

safety risks subject to Executive Order 13045 (62 FR 19885, April 23, 1997);

- 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 Clean Air Act; Executive Order 12898 (Federal

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

The DOE did not evaluate environmental justice considerations as part of its SIP submittal; the CAA and applicable implementing regulations neither prohibit nor require such an evaluation. EPA did not perform an EJ analysis and did not consider EJ in this proposed rulemaking. Due to the nature of the proposed action being taken here, this proposed rulemaking is expected to have a neutral to positive impact on the air quality of the affected area. Consideration of EJ is not required as part of this action, and there is no information in the record inconsistent with the stated goal of E.O. 12898 of achieving environmental justice for people of color, low-income populations, and Indigenous peoples.

In addition, this proposed rulemaking, to remove the District’s Stage II vapor recovery requirements from the SIP does not have tribal implications as specified by Executive Order 13175 (65 FR 67249, November 9, 2000), because the SIP is not approved to apply in Indian country located in the District, and EPA notes that it will not impose substantial direct costs on tribal governments or preempt tribal law.

List of Subjects in 40 CFR Part 52

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

Diana Esher,

Acting Regional Administrator, Region III.

[FR Doc. 2024–00161 Filed 1–9–24; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

EPA–R01–OAR–2023–0185; FRL–11616–01–R1]

Approval and Promulgation of Air Quality Implementation Plans; Massachusetts; Regional Haze State Implementation 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 Regional Haze State Implementation Plan (SIP) revision submitted by Massachusetts on July 22, 2021, as satisfying applicable requirements under the Clean Air Act (CAA) and EPA’s Regional Haze Rule for the program’s second implementation period. Massachusetts’ SIP submission addresses the requirement that states must periodically revise their long-term strategies for making reasonable progress towards the national goal of preventing any future, and remedying any existing, anthropogenic impairment of visibility, including regional haze, in mandatory Class I Federal areas. The SIP submission also addresses other applicable requirements for the second implementation period of the regional haze program. The EPA is taking this action pursuant to sections 110 and 169A of the Clean Air Act.

DATES: Written comments must be received on or before February 9, 2024.

ADDRESSES: Submit your comments, identified by Docket ID No. EPA–R01–OAR–2023–0185 at <https://www.regulations.gov>. For comments submitted at [Regulations.gov](https://www.regulations.gov), follow the online instructions for submitting comments. Once submitted, comments cannot be edited or removed from [Regulations.gov](https://www.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 (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. 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 CBI or multimedia submissions, and general guidance on making effective comments, please visit <https://www.epa.gov/dockets/commenting-epa-dockets>.

FOR FURTHER INFORMATION CONTACT:

David Mackintosh, U.S. Environmental Protection Agency, Region 1, Air Quality Branch, 5 Post Office Square—Suite 100, (Mail code 5–MO), Boston, MA 02109–3912, at 617–918–1584, or by email at Mackintosh.David@epa.gov.

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I. What action is the EPA proposing?

On July 22, 2021, supplemented on June 15, 2022, the Massachusetts Department of Environmental Protection (MassDEP) submitted a revision to its SIP to address regional haze for the second implementation period. MassDEP made this SIP submission to satisfy the requirements of the CAA's regional haze program pursuant to CAA sections 169A and 169B and 40 CFR 51.308. The EPA is proposing to find that the Massachusetts regional haze SIP submission for the second implementation period meets the applicable statutory and regulatory requirements and thus proposes to approve Massachusetts' submission into its SIP.

II. Background and Requirements for Regional Haze Plans

A. Regional Haze Background

In the 1977 CAA Amendments, Congress created a program for protecting visibility in the nation's mandatory Class I Federal areas, which include certain national parks and wilderness areas.¹ CAA 169A. The CAA establishes as a national goal the "prevention of any future, and the remedying of any existing, impairment of visibility in mandatory class I Federal areas which impairment results from manmade air pollution." CAA 169A(a)(1). The CAA further directs the EPA to promulgate regulations to assure reasonable progress toward meeting this national goal. CAA 169A(a)(4). On December 2, 1980, the EPA promulgated regulations to address visibility impairment in mandatory Class I Federal areas (hereinafter referred to as "Class I areas") that is "reasonably attributable" to a single source or small

group of sources. (45 FR 80084, December 2, 1980). These regulations, codified at 40 CFR 51.300 through 51.307, represented the first phase of the EPA's efforts to address visibility impairment. In 1990, Congress added section 169B to the CAA to further address visibility impairment, specifically, impairment from regional haze. CAA 169B. The EPA promulgated the Regional Haze Rule (RHR), codified at 40 CFR 51.308,² on July 1, 1999. (64 FR 35714, July 1, 1999). These regional haze regulations are a central component of the EPA's comprehensive visibility protection program for Class I areas.

Regional haze is visibility impairment that is produced by a multitude of anthropogenic sources and activities which are located across a broad geographic area and that emit pollutants that impair visibility. Visibility impairing pollutants include fine and coarse particulate matter (PM) (e.g., sulfates, nitrates, organic carbon, elemental carbon, and soil dust) and their precursors (e.g., sulfur dioxide (SO₂), nitrogen oxides (NO_x), and, in some cases, volatile organic compounds (VOC) and ammonia (NH₃)). 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.³

To address regional haze visibility impairment, the 1999 RHR established

² In addition to the generally applicable regional haze provisions at 40 CFR 51.308, the EPA also promulgated regulations specific to addressing regional haze visibility impairment in Class I areas on the Colorado Plateau at 40 CFR 51.309. The latter regulations are applicable only for specific jurisdictions' regional haze plans submitted no later than December 17, 2007, and thus are not relevant here.

³ 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 to for expressing visibility and is measured in inverse megameters (Mm⁻¹). The EPA's Guidance on Regional Haze State Implementation Plans for the Second Implementation Period ("2019 Guidance") offers the flexibility for the use of light extinction in certain cases. Light extinction can be simpler to use in calculations than deciviews, since it is not a logarithmic function. See, e.g., 2019 Guidance at 16, 19, <https://www.epa.gov/visibility/guidance-regional-haze-state-implementation-plans-second-implementation-period>. The EPA Office of Air Quality Planning and Standards, Research Triangle Park (August 20, 2019). The formula for the deciview is $10 \ln(b_{ext})/10 \text{ Mm}^{-1}$. 40 CFR 51.301.

an iterative planning process that requires both states in which Class I areas are located and states "the emissions from which may reasonably be anticipated to cause or contribute to any impairment of visibility" in a Class I area to periodically submit SIP revisions to address such impairment. CAA 169A(b)(2);⁴ see also 40 CFR 51.308(b), (f) (establishing submission dates for iterative regional haze SIP revisions); (64 FR at 35768, July 1, 1999). Under the CAA, each SIP submission must contain "a long-term (ten to fifteen years) strategy for making reasonable progress toward meeting the national goal," CAA 169A(b)(2)(B); the initial round of SIP submissions also had to address the statutory requirement that certain older, larger sources of visibility impairing pollutants install and operate the best available retrofit technology (BART). CAA 169A(b)(2)(A); 40 CFR 51.308(d), (e). States' first regional haze SIPs were due by December 17, 2007, 40 CFR 51.308(b), with subsequent SIP submissions containing updated long-term strategies originally due July 31, 2018, and every ten years thereafter. (64 FR at 35768, July 1, 1999). The EPA established in the 1999 RHR that all states either have Class I areas within their borders or "contain sources whose emissions are reasonably anticipated to contribute to regional haze in a Class I area"; therefore, all states must submit regional haze SIPs.⁵ *Id.* at 35721.

Much of the focus in the first implementation period of the regional haze program, which ran from 2007 through 2018, was on satisfying states' BART obligations. First implementation period SIPs were additionally required to contain long-term strategies for making reasonable progress toward the national visibility goal, of which BART is one component. The core required elements for the first implementation period SIPs (other than BART) are laid out in 40 CFR 51.308(d). Those provisions required that states containing Class I areas establish reasonable progress goals (RPGs) that are measured in deciviews and reflect the anticipated visibility conditions at

⁴ The RHR expresses the statutory requirement for states to submit plans addressing out-of-state class I areas by providing that states must address visibility impairment "in each mandatory Class I Federal area located outside the State that may be affected by emissions from within the State." 40 CFR 51.308(d), (f).

⁵ In addition to each of the fifty states, the EPA also concluded that the Virgin Islands and District of Columbia must also submit regional haze SIPs because they either contain a Class I area or contain sources whose emissions are reasonably anticipated to contribute regional haze in a Class I area. See 40 CFR 51.300(b), (d)(3).

¹ Areas statutorily designated as mandatory Class I Federal areas consist of national parks exceeding 6,000 acres, wilderness areas and national memorial parks exceeding 5,000 acres, and all international parks that were in existence on August 7, 1977. CAA 162(a). There are 156 mandatory Class I areas. The list of areas to which the requirements of the visibility protection program apply is in 40 CFR part 81, subpart D.

the end of the implementation period including from implementation of states' long-term strategies. The first planning period RPGs were required to provide for an improvement in visibility for the most impaired days over the period of the implementation plan and ensure no degradation in visibility for the least impaired days over the same period. In establishing the RPGs for any Class I area in a state, the state was required to consider four statutory factors: 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. CAA 169A(g)(1); 40 CFR 51.308(d)(1).

States were also required to calculate baseline (using the five-year period of 2000–2004) and natural visibility conditions (*i.e.*, visibility conditions without anthropogenic visibility impairment) for each Class I area, and to calculate the linear rate of progress needed to attain natural visibility conditions, assuming a starting point of baseline visibility conditions in 2004 and ending with natural conditions in 2064. This linear interpolation is known as the uniform rate of progress (URP) and is used as a tracking metric to help states assess the amount of progress they are making towards the national visibility goal over time in each Class I area.⁶ 40 CFR 51.308(d)(1)(i)(B), (d)(2). The 1999 RHR also provided that States' long-term strategies must include the "enforceable emissions limitations, compliance, schedules, and other measures as necessary to achieve the reasonable progress goals." 40 CFR 51.308(d)(3). In establishing their long-term strategies, states are required to consult with other states that also contribute to visibility impairment in a given Class I area and include all measures necessary to obtain their shares of the emission reductions needed to meet the RPGs. 40 CFR

51.308(d)(3)(i), (ii). Section 51.308(d) also contains seven additional factors states must consider in formulating their long-term strategies, 40 CFR 51.308(d)(3)(v), as well as provisions governing monitoring and other implementation plan requirements. 40 CFR 51.308(d)(4). Finally, the 1999 RHR required states to submit periodic progress reports—SIP revisions due every five years that contain information on states' implementation of their regional haze plans and an assessment of whether anything additional is needed to make reasonable progress, see 40 CFR 51.308(g), (h)—and to consult with the Federal Land Manager(s)⁷ (FLMs) responsible for each Class I area according to the requirements in CAA 169A(d) and 40 CFR 51.308(i).

On January 10, 2017, the EPA promulgated revisions to the RHR, (82 FR 3078, January 10, 2017), that apply for the second and subsequent implementation periods. The 2017 rulemaking made several changes to the requirements for regional haze SIPs to clarify States' obligations and streamline certain regional haze requirements. The revisions to the regional haze program for the second and subsequent implementation periods focused on the requirement that States' SIPs contain long-term strategies for making reasonable progress towards the national visibility goal. The reasonable progress requirements as revised in the 2017 rulemaking (referred to here as the 2017 RHR Revisions) are codified at 40 CFR 51.308(f). Among other changes, the 2017 RHR Revisions adjusted the deadline for States to submit their second implementation period SIPs from July 31, 2018, to July 31, 2021, clarified the order of analysis and the relationship between RPGs and the long-term strategy, and focused on making visibility improvements on the days with the most *anthropogenic* visibility impairment, as opposed to the days with the most visibility impairment overall. The EPA also revised requirements of the visibility protection program related to periodic progress reports and FLM consultation. The specific requirements applicable to second implementation period regional haze SIP submissions are addressed in detail below.

The EPA provided guidance to the states for their second implementation period SIP submissions in the preamble

to the 2017 RHR Revisions as well as in subsequent, stand-alone guidance documents. In August 2019, the EPA issued "Guidance on Regional Haze State Implementation Plans for the Second Implementation Period" ("2019 Guidance").⁸ On July 8, 2021, the EPA issued a memorandum containing "Clarifications Regarding Regional Haze State Implementation Plans for the Second Implementation Period" ("2021 Clarifications Memo").⁹ Additionally, the EPA further clarified the recommended procedures for processing ambient visibility data and optionally adjusting the URP to account for international anthropogenic and prescribed fire impacts in two technical guidance documents: the December 2018 "Technical Guidance on Tracking Visibility Progress for the Second Implementation Period of the Regional Haze Program" ("2018 Visibility Tracking Guidance"),¹⁰ and the June 2020 "Recommendation for the Use of Patched and Substituted Data and Clarification of Data Completeness for Tracking Visibility Progress for the Second Implementation Period of the Regional Haze Program" and associated Technical Addendum ("2020 Data Completeness Memo").¹¹

As previously explained in the 2021 Clarifications Memo, EPA intends the second implementation period of the regional haze program to secure meaningful reductions in visibility impairing pollutants that build on the significant progress states have achieved to date. The Agency also recognizes that analyses regarding reasonable progress

⁸ Guidance on Regional Haze State Implementation Plans for the Second Implementation Period. <https://www.epa.gov/visibility/guidance-regional-haze-state-implementation-plans-second-implementation-period>. The EPA Office of Air Quality Planning and Standards, Research Triangle Park (August 20, 2019).

⁹ Clarifications Regarding Regional Haze State Implementation Plans for the Second Implementation Period. <https://www.epa.gov/system/files/documents/2021-07/clarifications-regarding-regional-haze-state-implementation-plans-for-the-second-implementation-period.pdf>. The EPA Office of Air Quality Planning and Standards, Research Triangle Park (July 8, 2021).

¹⁰ Technical Guidance on Tracking Visibility Progress for the Second Implementation Period of the Regional Haze Program. <https://www.epa.gov/visibility/technical-guidance-tracking-visibility-progress-second-implementation-period-regional>. The EPA Office of Air Quality Planning and Standards, Research Triangle Park. (December 20, 2018).

¹¹ Recommendation for the Use of Patched and Substituted Data and Clarification of Data Completeness for Tracking Visibility Progress for the Second Implementation Period of the Regional Haze Program. <https://www.epa.gov/visibility/memo-and-technical-addendum-ambient-data-usage-and-completeness-regional-haze-program>. The EPA Office of Air Quality Planning and Standards, Research Triangle Park (June 3, 2020).

⁶ EPA established the URP framework in the 1999 RHR to provide "an equitable analytical approach" to assessing the rate of visibility improvement at Class I areas across the country. The start point for the URP analysis is 2004 and the endpoint was calculated based on the amount of visibility improvement that was anticipated to result from implementation of existing CAA programs over the period from the mid-1990s to approximately 2005. Assuming this rate of progress would continue into the future, EPA determined that natural visibility conditions would be reached in 60 years, or 2064 (60 years from the baseline starting point of 2004). However, EPA did not establish 2064 as the year by which the national goal *must* be reached. 64 FR at 35731–32. That is, the URP and the 2064 date are not enforceable targets, but are rather tools that "allow for analytical comparisons between the rate of progress that would be achieved by the state's chosen set of control measures and the URP." (82 FR 3078, 3084, January 10, 2017).

