements in CAA Section 169A(d) and 40 CFR 51.308(i) to meet with the FLMs prior to holding a public hearing on the SIP revision and provide the public with the FLM's comments and the State's responses. Thus, we propose to approve the submission as meeting the consultation requirements of 40 CFR 51.308(i).

[257] Alaska submission, Combined Section III.K.13, Page III.K.13.K–1.

[258] *Id.,* Page III.K.13.K–1.

[259] *Id.,* Page III.K.13.K–1.

[260] *Id.,* Page III.K.13.K–1.

[261] *Id.,* Page III.K.13.K–4.

[262] On April 5, 2022, Alaska added the FLM comments and responses document to the website after inadvertently leaving the FLM comments and responses off. The Alaska DEC sent an additional notification to alert all interested parties that the FLM comments and responses had been uploaded to the website. The Alaska DEC, the FLMs, and the EPA also met on April 25, 2022, to review the Alaska plan and provide an opportunity to ask technical questions.

2. Alaska Visibility Protection Area

Because Alaska is geographically large, the Alaska DEC established a Visibility Protection Area around Alaska's Class I areas[263] and promulgated regulations requiring stationary sources in the Visibility Protection Area to keep records, report more detailed haze-related data, and potentially implement visibility control measures in the future based on this data. Alaska revised 18 AAC 50.025 (visibility and other special protection areas) to add the new Visibility Protection Area and promulgated a new rule at 18 AAC 50.265 (additional requirements for construction or operation of title V permitted sources and operation of minor stationary sources within the regional haze special protection area) to prescribe the requirements.

In this action, as requested by the State, we are proposing to approve and incorporate by reference into the Alaska SIP at 40 CFR 52.70(c), the two submitted rule sections 18 AAC 50.025 and 18 AAC 50.265, State effective August 21, 2022.

V. Proposed Action

The EPA is proposing to approve the Alaska submission as meeting the following requirements:

- 40 CFR 51.308(f)(1)—calculation of baseline, current, and natural visibility conditions; progress to date; and the uniform rate of progress;
- 40 CFR 51.308(f)(2)—long-term strategy requirements;
- 40 CFR 51.308(f)(3)—reasonable progress goal requirements;
- 40 CFR 51.308(f)(4)—additional monitoring needed to address reasonably attributable visibility impairment;
- 40 CFR 51.308(f)(5)—progress report requirements;
- 40 CFR 51.308(f)(6)—monitoring strategy and other plan requirements;
- 40 CFR 51.308(g)(1) through (5)—progress report requirements; and
- 40 CFR 51.308(i)—State and Federal Land Manager coordination requirements.

The EPA is also proposing to approve, and incorporate by reference into the Alaska SIP at 40 CFR 52.70(c), the following submitted regulations:

[263] The Alaska DEC used point source data, WEP data for NO_X and SO_2, and jurisdictional boundaries to establish the visibility protection area that covers more than 80% of current anthropogenic emissions that may contribute to sulfate and nitrate on the 20% most impaired days. For the detailed methodology used to develop the Visibility Protection Area and boundary, see Alaska submission, Appendix III.K.13.H, Figure III.K.13.H.1 and Table III.K.13.H.2.

- 18 AAC 50.025 Visibility and other special protection areas (defining the geographic scope of the regional haze visibility protection area), State effective August 21, 2022;
- 18 AAC 50.265 Additional requirements for construction or operation of title V permitted sources and operation of minor stationary sources within the regional haze special protection area (requiring fuel-burning and industrial sources located in the visibility protection area to save maintenance records, submit emissions data to the State for purposes of the national emissions inventory, and in each permit application, provide an assessment of whether proposed emissions increases may impact the State's reasonable further progress goals), State effective August 21, 2022.

The EPA is taking this action pursuant to CAA sections 110 and 169A.

VI. Incorporation by Reference

In this document, the EPA is proposing to include regulatory text in an EPA final rule that includes incorporation by reference. In accordance with requirements of 1 CFR 51.5, the EPA is proposing to incorporate by reference the regulatory provisions described in section V. of this document. The EPA has made, and will continue to make, these materials generally available through *https://www.regulations.gov* and at the EPA Region 10 Office (please contact the person identified in the **FOR FURTHER INFORMATION CONTACT** section of this document for more information).

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. 42 U.S.C. 7410(k); 40 CFR 52.02(a). Thus, in reviewing SIP submissions, the EPA's role is to approve State choices, provided that they meet the criteria of the CAA. Accordingly, this action merely approves State law as meeting Federal requirements and does not impose additional requirements beyond those imposed by State law. For that reason, this action:

- Is not a significant regulatory action subject to review by the Office of Management and Budget under Executive Order 12866 (58 FR 51735, October 4, 1993);
- Is not subject to Executive Order 14192 (90 FR 9065, February 6, 2025) because SIP actions are exempt from review under Executive Order 12866;

- Does not impose an information collection burden under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*);
- Is certified as not having a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*);
- Does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Pub. L. 104–4);
- Does not have federalism implications as specified in Executive Order 13132 (64 FR 43255, August 10, 1999);
- Is not subject to Executive Order 13045 (62 FR 19885, April 23, 1997) because it approves a State program;
- Is not a significant regulatory action subject to Executive Order 13211 (66 FR 28355, May 22, 2001); and
- Is not subject to requirements of section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) because application of those requirements would be inconsistent with the CAA.

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). Consistent with EPA policy, the EPA contacted 24 Tribes located near Alaska Class I areas and offered an opportunity to consult on a government-to-government basis prior to this proposed action in letters dated January 31, 2023. We received no consultation or coordination requests prior to this proposed action. The letters may be found in the docket for this action.

List of Subjects in 40 CFR Part 52

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

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

Dated: October 17, 2025.

Daniel Opalski,

Deputy Regional Administrator, Region 10.

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