⁷ The EPA's regulations define "Federal Land Manager" as "the Secretary of the department with authority over the Federal Class I area (or the Secretary's designee) or, with respect to Roosevelt-Campobello International Park, the Chairman of the Roosevelt-Campobello International Park Commission." 40 CFR 51.301.

are state-specific and that, based on states' and sources' individual circumstances, what constitutes reasonable reductions in visibility impairing pollutants will vary from state-to-state. While there exist many opportunities for states to leverage both ongoing and upcoming emission reductions under other CAA programs, the Agency expects states to undertake rigorous reasonable progress analyses that identify further opportunities to advance the national visibility goal consistent with the statutory and regulatory requirements. See generally 2021 Clarifications Memo. This is consistent with Congress's determination that a visibility protection program is needed in addition to the CAA's National Ambient Air Quality Standards and Prevention of Significant Deterioration programs, as further emission reductions may be necessary to adequately protect visibility in Class I areas throughout the country.¹²

B. Roles of Agencies in Addressing Regional Haze

Because the air pollutants and pollution affecting visibility in Class I areas can be transported over long distances, successful implementation of the regional haze program requires long-term, regional coordination among multiple jurisdictions and agencies that have responsibility for Class I areas and the emissions that impact visibility in those areas. In order to address regional haze, states need to develop strategies in coordination with one another, considering the effect of emissions from one jurisdiction on the air quality in another. Five regional planning organizations (RPOs),¹³ which include representation from state and tribal governments, the EPA, and FLMs, were developed in the lead-up to the first implementation period to address regional haze. RPOs evaluate technical information to better understand how emissions from State and Tribal land impact Class I areas across the country, pursue the development of regional strategies to reduce emissions of particulate matter and other pollutants leading to regional haze, and help states

meet the consultation requirements of the RHR.

The Mid-Atlantic/Northeast Visibility Union (MANE-VU), one of the five RPOs described above, is a collaborative effort of state governments, tribal governments, and various Federal agencies established to initiate and coordinate activities associated with the management of regional haze, visibility, and other air quality issues in the Mid-Atlantic and Northeast corridor of the United States. Member states and tribal governments (listed alphabetically) include Connecticut, Delaware, the District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Penobscot Indian Nation, Rhode Island, St. Regis Mohawk Tribe, and Vermont. The Federal partner members of MANE-VU are EPA, U.S. National Parks Service (NPS), U.S. Fish and Wildlife Service (FWS), and U.S. Forest Service (USFS).

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

Under the CAA and EPA's regulations, all 50 states, the District of Columbia, and the U.S. Virgin Islands are required to submit regional haze SIPs satisfying the applicable requirements for the second implementation period of the regional haze program by July 31, 2021. 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 169A(b)(2)(B). To this end, § 51.308(f) lays out the process by which states determine what constitutes their long-term strategies, with the order of the requirements in § 51.308(f)(1) through (f)(3) generally mirroring the order of the steps in the reasonable progress analysis¹⁴ and (f)(4) through (f)(6) containing additional, related requirements. Broadly speaking, a state first must identify the Class I areas within the state and determine the Class I areas outside the state in which visibility may be affected by emissions from the state. These are the Class I areas that must be addressed in the state's 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, current, and natural visibility conditions for that area, as well as the visibility

improvement made to date and the URP. See 40 CFR 51.308(f)(1). Each state having a Class I area and/or emissions that may affect visibility in a Class I area must then develop a 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. See 40 CFR 51.308(f)(2). Additionally, as further explained below, the RHR at 40 CFR 51.308(f)(2)(iv) separately provides five "additional factors"¹⁵ that states must consider in developing their long-term strategies. 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 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)–(3).

In addition to satisfying the requirements at 40 CFR 51.308(f) related to reasonable progress, the regional haze SIP revisions for the second implementation period must address the requirements in § 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. 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 EPA's regulations. See CAA

¹² See, *e.g.*, H.R. Rep. No. 95–294 at 205 ("In determining how to best remedy the growing visibility problem in these areas of great scenic importance, the committee realizes that as a matter of equity, the national ambient air quality standards cannot be revised to adequately protect visibility in all areas of the country."), ("the mandatory class I increments of [the PSD program] do not adequately protect visibility in class I areas").

¹³ RPOs are sometimes also referred to as "multi-jurisdictional organizations," or MJOs. For the purposes of this notice, the terms RPO and MJO are synonymous.

¹⁴ EPA explained in the 2017 RHR Revisions that we were adopting new regulatory language in 40 CFR 51.308(f) that, unlike the structure in 51.308(d), "tracked the actual planning sequence." (82 FR 3091, January 10, 2017).

¹⁵ The five "additional factors" for consideration in section 51.308(f)(2)(iv) are distinct from the four factors listed in CAA section 169A(g)(1) and 40 CFR 51.308(f)(2)(i) that states must consider and apply to sources in determining reasonable progress.

169(b)(2); CAA 110(a). Upon EPA approval, a SIP is enforceable by the Agency and the public under the CAA. If EPA finds that a state fails to make a required SIP revision, or if 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 110(c)(1).

A. Identification of Class I Areas

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

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

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

As part of assessing whether a SIP submission for the second implementation period is providing for reasonable progress towards the national visibility goal, the RHR contains requirements in § 51.308(f)(1) related to tracking visibility improvement over time. The requirements of this subsection apply

only to states having Class I areas within their borders; the required calculations must be made for each such Class I area. EPA's 2018 Visibility Tracking Guidance¹⁶ provides recommendations to assist states in satisfying their obligations under § 51.308(f)(1)—specifically, in developing information on baseline, current, and natural visibility conditions, and in making optional adjustments to the URP to account for the impacts of international anthropogenic emissions and prescribed fires. See 82 FR at 3103–05.

The RHR requires tracking of visibility conditions on two sets of days: the clearest and the most impaired days. Visibility conditions for both sets of days are expressed as the average deciview index for the relevant five-year period (the period representing baseline or current visibility conditions). 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 20% most impaired days (the 20% of monitored days in a calendar year with the highest amounts of anthropogenic visibility impairment).¹⁷ 40 CFR 51.301. A state must calculate visibility conditions for both the 20% clearest and 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), (iii). States must also calculate natural visibility conditions for the clearest and most impaired days,¹⁸ 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 in order to reach natural visibility conditions.

Using the data for the set of most impaired days only, states must plot a line between visibility conditions in the baseline period and natural visibility conditions for each Class I area to determine the URP—the amount of visibility improvement per year, measured in deciviews, that would need to be achieved during each implementation period in order to achieve natural visibility conditions by the end of 2064. The URP is used in later steps of the reasonable progress analysis for informational purposes and to provide a non-enforceable benchmark against which to assess a Class I area's rate of visibility improvement.¹⁹ Additionally, in the 2017 RHR Revisions, 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, which must be approved by the EPA, are intended to avoid any perception that states should compensate for impacts from international anthropogenic sources and to give states the flexibility to determine that limiting the use of wildland-prescribed fire is not necessary for reasonable progress. 82 FR 3107 footnote 116.

EPA's 2018 Visibility Tracking Guidance can be used to help satisfy the 40 CFR 51.308(f)(1) requirements, including in developing information on baseline, current, and natural visibility conditions, and in making optional adjustments to the URP. In addition, the 2020 Data Completeness Memo provides recommendations on the data completeness language referenced in § 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 submission is a long-term strategy that addresses regional haze in each Class I area within a state's borders and each Class I area that may be affected by emissions from the state. The long-term strategy "must include the enforceable emissions limitations, compliance schedules, and other

¹⁶ The 2018 Visibility Tracking Guidance references and relies on parts of the 2003 Tracking Guidance: "Guidance for Tracking Progress Under the Regional Haze Rule," which can be found at <https://www3.epa.gov/ttnamti1/files/ambient/visible/tracking.pdf>.

¹⁷ This notice also refers to the 20% clearest and 20% most anthropogenically impaired days as the "clearest" and "most impaired" or "most anthropogenically impaired" days, respectively.

¹⁸ The RHR at 40 CFR 51.308(f)(1)(ii) contains an error related to the requirement for calculating two sets of natural conditions values. The rule says "most impaired days or the clearest days" where it should say "most impaired days and clearest days." This is an error that was intended to be corrected in the 2017 RHR Revisions but did not get corrected in the final rule language. This is supported by the preamble text at 82 FR 3098: "In the final version of 40 CFR 51.308(f)(1)(ii), an occurrence of 'or' has been corrected to 'and' to indicate that natural visibility conditions for both the most impaired days and the clearest days must be based on available monitoring information."

¹⁹ Being on or below the URP is not a "safe harbor"; i.e., achieving the URP does not mean that a Class I area is making "reasonable progress" and does not relieve a state from using the four statutory factors to determine what level of control is needed to achieve such progress. See, e.g., 82 FR at 3093.

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 in order 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 2019 Guidance at 43; 2021 Clarifications Memo at 8–10. 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).

Section 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. As EPA previously explained, consistent with the first implementation period, EPA generally expects that each state will analyze at least SO₂ and NO_x in selecting sources and determining control measures. See 2019 Guidance at 12, 2021 Clarifications Memo at 4. A state that chooses not to consider at least these two pollutants should demonstrate why such consideration would be unreasonable. 2021 Clarifications Memo at 4.

While states have the option to analyze *all* sources, the 2019 Guidance explains that “an analysis of control measures is not required for every source in each implementation period,” and that “[s]electing a set of sources for analysis of control measures in each implementation period is . . . consistent with the Regional Haze Rule, which sets up an iterative planning process and anticipates that a state may not need to analyze control measures for all its sources in a given SIP revision.”

2019 Guidance at 9. However, given that source selection is the basis of all subsequent control determinations, a reasonable source selection process “should be designed and conducted to ensure that source selection results in a set of pollutants and sources the evaluation of which has the potential to meaningfully reduce their contributions to visibility impairment.” 2021 Clarifications Memo at 3.

EPA explained in the 2021 Clarifications Memo that each state has an obligation to submit a long-term strategy that addresses the regional haze visibility impairment that results from emissions from within that state. Thus, source selection should focus on the in-state contribution to visibility impairment and be designed to capture a meaningful portion of the state’s total contribution to visibility impairment in Class I areas. A state should not decline to select its largest in-state sources on the basis that there are even larger out-of-state contributors. 2021 Clarifications Memo at 4.²⁰

Thus, while states have discretion to choose any source selection methodology that is reasonable, whatever choices they make should be reasonably explained. To this end, 40 CFR 51.308(f)(2)(i) requires that a state’s SIP submission include “a description of the criteria it used to determine which sources or groups of sources it evaluated.” The technical basis for source selection, which may include methods for quantifying potential visibility impacts such as emissions divided by distance metrics, trajectory analyses, residence time analyses, and/or photochemical modeling, must also be appropriately documented, as required by 40 CFR 51.308(f)(2)(iii).

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.²¹ 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 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 in order to satisfy the CAA’s reasonable progress mandate.” 82 FR at 3091. Thus, for each source it has selected for four-factor analysis,²² a state must consider a “meaningful set” of technically feasible control options for reducing emissions of visibility impairing pollutants. *Id.* at 3088. The 2019 Guidance provides that “[a] state must reasonably pick and justify the measures that it will consider, recognizing that there is no statutory or regulatory requirement to consider all technically feasible measures or any particular measures. A range of technically feasible measures available to reduce emissions would be one way to justify a reasonable set.” 2019 Guidance at 29.

EPA’s 2021 Clarifications Memo provides further guidance on what constitutes a reasonable set of control options for consideration: “A reasonable four-factor analysis will consider the full range of potentially reasonable options for reducing emissions.” 2021 Clarifications Memo at 7. In addition to add-on controls and other retrofits (*i.e.*, new emission reduction measures for sources), EPA explained that states should generally analyze efficiency improvements for sources’ existing measures as control options in their four-factor analyses, as in many cases

²⁰ Similarly, in responding to comments on the 2017 RHR Revisions EPA explained that “[a] state should not fail to address its many relatively low-impact sources merely because it only has such sources and another state has even more low-impact sources and/or some high impact sources.” Responses to Comments on Protection of Visibility: Amendments to Requirements for State Plans; Proposed Rule (81 FR 26942, May 4, 2016) at 87–88.

²¹ The CAA provides that, “[i]n determining reasonable progress there shall be taken into consideration” the four statutory factors. CAA 169A(g)(1). However, in addition to four-factor analyses for selected sources, groups of sources, or source categories, a state may also consider additional emission reduction measures for inclusion in its long-term strategy, *e.g.*, from other newly adopted, on-the-books, or on-the-way rules and measures for sources not selected for four-factor analysis for the second planning period.

²² “Each source” or “particular source” is used here as shorthand. While a source-specific analysis is one way of applying the four factors, neither the statute nor the RHR requires states to evaluate individual sources. Rather, states have “the flexibility to conduct four-factor analyses for specific sources, groups of sources or even entire source categories, depending on state policy preferences and the specific circumstances of each state.” 82 FR at 3088. However, not all approaches to grouping sources for four-factor analysis are necessarily reasonable; the reasonableness of grouping sources in any particular instance will depend on the circumstances and the manner in which grouping is conducted. If it is feasible to establish and enforce different requirements for sources or subgroups of sources, and if relevant factors can be quantified for those sources or subgroups, then states should make a separate reasonable progress determination for each source or subgroup. 2021 Clarifications Memo at 7–8.

such improvements are reasonable given that they typically involve only additional operation and maintenance costs. Additionally, the 2021 Clarifications Memo provides that states that have assumed a higher emission rate than a source has achieved or could potentially achieve using its existing measures should also consider lower emission rates as potential control options. That is, a state should consider a source's recent actual and projected emission rates to determine if it could reasonably attain lower emission rates with its existing measures. If so, the state should analyze the lower emission rate as a control option for reducing emissions. 2021 Clarifications Memo at 7. The EPA's recommendations to analyze potential efficiency improvements and achievable lower emission rates apply to both sources that have been selected for four-factor analysis and those that have forgone a four-factor analysis on the basis of existing "effective controls." See 2021 Clarifications Memo at 5, 10.

After identifying a reasonable set of potential control options for the sources it has selected, a state then collects information on the four factors with regard to each option identified. 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.²³ The 2019 Guidance provides recommendations for the types of information that can be used to characterize the four factors (with or without visibility), as well as ways in which states might reasonably consider and balance that information to determine which of the potential control options is necessary to make reasonable progress. See 2019 Guidance at 30–36. The 2021 Clarifications Memo contains further guidance on how states can reasonably consider modeled visibility impacts or benefits in the context of a four-factor analysis. 2021 Clarifications Memo at 12–13, 14–15. Specifically, EPA explained that while visibility can reasonably be used when comparing and choosing between multiple reasonable control options, it should not be used to summarily reject controls that are reasonable given the four statutory factors. 2021 Clarifications Memo at 13. Ultimately, while states have discretion to reasonably weigh the factors and to determine what level of

control is needed, § 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, § 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 § 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.²⁴ If the outcome of a four-factor analysis is a new, additional emission reduction measure for a source, that new measure is necessary to make reasonable progress towards remedying existing anthropogenic visibility impairment and must be included in the SIP. If the outcome of a four-factor analysis is that no new measures are reasonable for a source, continued implementation of the source's existing measures is generally necessary to prevent future emission increases and thus to make reasonable progress towards the second part of the national visibility goal: preventing future anthropogenic visibility impairment. See CAA 169A(a)(1). That is, when the result of a four-factor analysis is that no new measures are necessary to make reasonable progress, the source's existing measures are generally necessary to make reasonable progress and must be included in the SIP. However, there may be circumstances in which a state can demonstrate that a source's existing measures are *not* necessary to make reasonable progress. Specifically, if a state can demonstrate that a source will continue to implement its existing measures and will not increase its emission rate, it may not be necessary to have those measures in the long-term strategy in order to prevent future emission increases and future visibility impairment. EPA's 2021 Clarifications Memo provides further explanation and guidance on how states may demonstrate that a source's existing

measures are not necessary to make reasonable progress. See 2021 Clarifications Memo at 8–10. If the state can make such a demonstration, it need not include a source's existing measures in the long-term strategy or its SIP.

As with source selection, the characterization of information on each of the factors is also subject to the documentation requirement in § 51.308(f)(2)(iii). The reasonable progress analysis, including source selection, information gathering, characterization of the four statutory factors (and potentially visibility), balancing of the four factors, and selection of the emission reduction measures that represent reasonable progress, is a technically complex exercise, but also a flexible one that provides states with bounded discretion to design and implement approaches appropriate to their circumstances. Given this flexibility, § 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. This documentation requirement can be met through the provision of and reliance on technical analyses developed through a regional planning process, so long as that process and its output has been approved by all state participants. In addition to the explicit regulatory requirement to document the technical basis of their reasonable progress determinations, states are also subject to the general principle that those determinations must be reasonably moored to the statute.²⁵ That is, a state's decisions about the emission reduction measures that are necessary to make reasonable progress must be consistent with the statutory goal of remedying existing and preventing future visibility impairment.

The four statutory factors (and potentially visibility) are used to determine what emission reduction

²³ See, e.g., Responses to Comments on Protection of Visibility: Amendments to Requirements for State Plans; Proposed Rule (81 FR 26942, May 4, 2016), Docket Number EPA–HQ–OAR–2015–0531, U.S. Environmental Protection Agency at 186; 2019 Guidance at 36–37.

²⁴ States may choose to, but are not required to, include measures in their long-term strategies beyond just the emission reduction measures that are necessary for reasonable progress. See 2021 Clarifications Memo at 16. For example, states with smoke management programs may choose to submit their smoke management plans to EPA for inclusion in their SIPs but are not required to do so. See, e.g., 82 FR at 3108–09 (requirement to consider smoke management practices and smoke management programs under 40 CFR 51.308(f)(2)(iv) does not require states to adopt such practices or programs into their SIPs, although they may elect to do so).

²⁵ See *Arizona ex rel. Darwin v. U.S. EPA*, 815 F.3d 519, 531 (9th Cir. 2016); *Nebraska v. U.S. EPA*, 812 F.3d 662, 668 (8th Cir. 2016); *North Dakota v. EPA*, 730 F.3d 750, 761 (8th Cir. 2013); *Oklahoma v. EPA*, 723 F.3d 1201, 1206, 1208–10 (10th Cir. 2013); cf. also *Alaska Dep't of Envtl. Conservation v. EPA*, 540 U.S. 461, 485, 490 (2004); *Nat'l Parks Conservation Ass'n v. EPA*, 803 F.3d 151, 165 (3d Cir. 2015).

measures for selected sources must be included in a state's long-term strategy for making reasonable progress. Additionally, the RHR at 40 CFR 51.308(f)(2)(iv) separately provides five "additional factors"²⁶ 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. The 2019 Guidance provides that a state may satisfy this requirement by considering these additional factors in the process of selecting sources for four-factor analysis, when performing that analysis, or both, and that not every one of the additional factors needs to be considered at the same stage of the process. See 2019 Guidance at 21. EPA provided further guidance on the five additional factors in the 2021 Clarifications Memo, explaining that a state should generally not reject cost-effective and otherwise reasonable controls merely because there have been emission reductions since the first planning period owing to other ongoing air pollution control programs or merely because visibility is otherwise projected to improve at Class I areas. Additionally, states generally should not rely on these additional factors to summarily assert that the state has already made sufficient progress and, therefore, no sources need to be selected or no new controls are needed regardless of the outcome of four-factor analyses. 2021 Clarifications Memo at 13.

Because the air pollution that causes regional haze crosses state boundaries, § 51.308(f)(2)(ii) requires a state to consult with other states that also have emissions that are reasonably anticipated to contribute to visibility impairment in a given Class I area. Consultation allows for each state that impacts visibility in an area to share whatever technical information, analyses, and control determinations

may be necessary to develop coordinated emission management strategies. This coordination may be managed through inter- and intra-RPO consultation and the development of regional emissions strategies; additional consultations between states outside of RPO processes may also occur. If a state, pursuant to consultation, agrees that certain measures (e.g., a certain emission limitation) are necessary to make reasonable progress at a Class I area, it must include those measures in its SIP. 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). The EPA will consider the technical information and explanations presented by the submitting state and the state with which it disagrees when considering whether to approve the state's SIP. See *id.*; 2019 Guidance at 53. Under all circumstances, a state must document in its SIP submission all substantive consultations with other contributing states. 40 CFR 51.308(f)(2)(ii)(C).

D. Reasonable Progress Goals

Reasonable progress goals "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 at 3091. Their primary purpose is to assist the public and the EPA in assessing the reasonableness of states' long-term strategies for making reasonable progress towards the national visibility goal. See 40 CFR 51.308(f)(3)(iii)-(iv). States in which Class I areas are located must establish two RPGs, both in deciviews—one representing visibility conditions on the clearest days and one representing visibility on the most anthropogenically impaired days—for each area within their borders. 40 CFR 51.308(f)(3)(i). The two RPGs are intended to reflect the projected impacts, on the two sets of days, of the emission reduction measures the state with the Class I area, as well as all other contributing states, have included in their long-term strategies for the second

implementation period.²⁷ The RPGs also account for the projected impacts of implementing other CAA requirements, including non-SIP based requirements. Because RPGs are the modeled result of the measures in states' long-term strategies (as well as other measures required under the CAA), they cannot be determined before states have conducted their four-factor analyses and determined the control measures that are necessary to make reasonable progress. See 2021 Clarifications Memo at 6.

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

So that RPGs may also serve as a metric for assessing the amount of progress a state is making towards the national visibility goal, the RHR requires states with Class I areas to compare the 2028 RPG for the most impaired days to the corresponding point on the URP line (representing visibility conditions in 2028 if visibility

²⁶ The five "additional factors" for consideration in section 51.308(f)(2)(iv) are distinct from the four factors listed in CAA section 169A(g)(1) and 40 CFR 51.308(f)(2)(i) that states must consider and apply to sources in determining reasonable progress.

²⁷ RPGs are intended to reflect the projected impacts of the measures all contributing states include in their long-term strategies. However, due to the timing of analyses and of control determinations by other states, other on-going emissions changes, a particular state's RPGs may not reflect all control measures and emissions reductions that are expected to occur by the end of the implementation period. The 2019 Guidance provides recommendations for addressing the timing of RPG calculations when states are developing their long-term strategies on disparate schedules, as well as for adjusting RPGs using a post-modeling approach. 2019 Guidance at 47–48.

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.” The 2019 Guidance provides suggestions about how such a “robust demonstration” might be conducted. See 2019 Guidance at 50–51.

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

E. Monitoring Strategy and Other State Implementation Plan Requirements

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

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

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. 40 CFR 51.308(f)(6)(ii), (iii). Section 51.308(f)(6)(v) further requires that all states’ SIPs provide for a statewide inventory of emissions of pollutants that are reasonably anticipated to cause or contribute to visibility impairment in any Class I area; the inventory must include emissions for the most recent year for which data are available and estimates of future projected emissions. States must also include commitments to update their inventories periodically. The inventories themselves do not need to be included as elements in the SIP and are not subject to EPA review as part of the Agency’s evaluation of a SIP revision.²⁸ 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). Per the 2019 Guidance, a state may note in its regional haze SIP that its compliance with the Air Emissions Reporting Rule (AERR) in 40 CFR part 51 Subpart A satisfies the requirement to provide for an emissions inventory for the most

recent year for which data are available. To satisfy the requirement to provide estimates of future projected emissions, a state may explain in its SIP how projected emissions were developed for use in establishing RPGs for its own and nearby Class I areas.²⁹

Separate from the requirements related to monitoring for regional haze purposes under 40 CFR 51.308(f)(6), the RHR also contains a requirement at § 51.308(f)(4) related to any additional monitoring that may be needed to address visibility impairment in Class I areas from a single source or a small group of sources. This is called “reasonably attributable visibility impairment.”³⁰ Under this provision, if the EPA or the FLM of an affected Class I area has advised a state that additional monitoring is needed to assess reasonably attributable visibility impairment, the state must include in its SIP revision for the second implementation period an appropriate strategy for evaluating such impairment.

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 paragraphs 40 CFR 51.308(g)(1) through (5) so that the plan revision due in 2021 will serve also as a progress report addressing the period since submission of the progress report for the first 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, 26950 (May 4, 2016), (82 FR at 3119, January 10, 2017). To this end, every state’s SIP revision for the second implementation period is required to describe the status of implementation of all measures included in the state’s long-term strategy, including 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).

A core component of the progress report requirements is an assessment of changes in visibility conditions on the clearest and most impaired days. For second implementation period progress reports, § 51.308(g)(3) requires states

²⁹ *Id.*

²⁸ See “Step 8: Additional requirements for regional haze SIPs” in 2019 Regional Haze Guidance at 55.

³⁰ EPA’s visibility protection regulations define “reasonably attributable visibility impairment” as “visibility impairment that is caused by the emission of air pollutants from one, or a small number of sources.” 40 CFR 51.301.

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

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

G. Requirements for State and Federal Land Manager Coordination

Clean Air Act 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). Consultation that occurs 120 days prior

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

A. Background on Massachusetts' First Implementation Period SIP Submission

MassDEP submitted its regional haze SIP for the first implementation period to the EPA on July 28, 2009, and supplemented it on December 9, 2010, March 2, 2011, and December 7, 2011. The EPA approved Massachusetts' first implementation period regional haze SIP submission on September 19, 2013 (78 FR 57487). EPA's approval included, but was not limited to, the portions of the plan that address the reasonable progress requirements, Massachusetts' implementation of Best Available Retrofit Technologies on eligible sources, and Massachusetts' 310 CMR 7.05 "Fuels All Districts;" Sulfur in Fuels rule. The requirements for regional haze SIPs for the first implementation period are contained in 40 CFR 51.308(d) and (e). 40 CFR 51.308(b). Pursuant to 40 CFR 51.308(g), Massachusetts was also responsible for submitting a five-year progress report as a SIP revision for the first implementation period, which it did on February 9, 2018. The EPA approved the progress report into the Massachusetts SIP on March 29, 2019 (84 FR 11885).

B. Massachusetts' Second Implementation Period SIP Submission and the EPA's Evaluation

In accordance with CAA sections 169A and the RHR at 40 CFR 51.308(f), on July 22, 2021,³¹ Massachusetts submitted a revision to the Massachusetts SIP to address its regional haze obligations for the second implementation period, which runs through 2028. Massachusetts made a draft Regional Haze SIP submission available for public comment on April 7, 2021. Massachusetts has included the public comments and its responses to those comments in the submission.

The following sections describe Massachusetts' SIP submission, including analyses conducted by MANE-VU and Massachusetts' determinations based on those analyses, Massachusetts' assessment of progress made since the first implementation period in reducing emissions of visibility impairing pollutants, and the visibility improvement progress at nearby Class I areas. This notice also contains EPA's evaluation of Massachusetts' submission against the requirements of the CAA and RHR for the second implementation period of the regional haze program.

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. Massachusetts has no mandatory Class I Federal area within its borders.

For the second implementation period, MANE-VU performed technical analyses³² to help assess source and state-level contributions to visibility impairment and the need for interstate consultation. MANE-VU used the

³¹ Massachusetts supplemented its SIP submission on June 15, 2022.

³² The contribution assessment methodologies for MANE-VU Class I areas are summarized in MA RH SIP Appendix 16 of the docket. "Selection of States for MANE-VU Regional Haze Consultation (2018)," MANE-VU TSC. September 5, 2017.

results of these analyses to determine which states' emissions "have a high likelihood of affecting visibility in MANE-VU's Class I areas."³³ Similar to metrics used in the first implementation period,³⁴ MANE-VU used a greater than 2 percent of sulfate plus nitrate emissions contribution criteria to determine whether emissions from individual jurisdictions within the region affected visibility in any Class I areas. The MANE-VU analyses for the second implementation period used a combination of data analysis techniques, including emissions data, distance from Class I areas, wind trajectories, and CALPUFF dispersion modeling. Although many of the analyses focused only on SO₂ emissions and resultant particulate sulfate contributions to visibility impairment, some also incorporated NO_x emissions to estimate particulate nitrate contributions.

One MANE-VU analysis used for contribution assessment was CALPUFF air dispersion modeling. The CALPUFF model was used to estimate sulfate and nitrate formation and transport in MANE-VU and nearby regions originating from large electric generating unit (EGU) point sources and other large industrial and institutional sources in the eastern and central United States. Information from an initial round of CALPUFF modeling was collated for the 444 EGUs that were determined to warrant further scrutiny based on their emissions of SO₂ and NO_x. The list of EGUs was based on an enhanced "Q/d" analysis³⁵ that considered recent SO₂ emissions in the eastern United States and an analysis that adjusted previous 2002 MANE-VU CALPUFF modeling by applying a ratio of 2011 to 2002 SO₂ emissions. This list of sources was then enhanced by including the top five SO₂ and NO_x emission sources for 2011 for each state included in the modeling domain. A total of 311 EGU stacks (as opposed to individual units) were included in the CALPUFF modeling analysis. Initial information was also collected on the 50 industrial and institutional sources that, according to 2011 Q/d analysis, contributed the most to visibility impact in each Class I area. The ultimate CALPUFF modeling run included a total of 311 EGU stacks and

82 industrial facilities. The summary report for the CALPUFF modeling included the top 10 most impacting EGUs and the top 5 most impacting industrial/institutional sources for each Class I area and compiled those results into a ranked list of the most impacting EGUs and industrial sources at MANE-VU Class I areas.³⁶ Overall, MANE-VU found that emission sources located close to Class I areas typically show higher visibility impacts than similarly sized facilities further away. But visibility degradation appears to be dominated by the more distant emission sources due to their larger emissions. Massachusetts had five EGUs and one industrial source that were identified in the MANE-VU CALPUFF modeling as having a magnitude of emissions located close enough to a Class I area that they could have the potential for visibility impacts.³⁷

Of the six sources, four were units at Brayton Point Power Station, a coal-fired EGU facility (ORISPL 01619; MassDEP AQID 1200061). All four units at Brayton Point ceased operation in 2017 and the permits were revoked on December 6, 2017.

Canal Station (ORISPL 1599; MassDEP AQID 1200054) operates the other EGU (Unit 1) identified by the modelling, and its greatest impact was to Acadia. Unit 1 is a Babcock & Wilcox boiler that fires No. 6 fuel oil, with a permitted maximum sulfur content of 0.5 percent by weight (wt%) as the sole operational fuel, with No. 2 fuel oil as a startup/ignition fuel. Unit 1 has an approximate maximum heat input rate of 5,083 million British thermal units per hour (MMBtu/hr) and a generating capacity of approximately 560 (net) megawatts (MW). Unit 1 is equipped with low-NO_x burners, overfire air ports, flue gas recirculation (FGR), and Selective Catalytic Reduction (SCR) for the control of NO_x emissions. PM emissions are controlled by an Electrostatic Precipitator (ESP).

The emission controls installed on Unit 1 are necessary to achieve compliance with the applicable emission limits under 310 CMR 7.29 and Air Plan Approvals (*i.e.*, state air permits) issued pursuant to 310 CMR 7.02.

Massachusetts concludes that visibility impairing pollutants from Canal Unit 1 are currently well

controlled; however, Canal has committed to purchasing 0.3 wt% No. 6 fuel oil following the depletion of the current fuel inventory. Therefore, Massachusetts asked the owner of Canal Unit 1 to submit an application to modify its plan approval to require use of 0.3% sulfur content oil. Massachusetts approved the plan application May 26, 2022, and submitted the plan approval to EPA for approval into the SIP as a supplement to the Regional Haze SIP Revision for Massachusetts on June 15, 2022. If Canal Unit 1 should operate above 10% capacity factor in the future, existing NO_x RACT regulations (310 CMR 7.19) will further limit the NO_x emissions. From 2013 through 2022, Canal Unit one capacity had a weighted average of 2% capacity per year, with a low of 0.1% to a high of 7% capacity utilization by year and emitted an average of 42 tons of NO_x per year, ranging from a low of 2 tons to a high of 201 tons per year. Massachusetts will evaluate any changes in the operation of Canal Unit 1 in the next progress report.

The only Massachusetts industrial source deemed by MANE-VU to have the potential for significant impact on Class I areas in 2011 was Solutia, Inc., which at the time was a coal- and oil-fired chemical plant. Solutia's greatest impact was to Lye Brook, and it ranked 14th in the list of industrial/institutional sources that had potential impacts on Lye Brook, based primarily on its SO₂ emissions. MANE-VU estimated maximum extinction for Solutia at Lye Brook to be less than 1 Mm-1. As reflected in the current Title V permit for the facility (Permit Transmittal No.: X229245), Solutia has since repowered from coal/oil to natural gas and is therefore no longer a significant source of SO₂.

As explained above, 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 at 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. Consistent with these requirements, the 2019 Guidance makes it clear that "all types of anthropogenic sources are to be included in the determination" of whether a state's emissions are reasonably anticipated to result in any visibility impairment. 2019 Guidance at 8.

³³ *Id.*

³⁴ See docket EPA-R01-OAR-2012-0025 for MANE-VU supporting materials.

³⁵ "Q/d" is emissions (Q) in tons per year, typically of one or a combination of visibility-impairing pollutants, divided by distance to a class I area (d) in kilometers. The resulting ratio is commonly used as a metric to assess a source's potential visibility impacts on a particular class I area.

³⁶ See appendix 8 "2016 MANE-VU Source Contribution Modeling Report—CALPUFF Modeling of

Large Electrical Generating Units and Industrial Sources." MANE-VU TSC. April 4, 2017.

³⁷ See Section 5.4, page 68, Massachusetts Regional Haze SIP Revision for 2018–2028 in the docket.

The screening analyses on which MANE-VU relied are useful for certain purposes. MANE-VU used information from its technical analysis to rank the largest contributing states to sulfate and nitrate impairment in the seven MANE-VU Class I areas and three additional, nearby Class I areas.³⁸ The rankings were used to determine upwind states that were deemed important to include in state-to-state consultation (based on an identified impact screening threshold). Additionally, large individual source impacts were used to target MANE-VU control analysis “Asks”³⁹ of states and sources both within and upwind of MANE-VU.⁴⁰ The EPA finds the nature of the analyses generally appropriate to support decisions on states with which to consult. However, we have cautioned that source selection methodologies that target the largest regional contributors to visibility impairment across multiple states may not be reasonable for a particular state if it results in few or no sources being selected for subsequent analysis. 2021 Clarifications Memo at 3.

With regard to the analysis and determinations regarding Massachusetts’ contribution to visibility impairment at out-of-state Class I areas, the MANE-VU technical work focuses on the magnitude of visibility impacts from certain Massachusetts emissions on other nearby Class I areas. However, the analyses did not account for all emissions and all components of visibility impairment (e.g., primary PM emissions, and impairment from fine PM, elemental carbon, and organic carbon). In addition, Q/d analyses with a relatively simplistic accounting for wind trajectories and CALPUFF applied to a very limited set of EGUs and major industrial sources of SO₂ and NO_x are not scientifically rigorous tools capable of evaluating contribution to visibility impairment from all emissions in a state. The EPA agrees that the contribution to visibility impairment

from Massachusetts’ emissions at nearby out-of-state Class I areas is smaller than that from numerous other MANE-VU states.⁴¹ While some MANE-VU states noted that the contributions from several states outside the MANE-VU region are significantly larger than its own, we again clarify that each state is obligated under the CAA and RHR to address regional haze visibility impairment resulting from emissions from within the state, irrespective of whether another state’s contribution is greater. See 2021 Clarifications Memo at 3. Additionally, we note that the 2 percent or greater sulfate-plus-nitrate threshold used to determine whether Massachusetts emissions contribute to visibility impairment at a particular Class I area may be higher than what EPA believes is an “extremely low triggering threshold” intended by the statute and regulations. In sum, based on the information provided, EPA generally agrees with the State’s conclusions that emissions from Massachusetts contribute to visibility impairment in the Class I areas in Maine and New Brunswick and have relatively small contributions to the other nearby Class I areas. However, due to the low triggering threshold implied by the Rule and the lack of rigorous modeling analyses, we do not necessarily agree with the level of the State’s 2% contribution threshold.

Regardless, Massachusetts did determine that sources and emissions within the state contribute to visibility impairment at Class I areas in Maine and New Brunswick. Furthermore, the state took part in the emission control strategy consultation process as a member of MANE-VU. As part of that process, MANE-VU developed a set of emissions reduction measures identified as being necessary to make reasonable progress in the seven MANE-VU Class I areas. This strategy consists of six Asks for states within MANE-VU and five Asks for states outside the region that were found to impact visibility at Class I areas within MANE-VU.⁴² Massachusetts’ submission discusses each of the Asks and explains why or why not each is applicable and how it has complied with the relevant components of the emissions control strategy the MANE-VU states laid out. Massachusetts worked with MANE-VU to determine potential reasonable

measures that could be implemented by 2028, considering the cost of compliance, the time necessary for compliance, the energy and non-air quality environmental impacts, and the remaining useful life of any potentially affected sources. As discussed in further detail below, the EPA is proposing to find that Massachusetts has submitted a regional haze plan that meets the requirements of 40 CFR 51.308(f)(2) related to the development of a long-term strategy. Thus, we propose to find that Massachusetts has nevertheless satisfied the applicable requirements for making reasonable progress towards natural visibility conditions in Class I areas that may be affected by emissions from the state.

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).

Although Massachusetts has no Class I areas, emissions from Massachusetts sources contribute to visibility impairment in MANE-VU Class I areas. MANE-VU Class I areas as well as other nearby Class I areas that MANE-VU examined, are listed below. MANE-VU used certain areas (as noted below) to represent nearby Class I areas where monitors do not exist.⁴³

The MANE-VU Class I Areas are Lye Brook Wilderness Area (Vermont), Great Gulf Wilderness Area (New Hampshire) (used to represent Presidential Range—Dry River Wilderness Area), Presidential Range—Dry River Wilderness Area (New Hampshire), Acadia National Park (Maine), Moosehorn Wildlife Refuge (Maine) (used to represent Roosevelt

³⁸ The Class I areas analyzed were Acadia National Park in Maine, Brigantine Wilderness in New Jersey, Great Gulf Wilderness and Presidential Range—Dry River Wilderness in New Hampshire, Lye Brook Wilderness in Vermont, Moosehorn Wilderness in Maine, Roosevelt Campobello International Park in New Brunswick, Shenandoah National Park in Virginia, James River Face Wilderness in Virginia, and Dolly Sods/Otter Creek Wildernesses in West Virginia.

³⁹ As explained more fully in Section IV.E.a, MANE-VU refers to each of the components of its overall strategy as an “Ask” of its member states.

⁴⁰ The MANE-VU consultation report (Appendix 20) explains that “[t]he objective of this technical work was to identify states and sources from which MANE-VU will pursue further analysis. This screening was intended to identify which states to invite to consultation, not a definitive list of which states are contributing.”

⁴¹ Because MANE-VU did not include all of Massachusetts’ emissions or contributions to visibility impairment in its analysis, we cannot definitively state that Massachusetts’ contribution to visibility impairment is not the most significant. However, that is very likely the case.

⁴² See Section 6.3 Implementing the 2017 MANE-VU Statement.

⁴³ See Appendix 22 “Mid-Atlantic/Northeast U.S. Visibility Data, 2004–2019 (2nd RH SIP Metrics). MANE-VU (prepared by Maine Department of Environmental Protection). January 21, 2021 revision.”

Campobello International Park), Roosevelt Campobello International Park (New Brunswick, Canada), Brigantine Wildlife Refuge (New Jersey). Nearby Class I Areas consist of Dolly Sods Wilderness Area (West Virginia) (used to represent Otter Creek Wilderness Area), Otter Creek Wilderness Area (West Virginia), Shenandoah National Park (Virginia), and James River Face Wilderness Area (Virginia).

E. Long-Term Strategy for Regional Haze

a. Massachusetts' Response to the Six MANE-VU Asks

Each state having a Class I area within its borders or emissions that may affect visibility in a Class I area must develop a long-term strategy for making reasonable progress towards the national visibility goal. CAA § 169A(b)(2)(B). As explained in the Background section of this notice, reasonable progress is achieved when all states contributing to visibility impairment in a Class I area are implementing the measures determined—through application of the four statutory factors to sources of visibility impairing pollutants—to be necessary to make reasonable progress. 40 CFR 51.308(f)(2)(i). Each state's long-term strategy must include the enforceable emission limitations, compliance schedules, and other measures that are necessary to make reasonable progress. 40 CFR 51.308(f)(2). All new (*i.e.*, additional) measures that are the outcome of four-factor analyses are necessary to make reasonable progress and must be in the long-term strategy. If the outcome of a four-factor analysis and other measures necessary to make reasonable progress is that no new measures are reasonable for a source, that source's existing measures are necessary to make reasonable progress, unless the state can demonstrate that the source will continue to implement those measures and will not increase its emission rate. Existing measures that are necessary to make reasonable progress must also be in the long-term strategy. In developing its long-term strategies, a state must also consider the five additional factors in § 51.308(f)(2)(iv). As part of its reasonable progress determinations, the state must describe the criteria used to determine which sources or group of sources were evaluated (*i.e.*, subjected to four-factor analysis) for the second implementation period and how the four factors were taken into consideration in selecting the emission reduction measures for inclusion in the

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

The following section summarizes how Massachusetts' SIP submission addressed the requirements of § 51.308(f)(2)(i); specifically, it describes MANE-VU's development of the six Asks and how Massachusetts addressed each. Massachusetts considers the six Asks to comprise its long-term strategy for the second planning period to address regional haze visibility impairment for each mandatory Class I Federal area affected by emissions from Massachusetts. When developing the Asks with the other MANE-VU states and applying them to sources in Massachusetts, the Commonwealth considered the four statutory factors and the additional regulatory factors and identified emissions control measures necessary to make reasonable progress towards the goal of preventing of any future, and remedying any existing, anthropogenic visibility impairment in Class I areas affected by emissions from Massachusetts. The EPA's evaluation of Massachusetts' long-term strategy is contained in the following Section IV.E.b. Massachusetts' SIP submission describes how it plans to meet the long-term strategy requirements defined by the state and MANE-VU as the "Asks."⁴⁴

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

Massachusetts is a member of the MANE-VU RPO and participated in the RPO's regional approach to developing a strategy for making reasonable progress towards the national visibility goal in the MANE-VU Class I areas.

⁴⁴ Massachusetts Regional Haze SIP submission at 74.

MANE-VU's strategy includes a combination of: (1) Measures for certain source sectors and groups of sectors that the RPO determined were reasonable for states to pursue, and (2) a request for member states to conduct four-factor analyses for individual sources that it identified as contributing to visibility impairment. MANE-VU refers to each of the components of its overall strategy as an Ask of its member states. On August 25, 2017, the Executive Director of MANE-VU, on behalf of the MANE-VU states and tribal nations, signed a statement that identifies six emission reduction measures that comprise the Asks for the second implementation period.⁴⁵ The Asks were "designed to identify reasonable emission reduction strategies that must be addressed by the states and tribal nations of MANE-VU through their regional haze SIP updates."⁴⁶ The statement explains that "[i]f any State cannot agree with or complete a Class I State's Asks, the State must describe the actions taken to resolve the disagreement in the Regional Haze SIP."⁴⁷

MANE-VU's recommendations as to the appropriate control measures were based on technical analyses documented in the RPO's reports and included as appendices to or referenced in Massachusetts' regional haze SIP submission. One of the initial steps of MANE-VU's technical analysis was to determine which visibility-impairing pollutants should be the focus of its efforts for the second implementation period. In the first implementation period, MANE-VU determined that sulfates were the most significant visibility impairing pollutant at the region's Class I areas. To determine the impact of certain pollutants on visibility at Class I areas for the purpose of second implementation period planning, MANE-VU conducted an analysis comparing the pollutant contribution on the clearest and most impaired days in the baseline period (2000–2004) to the most recent period (2012–2016)⁴⁸ at MANE-VU and nearby Class I areas. MANE-VU found that while SO₂ emissions were decreasing and visibility was improving, sulfates still made up the most significant contribution to visibility impairment at MANE-VU and nearby Class I areas. According to the analysis, NO_x emissions have begun to play a more significant role in visibility

⁴⁵ See appendix 15 "MANE-VU Regional Haze Consultation Report and Consultation Documentation—Final."

⁴⁶ *Id.*

⁴⁷ *Id.*

⁴⁸ The period of 2012–2016 was the most recent period for which data were available at the time of analysis.

impacts in recent years as SO₂ emissions have decreased. The technical analyses used by Massachusetts are included in their submission and are as follows:

- 2016 Updates to the Assessment of Reasonable Progress for Regional Haze in MANE-VU Class I Areas (MA Appendix 6);
- Impact of Wintertime SCR/SNCR Optimization on Visibility Impairing Nitrate Precursor Emissions. November 2017. (MA Appendix 17);
- High Electric Demand Days and Visibility Impairment in MANE-VU. December 2017. (MA Appendix 18);
- Benefits of Combined Heat and Power Systems for Reducing Pollutant Emissions in MANE-VU States. March 2016. (MA Appendix 7);
- 2016 MANE-VU Source Contribution Modeling Report—CALPUFF Modeling of Large Electrical Generating Units and Industrial Sources April 4, 2017 (MA Appendix 8);
- Contribution Assessment Preliminary Inventory Analysis. October 10, 2016. (MA Appendix 11);
- Four-Factor Data Collection Memo. March 2017. (MA Appendix 14);
- Status of the Top 167 Stacks from the 2008 MANE-VU Ask. July 2016. (MA Appendix 10).

To support development of the Asks, MANE-VU gathered information on each of the four statutory factors for six source sectors it determined, based on an examination of annual emission inventories, “had emissions [of SO₂ and/or NO_x] that were reasonable[y] anticipated to contribute to visibility degradation in MANE-VU:” electric generating units (EGUs), industrial/commercial/institutional boilers (ICI boilers), cement kilns, heating oil, residential wood combustion, and outdoor wood combustion.⁴⁹ MANE-VU also collected data on individual sources within the EGU, ICI boiler, and cement kiln sectors.⁵⁰ Information for the six sectors included explanations of technically feasible control options for SO₂ or NO_x, illustrative cost-effectiveness estimates for a range of model units and control options, sector-wide cost considerations, potential time frames for compliance with control options, potential energy and non-air-quality environmental impacts of certain control options, and how the remaining useful lives of sources might be considered in a control analysis.⁵¹ Source-specific data included SO₂

emissions⁵² and existing controls⁵³ for certain existing EGUs, ICI boilers, and cement kilns. MANE-VU considered this information on the four factors as well as the analyses developed by the RPO’s Technical Support Committee when it determined specific emission reduction measures that were found to be reasonable for certain sources within two of the sectors it had examined—EGUs and ICI boilers. The Asks were based on this analysis and looked to either optimize the use of existing controls, have states conduct further analysis on EGU or ICI boilers with considerable visibility impacts, implement low sulfur fuel standards, or lock-in lower emission rates.

MANE-VU Ask 1 is “Electric Generating Units (EGUs) with a nameplate capacity larger than or equal to 25 MW with already installed NO_x and/or SO₂ controls—ensure the most effective use of control technologies on a year-round basis to consistently minimize emissions of haze precursors or obtain equivalent alternative emission reductions.” MANE-VU observed that EGUs often only run NO_x emissions controls to comply with ozone season trading programs and consequently, NO_x sources may be uncontrolled during the winter and non-peak summer days. MANE-VU found that: (1) running existing installed controls [selective catalytic reduction (SCR) and selective non-catalytic reduction (SNCR)] is one of the most cost-effective ways to control NO_x emissions from EGUs; and (2) that running existing controls year round could substantially reduce the NO_x emissions in many of the states upwind of Class I areas in MANE-VU that lead to visibility impairment during the winter from nitrates. MANE-VU included this as an emission management strategy because large EGUs had already been identified as dominant contributors to visibility impairment and the low cost of running already installed controls made it reasonable.

Massachusetts identified 53 EGU units that meet the criteria of 25 MW or larger with installed controls.⁵⁴ Massachusetts explained that all of these units have NO_x controls and that the permits for these units set short-term NO_x emissions limits in lbs/hr or concentration, which are promulgated in MA 310 CMR 7.19 and approved into the MA SIP on October 15, 2020 (85 FR

65236). The permits also require the performance of the unit and its controls to be verified. Therefore, Massachusetts concluded that it has met this Ask-1 strategy and represented that it will continue to do so for new units that begin operation during the second planning period based on the rules now in effect.

MANE-VU Ask 2 consists of a request that states “Emission sources modeled by MANE-VU that have the potential for 3.0 Mm-1 or greater visibility impacts at any MANE-VU Class I area, as identified by MANE-VU contribution analyses . . . perform a four-factor analysis for reasonable installation or upgrade to emission controls.”

Massachusetts explained that, after examining the visibility impact modeling results (described in Section 5 of Massachusetts’ submittal), MANE-VU concluded that a 3 Mm-1 cutoff captured the group of sources contributing the largest percentage of visibility impairing pollutants to Class I areas and that the determination of reasonability for controls on each unit was left to the individual states to allow for unit-specific consideration of the four factors.

MANE-VU’s analysis identified 2 units in Massachusetts with potential impacts of 3.0 Mm-1 or greater based on 2015 emissions: Brayton Point 4 and Canal Station 1. Brayton Point was a coal-fired EGU facility (ORISPL 01619; MassDEP AQID 1200061). Massachusetts notes that all units at Brayton Point ceased operation in 2017 and the permits were revoked on December 6, 2017. Canal Station (ORISPL 1599; MassDEP AQID 1200054) operates two steam electric generating units. Unit 1 is a Babcock & Wilcox boiler that fires No. 6 fuel oil, with a permitted maximum sulfur content of 0.5 percent by weight (wt%) as the sole operational fuel, with No. 2 fuel oil as a startup/ignition fuel. Unit 1 has an approximate maximum heat input rate of 5,083 million British thermal units per hour (MMBtu/hr) and a generating capacity of approximately 560 (net) megawatts (MW). Unit 1 is equipped with low-NO_x burners, overfire air ports, flue gas recirculation (FGR), and Selective Catalytic Reduction (SCR) for the control of NO_x emissions. PM emissions are controlled by an Electrostatic Precipitator (ESP). In recent years, Unit 1 has operated with a capacity factor well below 10%.

The emission controls installed on Unit 1 are necessary to achieve compliance with the applicable emission limits under 310 CMR 7.29 and Air Plan Approvals issued pursuant to 310 CMR 7.02. The governing NO_x,

⁴⁹ See appendix 14 “MANE-VU Four Factor Data Collection Memo,” at 1, March 30, 2017.

⁵⁰ See appendix 6 “2016 Updates to the Assessment of Reasonable Progress for Regional Haze in MANE-VU Class I Areas, Jan. 31, 2016.”

⁵¹ *Id.*

⁵² See appendix 14 “Four Factor Data Collection Memo.”

⁵³ See appendix 10 “Status of the Top 167 Stacks from the 2008 MANE-VU Ask. July 2016.”

⁵⁴ See appendix 23 “Massachusetts Facilities Subject to Ask 1: EGUs >= 25MW with Controls.”

SO₂, and PM emission limits for Unit 1 are summarized in Table 6–1 of the MA SIP submission.

The NO_x and PM emission limits are readily met through the use of the installed emission controls. The sulfur content of No. 6 oil is limited to 0.5 wt% in accordance with 310 CMR 7.05 but the facility purchases 0.3 wt% sulfur No. 6 to meet the 6.0 lbs/MW-hr monthly, 3.0 lbs/MW-hr rolling 12-month SO₂ limit applicable under 310 CMR 7.29.

Table 6–2 in the State's submittal shows Canal Unit 1's actual emissions in 2015 along with much lower emissions MANE–VU projected for 2028 and lower still for 2028 emissions under Ask 2.

Massachusetts requested and received a four-factor analysis from the owner of the facility.⁵⁵ Based on that analysis, Massachusetts concluded that visibility impairing pollutants from Canal Unit 1 are currently well controlled with low-NO_x burners, overfire air ports, flue gas recirculation (FGR), Selective Catalytic Reduction (SCR) and an Electrostatic Precipitator (ESP). In addition to these existing controls, however, Canal committed to purchase only 0.3 wt% No. 6 fuel oil, following the depletion of the current fuel inventory, which has at times contained No. 6 fuel oil with a sulfur content greater than 0.3 wt%. EPA expects that this commitment will further reduce its SO₂ emissions. As a result, Massachusetts requested and received from the owner of Canal Unit 1 an application to modify its plan approval to require use of 0.3% sulfur content oil. Massachusetts approved the application and submitted the Plan approval to EPA as a supplement to the Massachusetts Regional Haze SIP Revision in a letter dated June 15, 2022.⁵⁶ Massachusetts further notes that, if Canal Unit 1 should operate above 10% capacity factor in the future, existing SIP-approved NO_x RACT regulations (310 CMR 7.19) will further limit the NO_x emissions. Massachusetts states that it will evaluate any changes in the operation of Canal Unit 1 in future regional haze planning and reporting.

MANE–VU Ask 3 is: “Each MANE–VU State that has not yet fully adopted an ultra-low sulfur fuel oil standard as requested by MANE–VU in 2007—pursue this standard as expeditiously as possible and before 2028, depending on

supply availability, where the standards are as follows: a. distillate oil to 0.0015% sulfur by weight (15 ppm); b. #4 residual oil within a range of 0.25 to 0.5% sulfur by weight; and c. #6 residual oil within a range of 0.3 to 0.5% sulfur by weight.” MANE–VU included the low sulfur fuel measure in the 2017 Ask because some states had not implemented it yet and the justifications for it determined in the first implementation period remained valid. As described in Section 3 of the Massachusetts SIP submittal, MassDEP met the requirements of Ask 3 during the first implementation period by generally adopting low-sulfur oil regulations in the first planning period. Massachusetts adopted 310 CMR 7.05, “Fuels All Districts” which was approved by EPA into the Massachusetts SIP on September 19, 2013 (78 FR 57487).

MANE–VU Ask 4 is: “EGUs and other large point emission sources larger than 250 MMBTU per hour heat input that have switched operations to lower emitting fuels—pursue updating permits, enforceable agreements, and/or rules to lock-in lower emission rates for SO₂, NO_x and PM. The permit, enforcement agreement, and/or rule can allow for suspension of the lower emission rate during natural gas curtailment.” Massachusetts explains that MANE–VU chose this measure because the lower cost of natural gas had made switching to natural gas reasonable for many facilities resulting in significant visibility improvements. Also, the FLMs recommended during consultation that MANE–VU secure these visibility gains.

The threshold of 250 MMBTU per hour heat input was based on prior BART analysis. Because there are no longer any large coal burning units in Massachusetts, this Ask pertains only to oil burning units. Massachusetts identified no dual/multi-fuel units larger than 250 MMBTU/hr that had made a physical change to switch to a cleaner fuel. All such dual/multi-fuel units are either continuing to burn a mix of fuels or are choosing to maintain their ability to do so in the future.

MANE–VU Ask 5 is: “Where emission rules have not been adopted, control NO_x emissions for peaking combustion turbines that have the potential to operate on high electric demand days by: a. Striving to meet NO_x emissions standard of no greater than 25 ppm at 15% O₂ for natural gas and 42 ppm at 15% O₂ for fuel oil but at a minimum meet NO_x emissions standard of no greater than 42 ppm at 15% O₂ for natural gas and 96 ppm at 15% O₂ for fuel oil; b. Performing a four-factor

analysis for reasonable installation or upgrade to emission controls; or c. Obtaining equivalent alternative emission reductions on high electric demand days.”

Massachusetts explains that “High electric demand days are days when higher than usual electrical demands bring additional generation units online, many of which are infrequently operated and may have significantly higher emission rates than the rest of the generation fleet. Peaking combustion turbine is defined for the purposes of this ‘Ask’ as a turbine capable of generating 15 megawatts or more, that commenced operation prior to May 1, 2007, is used to generate electricity all or part of which is delivered to the electric power distribution grid for commercial sale and that operated less than or equal to an average of 1752 hours (or 20%) per year during 2014 to 2016; MANE–VU found a correlation between high electric demand days (HEDDs) and the 20% most impaired days at Class I areas. Because smaller turbines have the ability to respond to peak electrical demand and some of these units are not well controlled by existing rules (*i.e.*, have a higher emission rate per unit of energy), MANE–VU found that controlling these units (or providing equivalent reductions on HEDDs) was a reasonable strategy for reducing NO_x emissions on the most impaired days.”

Massachusetts identified 25 turbines rated at 15 MW or higher that were operational prior to 2007 that sold electricity to the grid and that operated less than an average of 1752 hours per year during 2014–2016. These 25 turbines are listed in Table 6–3 along with their current emission limits. On March 9, 2018, MassDEP revised 310 CMR 7.19 Reasonably Available Control Technology (RACT) for Sources of Oxides of Nitrogen (NO_x) to establish more stringent emissions limits for stationary turbines at major sources. With these revisions Massachusetts RACT now meets Ask 5 “striving” limits for combined cycle turbines and “minimum” limits for simple cycle turbines. However, the 2018 RACT rule also included an exemption for units with a capacity factor less than 10% based on the most recent 3-year average, as codified in 310 CMR 7.19(1)(d).

Almost all the turbines subject to Ask 5 fall below the 10% capacity factor because they all run very infrequently. If in the future, they exceed the 10% capacity factor limit then they will be subject to the SIP-approved RACT limits of 310 CMR 7.19 and will therefore meet Ask 5 (except for Woodland 10 and Doreen 10 which are not located at

⁵⁵ See Appendix 31, “Four Factor Analysis Canal Unit 1, Canal Generating Station, Sandwich, MA”

⁵⁶ See MassDEP letter to EPA “Subject: Regional Haze SIP Revision for Massachusetts—supplement” and its attachment MassDEP letter to Canal Generating LLC, Air Quality Plan Approval.

facilities that are major sources and are therefore not subject to 310 CMR 7.19). The turbines that are exempt from the 2018 RACT limits are still subject to MassDEP's 1995 RACT limits, however. Table 6–4 in MassDEP's submission compares the 1995 and 2018 RACT limits to Ask 5, showing that the 1995 RACT limits meet the Ask 5 minimum limits for combined cycle turbines, although not for simple cycle turbines. MassDEP explains that, as a result, 14 of the 25 turbines therefore meet the Ask 5 limits through either 1995 RACT limits for combined cycle turbines or through BACT permit limits. For the remaining 11 turbines that do not meet the Ask 5 limits, Massachusetts has chosen to address the Ask by demonstrating emission reductions from Brayton Point Station (Units 1, 2, and 3) and Solutia that more than offset the emissions from these 11 turbines,⁵⁷ as allowed under the Ask.

MANE–VU Ask 6 is: “Each State should consider and report in their SIP measures or programs to: (a) decrease energy demand through the use of energy efficiency, and (b) increase the use within their state of Combined Heat and Power (CHP) and other clean Distributed Generation technologies including fuel cells, wind, and solar.”

Massachusetts has taken numerous actions to decrease energy demand through energy efficiency and has been named the most energy efficient state in the nation by the American Council for an Energy-Efficient Economy (ACEEE) for nine consecutive years. Massachusetts ranks second in electric efficiency program spending per capita (at over four times the national average). Massachusetts energy efficiency efforts will continue through the second regional haze implementation period and will achieve emissions reductions beyond those required in the MANE–VU Statement. Key features of the Massachusetts energy efficiency strategy and efforts to expand non-polluting sources of energy and include energy efficiency, clean energy, solar carve-out, Solar Massachusetts Renewable Target (SMART) Program, Clean Energy Standard (310 CMR 7.75), Regional Greenhouse Gas Initiative (RGGI), combined heat and power (CHP), clean peak energy standard (CPS), offshore wind power, and hydroelectric power. Though not part of the SIP, these programs and initiatives have already achieved substantial emissions reductions and will continue to contribute to visibility improvements in Class I areas through 2028 and beyond.

b. The EPA's Evaluation of Massachusetts' Response to the Six MANE–VU Asks and Compliance with § 51.308(f)(2)(i)

The EPA is proposing to find that Massachusetts has satisfied the requirements of § 51.308(f)(2)(i) related to evaluating sources and determining the emission reduction measures that are necessary to make reasonable progress by considering the four statutory factors. We are proposing to find that Massachusetts has satisfied the four-factor analysis requirement through its analysis and actions to address MANE–VU Asks 2 and 3. We also propose to find that Massachusetts reasonably concluded that it satisfied all six Asks.

As explained above, Massachusetts relied on MANE–VU's technical analyses and framework (*i.e.*, the Asks) to select sources and form the basis of its long-term strategy. MANE–VU conducted an inventory analysis to identify the source sectors that produced the greatest amount of SO₂ and NO_x emissions in 2011; inventory data were also projected to 2018. Based on this analysis, MANE–VU identified the top-emitting sectors for each of the two pollutants, which for SO₂ include coal-fired EGUs, industrial boilers, oil-fired EGUs, and oil-fired area sources including residential, commercial, and industrial sources. Major-emitting sources of NO_x include on-road vehicles, non-road vehicles, and EGUs.⁵⁸ The RPO's documentation explains that “[EGUs] emitting SO₂ and NO_x and industrial point sources emitting SO₂ were found to be sectors with high emissions that warranted further scrutiny. Mobile sources were not considered in this analysis because any ask concerning mobile sources would be made to EPA and not during the intra-RPO and inter-RPO consultation process among the states and tribes.”⁵⁹ EPA proposes to find that Massachusetts reasonably evaluated the two pollutants—SO₂ and NO_x—that currently drive visibility impairment within the MANE–VU region and that it adequately explained and supported its decision to focus on these two pollutants through its reliance on the

MANE–VU technical analyses cited in its submission.

Section 51.308(f)(2)(i) requires states to evaluate and determine the emission reduction measures that are necessary to make reasonable progress by applying the four statutory factors to sources in a control analysis. As explained previously, the MANE–VU Asks are a mix of measures for sectors and groups of sources identified as reasonable for states to address in their regional haze plans. Several of the Asks include analyses of emissions controls, and Massachusetts identifies numerous existing controls that are in the SIP and are included in the long-term strategy. Additionally, Ask 2 (requesting four-factor analyses be conducted) and Ask 3 (requesting adoption of low-sulfur fuel oil) specifically demonstrate Massachusetts' consideration of the statutory factors and together allow the EPA to determine that Massachusetts' SIP is sufficient to satisfy (f)(2)(i). For example, Massachusetts provided information on the four statutory factors for the identified source that continues to operate—an oil-fired EGU and included new fuel sulfur limits for that source in the SIP. See “Four Factor Analysis Canal Unit 1, Canal Generating Station, Sandwich, MA” in Appendix 31. While MANE–VU formulated the Asks to be “reasonable emission reduction strategies” to control emissions of visibility impairing pollutants,⁶⁰ EPA believes that Asks 2 and 3, in particular, engage with the requirement that states determine the emission reduction measures that are necessary to make reasonable progress through consideration of the four factors. As laid out in further detail below, the EPA is proposing to find that MANE–VU's four-factor analysis conducted to support the emission reduction measures in Ask 3 (ultra-low sulfur fuel oil Ask), in conjunction with Massachusetts' supplemental analysis and explanation of how it has complied with Ask 2 (perform four-factor analysis) satisfy the requirement of § 51.308(f)(2)(i). The emission reduction measures that are necessary to make reasonable progress must be included in the long-term strategy, *i.e.*, in Massachusetts' SIP. 40 CFR 51.308(f)(2).

Massachusetts asserted that it satisfies Ask 1 because its SIP-approved regulations applicable to EGU boilers include year-round emission limits and because it already requires that controls be run whenever technically feasible. Air Plan Approvals that MassDEP has issued for these units set short-term NO_x emissions limits in lbs/hr or

⁵⁸ See Appendix 2 “Contributions to Regional Haze in the Northeast and Mid-Atlantic United States: Mid-Atlantic/Northeast Visibility Union (MANE–VU) Contribution Assessment. NESCAUM. August 2006.”

⁵⁹ See Appendix 22 “Mid-Atlantic/Northeast U.S. Visibility Data, 2004–2019 (2nd RH SIP Metrics). MANE–VU (prepared by Maine Department of Environmental Protection). January 21, 2021 revision.”

⁶⁰ *Id.*

⁵⁷ See Massachusetts Regional Haze SIP Submission at 83–94.

concentration. EPA thus proposes to find that Massachusetts reasonably concluded that it has satisfied Ask 1.

Ask 2 addresses the sources MANE-VU determined have the potential for larger than, or equal to, 3.0 Mm^{-1} visibility impact at any MANE-VU Class I area; the Ask requests MANE-VU states to conduct four-factor analyses for the specified sources within their borders. This Ask explicitly engages with the statutory and regulatory requirement to determine reasonable progress based on the four factors; MANE-VU considered it “reasonable to have the greatest contributors to visibility impairment conduct a four-factor analysis that would determine whether emission control measures should be pursued and what would be reasonable for each source.”⁶¹

As an initial matter, EPA does not generally agree that 3.0 Mm^{-1} visibility impact is a reasonable threshold for source selection. The RHR recognizes that, due to the nature of regional haze visibility impairment, numerous and sometimes relatively small sources may need to be selected and evaluated for control measures in order to make reasonable progress. See 2021 Clarifications Memo at 4. As explained in the 2021 Clarifications Memo, while states have discretion to choose any source selection threshold that is reasonable, “[a] state that relies on a visibility (or proxy for visibility impact) threshold to select sources for four-factor analysis should set the threshold at a level that captures a meaningful portion of the state’s total contribution to visibility impairment to Class I areas.” 2021 Clarifications Memo at 3. In this case, the 3.0 Mm^{-1} threshold identified only two sources in Massachusetts (and only 22 across the entire MANE-VU region), indicating that it may be unreasonably high.

MANE-VU identified two units in Massachusetts with potential impacts of 3.0 Mm^{-1} or greater based on 2015 emissions: Brayton Point Unit 4 and Canal Station Unit 1. Brayton Point was a coal-fired EGU facility (ORISPL 01619; MassDEP AQID 1200061). All four of the coal-fired units at Brayton Point, including Unit 4, ceased operation in 2017 and the permits were revoked on December 6, 2017.⁶²

Canal Station (ORISPL 1599; MassDEP AQID 1200054) operates two

steam electric generating units. Unit 1 is a Babcock & Wilcox boiler that fires No. 6 fuel oil, with a permitted maximum sulfur content of 0.5 percent by weight (wt%) as the sole operational fuel, with No. 2 fuel oil as a startup/ignition fuel. Unit 1 has an approximate maximum heat input rate of 5,083 million British thermal units per hour (MMBtu/hr) and a generating capacity of approximately 560 (net) megawatts (MW). Unit 1 is equipped with low- NO_x burners, overfire air ports, flue gas recirculation (FGR), and Selective Catalytic Reduction (SCR) for the control of NO_x emissions. PM emissions are controlled by an Electrostatic Precipitator (ESP). The emission controls installed on Unit 1 are necessary to achieve compliance with the applicable emission limits under 310 CMR 7.29 and Air Plan Approvals issued pursuant to 310 CMR 7.02. The governing NO_x , SO_2 , and PM emission limits for Unit 1 are summarized in Table 6–1 of the Massachusetts SIP submittal.

Pursuant to Ask 2, MassDEP requested a four-factor analysis from the owner of Canal Unit 1, which the owner submitted on September 19, 2020.⁶³ With respect to NO_x emissions, the analysis concludes that Canal Unit 1’s existing controls (low NO_x burners, overfire air ports, FGR, and SCR) are the most stringent available and that there are no other add-on controls commercially available to reduce NO_x emissions from Canal Unit 1. The analysis explains that Canal Unit 1 has operated well below 10% capacity factor in recent years, is subject to NO_x emission limits pursuant to 310 CMR 7.29 when operating at this level and is not expected to increase its capacity factor in the future. If Canal Unit 1 did exceed 10% capacity factor, the higher number of hours would result in better performance of the SCR and, thereby, reduce NO_x emissions rates by at least 50% below the current permitted NO_x limits. Furthermore, if Canal Unit 1 exceeded 10% capacity factor, it would automatically become subject to the lower NO_x limit in MassDEP’s NO_x RACT regulations (310 CMR 7.19). Infrequent operation limits the effectiveness of the existing controls, however. At its current and expected low capacity factor, meeting NO_x emission limits below the existing 310 CMR 7.29 limits would be unreasonable due to emissions that occur during startup prior to operation of the SCR. The analysis concludes that no further NO_x control measures at Canal Unit 1

are necessary to make reasonable progress.

With respect to SO_2 emissions, the four-factor analysis concludes that conversion to natural gas is not technically feasible due to supply limitations but that use of 0.3% sulfur No.6 fuel oil (rather than the 0.5% sulfur allowed under Massachusetts’ low sulfur fuel regulations at 310 CMR 7.05) is technically feasible and reduces SO_2 emissions by 40% at a cost of \$10,000 per ton of SO_2 reduced. While the analysis concludes that the cost of using 0.3 wt% sulfur No. 6 oil would not be considered reasonable, the owner nonetheless committed to purchasing 0.3 wt% No. 6 fuel oil following the depletion of the current fuel inventory because the MANE-VU Regional Haze Consultation Report identifies sulfates from SO_2 emissions as the primary driver behind visibility impairment in the region. See June 15, 2022, MassDEP Regional Haze SIP Revision for Massachusetts Supplement.⁶⁴

The four-factor analysis also evaluates the use of ultra-low sulfur diesel (ULSD) and retrofitting with a spray dry absorber for SO_2 control and concludes that, while technically feasible, the costs of compliance in each case (beginning at \$21,000 per ton of SO_2 reduced) mean that neither measure is necessary for reasonable progress. The analysis also evaluated particulate matter emissions and concludes that they are well controlled with an electrostatic precipitator (ESP) and burning 0.3 wt% sulfur fuel. While adding a fabric filter and using ULSD is feasible, the costs are \$50,000 and \$170,000 per ton of SO_2 reduced, respectively and, the ESP would reduce the efficiency of the unit by 0.5% and generate 52 tons of waste per year.

Based on Canal’s commitment to use 0.3% sulfur content fuel oil, MassDEP requested that the Permittee submit a permit application to require its use. Subsequently, MassDEP modified Canal’s Plan Approval to provide that the sulfur content of No. 6 fuel oil purchased for Unit 1 shall not exceed 0.3% by weight. MassDEP has requested that EPA approve it into the SIP, which EPA proposes to do in today’s action.

The EPA proposes to find that Massachusetts reasonably determined it has satisfied Ask 2. As explained above, we do not generally agree that a 3.0 Mm^{-1} threshold for selecting sources for four-factor analysis results in a set of sources to evaluate that will result in

⁶¹ See Appendix 20 “MANE-VU Regional Haze Consultation Report and Consultation Documentation—Final.”

⁶² See Appendix 37, MassDEP letter from Thomas Cushing, Chief, Permit Section, Bureau of Air & Waste to Robert Vasconcelos, Director, Brayton Point Energy, LLC. December 6, 2017.

⁶³ See Appendix 31, “Four Factor Analysis Canal Unit 1, Canal Generating Station, Sandwich, MA . . .”

⁶⁴ See MassDEP letter to EPA “Subject: Regional Haze SIP Revision for Massachusetts—supplement” and its attachment MassDEP letter to Canal Generating LLC, Air Quality Plan Approval.

potential and meaningful reduction of the state's contribution to visibility impairment. MANE-VU's threshold identified two sources, only one of which continues to operate and combust the same fuel. However, in this particular instance we propose to find that Massachusetts' additional information and explanation indicate that the state has conducted a reasonable examination of its sources, reasonably concluded that the four-factor analysis for its remaining impacting source is satisfactory, and accurately concluded the additional SO₂ controls further limiting fuel oil sulfur content are reasonable emission reductions. EPA is basing this proposed finding on the State's examination of its largest operating EGU and ICI sources, at the time of SIP submission, and on the emissions from and controls that apply to those sources, as well as on Massachusetts' existing SIP-approved NO_x and SO₂ rules that effectively control emissions from the largest contributing stationary-source sectors.

Ask 3, which addresses the sulfur content of heating oil used in MANE-VU states, is based on a four-factor analysis for the heating oil sulfur reduction regulations contained in that Ask; specifically, for the control strategy of reducing the sulfur content of distillate oil to 15 ppm. As described in Section 3 of the Massachusetts SIP submittal, MassDEP met the requirements of Ask 3 during the first implementation period by generally adopting low-sulfur oil regulations in the first planning period. Massachusetts adopted 310 CMR 7.05, "Fuels All Districts." The regulation limited the Statewide sulfur content of distillate oil to 500 parts per million (ppm) from July 1, 2014, through June 30, 2018, and then to 15 ppm starting July 1, 2018. The regulation also sets the sulfur in fuel limit for No. 6 residual oil, starting July 1, 2018, at 0.5% by weight Statewide, except for the Berkshire Air Pollution Control District (APCD), which encompasses the Towns and Cities in Berkshire County, the westernmost county in the Commonwealth. The Berkshire APCD has a 1974 legislative exemption allowing sources in this district to burn up to 2.2% sulfur residual oil.⁶⁵ Therefore, the regulation does not explicitly require lower sulfur residual oil in the Berkshire APCD due to the existing law. A legislative change would be needed for MassDEP to apply the lower sulfur residual oil limits for this district. Despite the existing legislative exemption, however, MassDEP expects that the majority of

residual oil burned in the Berkshire APCD will have a reduced sulfur content because the suppliers in Massachusetts and the surrounding states will need to supply lower sulfur residual oil for sale in those other APCDs and states. *See also* 77 FR 30932.

The EPA proposes to find that Massachusetts reasonably relied on MANE-VU's four-factor analysis for a low-sulfur fuel oil regulation, which engaged with each of the statutory factors and explained how the information supported a conclusion that a 15 ppm-sulfur fuel oil standard for fuel oils is reasonable. Massachusetts' SIP-approved ultra-low sulfur fuel oil rule is consistent with Ask 3's sulfur content standards for the three types of fuel oils (distillate oil, #4 residual oil, #6 residual oil). EPA therefore proposes to find that Massachusetts reasonably determined that it has satisfied Ask 3.

Massachusetts concluded that no additional updates were needed to meet Ask 4, which requests that MANE-VU states pursue updating permits, enforceable agreements, and/or rules to lock-in lower emission rates for sources larger than 250 MMBtu per hour that have switched to lower emitting fuels. As explained above, Massachusetts has asserted that there are no longer any large coal burning units in Massachusetts, meaning that this Ask pertains only to oil burning units. MA identified no dual/multi-fuel units larger than 250 MMBTU/hr that had made a physical change to switch to a cleaner fuel. All such dual/multi-fuel units are either continuing to burn a mix of fuels or are choosing to maintain their ability to do so in the future. In addition, modified units in Massachusetts are required to amend their permits through the New Source Review (NSR) process if they plan to switch back to coal or a fuel that will increase emissions. A change in fuel, unless already allowed in the permit, would be a modification.

Thus, given the permitting and regulatory requirements outlined above, including the fact that sources that have switched fuel are required to revise their permits to reflect the change, that state rules make any proposed reversion difficult by requiring permitting and other control analyses, including NSR, the EPA proposes to find that Massachusetts reasonably determined it has satisfied Ask 4.

Ask 5 addresses NO_x emissions from peaking combustion turbines that have the potential to operate on high electric demand days. Massachusetts explains that it has SIP-approved regulations to control peaking combustion turbines that have the potential to operate on

high electric demand days. The Ask requests states to "strive" for NO_x emission standards of no greater than 25 ppm for natural gas and 42 ppm for fuel oil, or at a minimum, NO_x emissions standards of no greater than 42 ppm for natural gas and 96 ppm for fuel oil. Massachusetts RACT requirements approved into the MA SIP on October 15, 2020 (85 FR 65236) meet Ask 5 "striving" limits for combined cycle turbines and "minimum" limits for simple cycle turbines. However, the 2018 RACT rule also included an exemption for units with a capacity factor less than 10% based on the most recent 3-year average. As shown in Table 6-3 of the Massachusetts SIP submittal, most of the turbines subject to Ask 5 fall below the 10% capacity factor because they all run very infrequently. If in the future they exceed the 10% capacity factor limit, then they will be subject to the RACT limits of 310 CMR 7.19 and will therefore meet Ask 5 (except for Woodland 10 and Doreen 10 which are not located at facilities that are major sources and are therefore not subject to 310 CMR 7.19). The turbines that are exempt from the 2018 RACT limits are still subject to MassDEP's 1995 RACT limits. For combined cycle turbines, the 1995 RACT limits meet Ask 5 minimum required limits for oil and gas, but the simple cycle limits are slightly higher at 100 ppm compared to the Ask 5 minimum of 96 ppm.

Ask 5 included an option to achieve equivalent alternative emission reductions for those combustion turbines whose limits do not match the "minimum" limits in the Ask. The retirement of Brayton Point 1-2-3 and repowering of Solutia Boiler 11 each provide alternative SO₂ or NO_x emission reductions, respectively, on HEDDs that are far larger than any NO_x reductions possible from the turbines that do not already meet Ask 5 (156 and 128 tons/year vs. 25 tons/year). Furthermore, the annual SO₂ emission reductions from Brayton Point 1-2-3 (785 tons/year) and Solutia Boiler 11 (847 tons/year combined SO₂ and NO_x) are each sufficiently large to offset all the annual turbine NO_x emissions (51 tons per year).

Therefore, the permanent retirement of Brayton Point 1-2-3 and repowering of Solutia Boiler 11 each satisfies the Ask for the remaining 11 turbines not covered by the most recent MassDEP RACT rule. Because the Solutia Boiler 11 repowering and Brayton Point 1-2-3 retirements offset over 100% of the emissions from the 11 turbines on HEDDs, they exceed the visibility improvement requirements of Ask 5. In

⁶⁵ Massachusetts Chapter 353 of the Acts of 1974.

addition, because MassDEP has permitted new units (e.g., Footprint 1/2, Canal 3, and West Medway 4/5) that are much cleaner than the 11 turbines, these new units likely will displace some of the power generating capacity of the older turbines units and thereby further reduce HEDD emissions from the turbines that do not meet Ask 5.

For the majority of combustion turbines identified in the Ask, the RACT levels adopted by Massachusetts comply with the minimum requested by this Ask. For those turbines that do not meet the minimum limits, MassDEP has identified alternative emission reductions obtained through the retirement of Brayton 1–2–3 and the repowering of Solution Boiler 11 that more than make up the difference. Therefore, EPA proposes to find that Massachusetts reasonably concluded that its existing regulations comply with Ask 5.

Finally, with regard to Ask 6, Massachusetts has taken numerous actions to decrease energy demand through energy efficiency and has been named the most energy efficient state in the nation by the American Council for an Energy-Efficient Economy (ACEEE) for nine consecutive years. The EPA is proposing to find that Massachusetts has satisfied Ask 6's request to consider and report in its SIP measures or programs related to energy efficiency, cogeneration, and other clean distributed generation technologies.

In sum, the EPA is proposing to find—based on Massachusetts' participation in the MANE–VU planning process, how it has addressed the Asks, and the EPA's assessment of Massachusetts' emissions and point sources—that Massachusetts has complied with the requirements of § 51.308(f)(2)(i). Specifically, Massachusetts's application of MANE–VU Asks 1, 2, and 3 engages with the requirement that states evaluate and determine the emission reduction measures necessary to make reasonable progress by considering the four statutory factors.

EPA is proposing to find the state's approach meets the regulatory requirements for several reasons. Massachusetts reasonably evaluated and explained its decision to focus on SO₂ and NO_x to address visibility impairment within the MANE–VU region. Massachusetts also adequately supported that decision through reasonable reliance on the MANE–VU technical analyses cited in its submission. In addition, Massachusetts selected the sources with the greatest modeled impacts on visibility and also adequately responded to comments to

consider sources identified by the FLMs through the consultation process. Massachusetts's submittal also includes four-factor analyses and demonstrates that the sources of SO₂ and NO_x within the state that would be expected to contribute to visibility impairment have small emissions of NO_x and SO₂, are subject to stringent SIP-approved emission control measures, or both. In addition, Massachusetts's SIP-approved sulfur in fuel rule sets stringent limits for sulfur content and SO₂ emissions for fuels. The Massachusetts SIP submittal also includes a plan approval for Canal Generating Station, requiring fuel oil purchased for EU1 be restricted to 0.3% sulfur content limit.

EPA proposes to find that Massachusetts's SIP submittal satisfies the requirements that states determine the emission reduction measures that are necessary to make reasonable progress by considering the four factors, and that their long-term strategies include the enforceable emission limitations, compliance schedules, and other measures necessary to make reasonable progress.

c. Additional Long-Term Strategy Requirements

The consultation requirements of § 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.

Massachusetts participated in and provided documentation of the MANE–VU intra- and inter-RPO consultation processes, which included consulting with both MANE–VU and non-MANE–VU states about emissions from Massachusetts reasonably anticipated to contribute to visibility impairment in Class I areas within the MANE–VU area and in adjacent areas. The consultations addressed developing coordinated emission management strategies containing the emission reductions necessary to make reasonable progress at the Class I areas. Massachusetts addressed the MANE–VU Asks by providing information on the measures

it has in place that satisfy each Ask.⁶⁶ While Massachusetts did not receive any requests from non-MANE–VU states to consider additional measures to address visibility impairment in Class I areas outside MANE–VU, MANE–VU documented disagreements that occurred during consultation. For instance, MANE–VU noted in its Consultation Report that upwind states expressed concern regarding the analyses the RPO utilized for the selection of states for the consultation. MANE–VU agreed that these tools, as all models, have their limitations, but nonetheless deemed them appropriate. Additionally, there were several comments regarding the choice of the 2011 modeling base year. MANE–VU agreed that the choice of base year is critical to the outcome of the study. MANE–VU acknowledged that there were newer versions of the emission inventories and the need to use the best available inventory for each analysis. However, MANE–VU disagreed that the choice of these inventories was not appropriate for the analysis. Additionally, upwind states noted that they would not be able to address the MANE–VU Asks until they finalize their SIPs. MANE–VU believed the assumption of the implementation of the Asks from upwind states in its 2028 control case modeling was reasonable, and Massachusetts included both the 2028 base case and control case modeling results in its SIP, representing visibility conditions at Acadia National Park (Maine) assuming upwind states do not and do implement the Asks, respectively.

In sum, Massachusetts participated in the MANE–VU intra- and inter-RPO consultation and included in its SIP submittal the measures identified and agreed to during those consultations, thereby satisfying § 51.308(f)(2)(ii)(A) and (B). Massachusetts satisfied § 51.308(f)(2)(ii)(C) by participating in MANE–VU's consultation process, which documented the disagreements between the upwind states and MANE–VU and explained MANE–VU's reasoning on each of the disputed issues. Based on the entirety of MANE–VU's intra- and inter-RPO consultation and MANE–VU's and Massachusetts' responses to comments on the SIP submission and various technical analyses therein, we propose to determine that Massachusetts has satisfied the consultation requirements of § 51.308(f)(2)(ii).

The documentation requirement of § 51.308(f)(2)(iii) provides that states

⁶⁶ See Appendix 20 “MANE–VU Regional Haze Consultation Report.”

may meet their obligations to document the technical bases on which they are relying to determine the emission reductions measures that are necessary to make reasonable progress through an RPO, as long as the process has been “approved by all State participants.” As explained above, Massachusetts chose to rely on MANE–VU’s technical information, modeling, and analysis to support development of its long-term strategy. The MANE–VU technical analyses on which Massachusetts relied are listed in the state’s SIP submission and include source contribution assessments, information on each of the four factors and visibility modeling information for certain EGUs, and evaluations of emission reduction strategies for specific source categories. Massachusetts also provided supplemental information to further demonstrate the technical bases and emission information on which it relied on to determine the emission reductions measures that are necessary to make reasonable progress. Based on the documentation provided by the state, we propose to find Massachusetts satisfies the requirements of § 51.308(f)(2)(iii).

Section 51.308(f)(2)(iii) also requires that the emissions information considered to determine the measures that are necessary to make reasonable progress include information on emissions for the most recent year for which the state has submitted triennial emissions data to the EPA (or a more recent year), with a 12-month exemption period for newly submitted data. Massachusetts’ SIP submission included 2017 National Emissions Inventory (NEI) data for NO_x, SO₂, PM, VOCs and NH₃ and 2017 Air Markets Program Data (AMPD) emissions for NO_x and SO₂. Based on Massachusetts’ consideration and analysis of the 2017 and 2019 emission data in their SIP submittal, the EPA proposes to find that Massachusetts has satisfied the emissions information requirement in 51.308(f)(2)(iii).

We also propose to find that Massachusetts reasonably considered the five additional factors in § 51.308(f)(2)(iv) in developing its long-term strategy. Pursuant to § 51.308(f)(2)(iv)(A), Massachusetts noted that existing and ongoing state and federal emission control programs that contribute to emission reductions through 2028 would impact emissions of visibility impairing pollutants from point and nonpoint sources in the second implementation period. Massachusetts included in its SIP a comprehensive lists of control measures identifying the source category and

corresponding Code of Massachusetts Regulations provisions.⁶⁷

Massachusetts’ consideration of measures to mitigate the impacts of construction activities as required by § 51.308(f)(2)(iv)(B) includes, in section 6.6 of its SIP submission, measures that Massachusetts has implemented to mitigate the impacts from such activities. Massachusetts has implemented standards that reduce fugitive dust emissions from construction, rules to address exhaust emissions including rules to limit the idling of vehicles and equipment, rules to reduce allowable smoke from on-road diesel engines, and general conformity rules.

Pursuant to § 51.308(f)(2)(iv)(C), source retirements and replacement schedules are addressed in section 6.7 of Massachusetts’ submission. Source retirements and replacements were considered in developing the 2028 emission projections, with on the books/ on the way retirements and replacements included in the 2028 projections. The EGU point sources included in the inventories used in the MANE–VU contribution assessment and that were subsequently retired are described in Section 4 of the Massachusetts’ submission.

In considering smoke management as required in 40 CFR 51.308(f)(2)(iv)(D), Massachusetts explained, in section 6.8 of its submission, that it addresses smoke management through its air regulation at 310 CMR 7.07, which bans open burning in 22 urban municipalities and prohibits the use of open burning to clear commercial or institutional land for non-agricultural purposes. Prescribed burning is allowed upon specific permission from MassDEP. Massachusetts considers these efforts to be sufficient to protect visibility in the Class I areas affected by emission from Massachusetts source, including agricultural and forestry smoke.

Massachusetts considered the anticipated net effect of projected changes in emissions as required by 51.308(f)(2)(iv)(E) by discussing, in Section 6.9 of its submission, the photochemical modeling for the 2018–2028 period it conducted in collaboration with MANE–VU. The two modeling cases run were a 2028 base case, which considered only on-the-books controls, and a 2028 control case that considered implementation of the MANE–VU Ask. The results of that modeling are shown as RPGs on the graphs in Section 2 and detailed in the presentation of RPGs in the MANE–VU

visibility report. The 2028 inventory projections demonstrate a substantial reduction in emissions. The modeling shows that projected visibility at all potentially impacted Class I areas will remain well below the URP line in 2028 for the most impaired days and that there will be no degradation in visibility for the least impaired days.

Because Massachusetts has reasonably considered each of the five additional factors, the EPA proposes to find that Massachusetts has satisfied the requirements of 40 CFR 51.308(f)(2)(iv).

F. Reasonable Progress Goals

Section 51.308(f)(3) contains the requirements pertaining to RPGs for each Class I area. Because Massachusetts does not host a Class I area, it is not subject to either § 51.308(f)(3)(i) or 51.308(f)(3)(ii)(A). Section 51.308(f)(3)(ii)(B) requires that, if a state contains sources that are reasonably anticipated to contribute to visibility impairment in a Class I area in *another* state and the RPG for the most impaired days in that Class I area is above the URP, the upwind state must provide the same demonstration.

Table 2–1 of Massachusetts’ SIP submittal summarizes baseline visibility conditions (*i.e.*, visibility conditions during the baseline period) for the most impaired and clearest days and the 2028 RPG for the most impaired days for Class I areas in or adjacent to the MANE–VU Region, as well as information on natural visibility conditions, the rate of progress described by the URP in 2017 and 2028, and the modeled 2028 base case (representing visibility conditions in 2028 with existing controls). These visibility conditions, as well as the 2028 reasonable progress goal for the clearest days, are also included in Appendix 21 of Massachusetts’ SIP submission. As noted in the submission, the RPGs for all of the Class I areas in or adjacent to the MANE–VU region are well below their respective URP glidepaths. Therefore, § 51.308(f)(3)(ii)(B) is not applicable to Massachusetts.

G. Monitoring Strategy and Other Implementation Plan Requirements

Section 51.308(f)(6) specifies that each comprehensive revision of a state’s regional haze SIP must contain or provide for certain elements, including monitoring strategies, emissions inventories, and any reporting, recordkeeping and other measures needed to assess and report on visibility. Since Massachusetts does not contain any Class I areas, it is not required to submit the monitoring strategy referenced in 51.308(f)(6), nor

⁶⁷ See tables 6–13 of the MassDEP Regional Haze SIP—Final July 2021.

are the requirements in 51.308(f)(6)(i), (ii), and (iv) applicable.

40 CFR 51.308(f)(6)(iii), however, applies to states with no Class I areas (such as Massachusetts) and requires them to include in their Regional Haze SIPs procedures by which monitoring data and other information are used in determining the contribution of emissions from within the state to visibility impairment at Class I areas in other states. Monitoring in Massachusetts that contributes data for assessing visibility is described in section 2.1 of the Massachusetts SIP submission. Visibility data analysis procedures are described in the MANE-VU visibility data report.⁶⁸ Other procedures and data used for determining Massachusetts contribution to visibility impairment are described in section 5 of the Massachusetts SIP and the MANE-VU documents referenced. Two IMPROVE monitors in Massachusetts provide data to assess current visibility, track changes in visibility, and help determine the causes of visibility impairment in Class I areas in the region.

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.

Massachusetts provides for emissions inventories and estimates for future projected emissions by participating in the MANE-VU RPO and complying with EPA's Air Emissions Reporting Rule (AERR). In 40 CFR part 51, subpart A, the AERR requires states to submit updated emissions inventories for criteria pollutants to EPA's Emissions Inventory System (EIS) every three years. The emission inventory data is used to develop the NEI, which provides for, among other things, a triennial state-wide inventory of pollutants that are reasonably anticipated to cause or contribute to visibility impairment.

Section 4 of Massachusetts' submission includes tables of NEI data. The source categories of the emissions inventories included are: (1) Point sources, (2) nonpoint sources, (3) non-road mobile sources, and (4) on-road mobile sources. The point source category is further divided into AMPD

point sources and non-AMPD point sources. Massachusetts included NEI emissions inventories for the following years: 2002 (one of the regional haze program baseline years), 2008, 2011, 2014, and 2017; and for the following pollutants: SO₂, NO_x, PM₁₀, PM_{2.5}, VOCs, and NH₃.

Section 51.308(f)(6)(v) also requires states to include estimates of future projected emissions and include a commitment to update the inventory periodically. Massachusetts relied on the MANE-VU 2028 emissions projections for MANE-VU states. MANE-VU completed two 2028 projected emissions modeling cases—a 2028 base case that considers only on-the-books controls and a 2028 control case that considers implementation of the MANE-VU Asks.⁶⁹

The EPA proposes to find that Massachusetts has met the requirements of 40 CFR 51.308(f)(6) as described above, including through its continued participation in the MANE-VU RPO and its on-going compliance with the AERR, and that no further elements are necessary at this time for Massachusetts to assess and report on visibility pursuant to 40 CFR 51.308(f)(6)(vi). Massachusetts' SIP submittal also includes a commitment to update the statewide emissions inventory periodically.

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 RPGs for any 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, § 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 that 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.

Massachusetts' submission describes the status of measures of the long-term strategy from the first implementation period. As a member of MANE-VU, Massachusetts considered the MANE-VU Asks and adopted corresponding measures into its long-term strategy for the first implementation period. The MANE-VU Asks were: (1) Timely implementation of Best Available Retrofit Technology (BART) requirements; (2) EGU controls including Controls at 167 Key Sources that most affect MANE-VU Class I areas; (3) Low sulfur fuel oil strategy; and (4) Continued evaluation of other control measures. Massachusetts met all the identified reasonable measures requested during the first implementation period. During the first planning period for regional haze, programs that were put in place focused on reducing SO₂ emissions. The reductions achieved led to vast improvements in visibility at the MANE-VU Federal Class I Areas due to reduced sulfates formed from SO₂ emissions. Massachusetts describes the control measures that help control the emissions of VOCs, NO_x, PM and SO₂ from a wide range of sources in Section 3 of the Massachusetts' SIP submission and identifies BART and Alternative to BART requirements in Table 3–1. The state included periodic emission data that demonstrate a decrease in VOCs, NO_x, PM and SO₂ emissions throughout the state.

The EPA proposes to find that Massachusetts has met the requirements of 40 CFR 51.308(g)(1) and (2) because its SIP submission describes the measures included in the long-term

⁶⁸ See Appendix 22 “Mid-Atlantic/Northeast U.S. Visibility Data, 2004–2019 (2nd RH SIP Metrics). MANE-VU (prepared by Maine Department of Environmental Protection). January 21, 2021 revision.”

⁶⁹ See appendix 21 “OTC MANE-VU 2011 Based Modeling Platform Support Document October 2018—Final.”

strategy from the first implementation period, as well as the status of their implementation and the emission reductions achieved through such implementation.

Pursuant to § 51.308(g)(4), in Section 4 of its submittal, Massachusetts provided a summary of emissions of NO_x, SO₂, PM₁₀, PM_{2.5}, VOCs, and NH₃ from all sources and activities, including from point, nonpoint, non-road mobile, and on-road mobile sources, for the time period from 2002 to 2017 in Section 4. With respect to sources that report directly to the EPA, Massachusetts also included AMPD state summary data for SO₂ and NO_x emissions for 2018 and 2019.

The reductions achieved by Massachusetts emission control measures are seen in the emissions inventory. Based on Massachusetts' SIP submission, NO_x emissions have continuously declined in Massachusetts from 2002 through 2017, especially in the point, nonroad and onroad mobile sectors. NO_x emissions are expected to continue to decrease as fleet turnover occurs and the older more polluting vehicles and equipment are replaced by newer, cleaner ones. Emissions of SO₂ have shown a decline of 96% in Massachusetts over the period 2002 to 2017, particularly in the point, nonroad and onroad mobile sectors. Massachusetts attributes the reductions in point emissions to controls on EGUs that were part of the first implementation period, fuel switching from coal and oil to natural gas, MassDEP's low sulfur fuel rule, and the retirement of several large older coal and oil burning EGUs in the state. Since some components of the MANE-VU low sulfur fuel strategy were not implemented until 2018, and as MANE-VU states continue to adopt rules to implement the strategy, additional SO₂ emissions reductions have likely been obtained since 2017 and are expected to continue into the future.

In Massachusetts' submission, table 4–3 shows a summary of PM₁₀ emissions from all NEI data categories point, nonpoint, non-road, and onroad for the period from 2002 to 2017 in Massachusetts. In Massachusetts, PM₁₀ emissions steadily decreased in the point, nonpoint, and nonroad categories for the period from 2002 to 2017. The apparent increase in the onroad emissions is due to changes in emission inventory calculation methodologies, which resulted in higher particulate matter estimates. The variation in emissions in the nonpoint category is due to changes in calculation methodologies for residential wood

burning and fugitive dust categories, which have varied significantly.

Table 4–4 of Massachusetts' submission shows a summary of PM_{2.5} emissions from all NEI data categories for the period from 2002 to 2017 in Massachusetts. PM_{2.5} emissions steadily decreased in the nonroad category for the period from 2002 to 2014. The majority of reductions came from the nonpoint category, which Massachusetts attributes to fuel combustion switching from oil to natural gas. The decrease in nonroad PM_{2.5} emissions is because of Federal new engine standards for nonroad vehicles and equipment. There is an overall decrease in onroad emissions due to Federal and State regulations. The increase in emissions in the onroad category from 2002 to 2008 is due to changes in emission inventory calculation methodologies and a model change, as previously explained, which resulted in higher fine particulate matter estimates.

Table 4–7 of Massachusetts' submission shows VOC emissions from all NEI data categories for the period 2002 to 2017 in Massachusetts. VOC emissions have shown a steady decline in Massachusetts over this period. VOC decreases were achieved in all sectors due to Federal new engine standards for onroad and nonroad vehicles and equipment, the National and State low emission vehicle programs, SIP-approved area source rules such as consumer products, portable fuel containers, paints, autobody refinishing, asphalt paving applications, and solvent cleaning operations, and point source controls.

Table 4–8 of Massachusetts' submission shows ammonia (NH₃) emissions from all NEI data categories for the period 2002 to 2017 in Massachusetts. Ammonia decreases were achieved in the onroad sector due to Federal new engine standards for vehicles and equipment. Nonpoint increases and decreases from 2002 to 2017 are due to reporting, grouping and methodology changes. There was little change to nonroad ammonia emissions. Overall, ammonia emissions have decreased from 2008 to 2017.

The EPA is proposing to find that Massachusetts has satisfied the requirements of § 51.308(g)(4) by providing emissions information for NO_x, SO₂, PM₁₀, PM_{2.5}, VOCs, and NH₃ broken down by type of source.

Massachusetts uses the emissions trend data in the SIP submission to support the assessment that anthropogenic haze-causing pollutant emissions in Massachusetts have decreased during the reporting period and that changes in emissions have not

limited or impeded progress in reducing pollutant emissions and improving visibility. The data Massachusetts presents for NO_x, SO₂, PM₁₀, PM_{2.5}, VOCs, and NH₃ show consistently declining emissions of those pollutants. Massachusetts concludes that no significant changes have occurred that have impeded progress in reducing emissions and improving visibility during the reporting period. The EPA is proposing to find that Massachusetts has met the requirements of § 51.308(g)(5).

I. Requirements for State and Federal Land Manager Coordination

Section 169A(d) of the Clean Air Act requires states to consult with FLMs before holding the public hearing on a proposed regional haze SIP, and to include a summary of the FLMs' conclusions and recommendations in the notice to the public. In addition, 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, but 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 requires that the consultation include the opportunity for the FLMs to discuss their assessment of visibility impairment in any Class I area and their recommendations on the development and implementation of strategies to address visibility impairment. Section 51.308(i)(3) requires states, in developing their implementation plans, to include a description of how they addressed FLMs' comments.

The states in the MANE-VU RPO conducted FLM consultation early in the planning process concurrent with the state-to-state consultation that formed the basis of the RPO's decision making process. As part of the consultation, the FLMs were given the opportunity to review and comment on the technical documents developed by MANE-VU. The FLMs were invited to attend the intra- and inter-RPO consultations calls among states and at least one FLM representative was documented to have attended seven intra-RPO meetings and all inter-RPO

meetings. Massachusetts participated in these consultation meetings and calls.⁷⁰

As part of this early engagement with the FLMs, on April 12, 2018, the NPS sent letters to the MANE–VU states requesting that they consider specific individual sources in their long-term strategies.⁷¹ NPS used an analysis of emissions divided by distance (Q/d) to estimate the impact of MANE–VU facilities. To select the facilities, NPS first summed 2014 NEI NO_x, PM₁₀, SO₂, and SO₄ emissions and divided by the distance to a specified NPS mandatory Class I Federal area. NPS summed the Q/d values across all MANE–VU states relative to Acadia, Mammoth Cave and Shenandoah National Parks, ranked the Q/d values relative to each Class I area, created a running total, and identified those facilities contributing to 80% of the total impact at each NPS Class I area. NPS applied a similar process to facilities in Maine but relative to just Acadia National Park. NPS merged the resulting lists of facilities and sorted them by their states. NPS suggested that a state consider those facilities comprising 80% of the Q/d total, not to exceed the 25 top ranked facilities. The NPS identified 10 facilities in Massachusetts in this letter.⁷² Massachusetts included the NPS initial letter in its proposed SIP.⁷³ In a subsequent letter dated October 22, 2018, NPS identified four municipal waste combustor facilities for which more control information was desired.⁷⁴ Massachusetts detailed the emission controls and updates to the facilities to address the NPS's request for more information, as discussed previously.⁷⁵

On November 13, 2020, Massachusetts submitted a draft Regional Haze SIP to the U.S. Forest Service, the U.S. Fish and Wildlife Service, and the National Park Service for a 60-day review and comment period pursuant to 40 CFR 51.308(i)(2). Massachusetts received comments from the Forest Service and from the National Park Service by January 15, 2021. Massachusetts responded to the FLM comments and included a summary of the responses in Section 7.3 of its submission to EPA, in accordance with § 51.308(i)(3). In satisfaction of § 51.308(i)(4), Massachusetts explains that it will continue to consult with the FLMs through MANE–VU's planning

process (including participation in regular Technical Support Committee meetings that include FLM participation in the development of progress reports and the regional strategy for future RH SIP revisions), MassDEP regulatory and permit notification emails (which provide notification of air quality regulation amendments, SIP revisions, major new source review permits, ambient air monitoring plans), and MassDEP air quality advisory committee meetings.

On April 7, 2021, MassDEP issued a notice of public hearing and comments and the availability of the draft Regional Haze SIP revision for 2018–2028 on MassDEP's Public Notices and Hearings web page and on its SIP web page and emailed the notice to parties that have registered for the MassDEP public notice email list. The notice announced two video conference call public hearings on May 11, 2021 and the opportunity to submit written comments until May 14, 2021. Appendix 43 of the Massachusetts SIP submittal contains a summary of public comments received and MassDEP's responses.

For the reasons stated above, the EPA proposes to find that Massachusetts has satisfied the requirements under 40 CFR 51.308(i) to consult with the FLMs on its regional haze SIP for the second implementation period.

J. Other Required Commitments

Massachusetts' July 22, 2021, SIP submission includes a commitment to revise and submit a regional haze SIP in 2028, and every ten years thereafter. The state's commitment includes submitting periodic progress reports in accordance with § 51.308(f) and a commitment to evaluate progress towards the reasonable progress goal for 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 in accordance with § 51.308(g).

V. Proposed Action

The EPA is proposing to approve the “Massachusetts Regional Haze State Implementation Plan Revision for the Second Planning Period (2018–2028)”, submitted July 22, 2021 and “Regional Haze SIP Revision for Massachusetts—Supplement” source specific requirements for Canal Generating Station, submitted May 26, 2022 as collectively satisfying the regional haze requirements for the second implementation period contained in 40 CFR 51.308(f), (g), and (i).

VI. Incorporation by Reference

In this rule, the EPA is proposing to include in a final EPA rule regulatory text that includes incorporation by reference. In accordance with requirements of 1 CFR 51.5, the EPA is proposing to incorporate by reference “Regional Haze SIP Revision for Massachusetts—Supplement” source specific requirements for Canal Generating Station (Permit number 21–AQ02F–011–APP), submitted May 26, 2022. The EPA has made, and will continue to make, these documents generally available through <https://www.regulations.gov> and at the EPA Region 1 Office (please contact the person identified in the **FOR FURTHER INFORMATION CONTACT** section of this preamble 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, EPA's role is to approve state choices, provided that they meet the criteria of the CAA. Accordingly, this action merely proposes to approve state law as meeting Federal requirements and does not impose additional requirements beyond those imposed by state law. For that reason, this proposed action:

- Is not a “significant regulatory action” subject to review by the Office of Management and Budget under Executive Orders 12866 (58 FR 51735, October 4, 1993) and 13563 (76 FR 3821, January 21, 2011);
- 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 an economically significant regulatory action based on health or safety risks subject to Executive Order 13045 (62 FR 19885, April 23, 1997);
- Is not a significant regulatory action subject to Executive Order 13211 (66 FR 28355, May 22, 2001); and

⁷⁰ See Appendix 20 “MANE–VU Regional Haze Consultation Report and Consultation Documentation—Final.”

⁷¹ *Id.*

⁷² *Id.*

⁷³ *Id.*

⁷⁴ See Appendices 24 and 25.

⁷⁵ See Appendix 43, “Summary of Public Comments and MassDEP Responses” at page 6.

• 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, this proposed rulemaking action, pertaining to Massachusetts regional haze SIP submission for the second planning period, is not approved to apply on any Indian reservation land or in any other area where the EPA or an Indian tribe has demonstrated that a tribe has jurisdiction. In those areas of Indian country, the rule does not have tribal implications and will not impose substantial direct costs on tribal governments or preempt tribal law as specified by Executive Order 13175 (65 FR 67249, November 9, 2000).

Executive Order 12898 (Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations, 59 FR 7629, Feb. 16, 1994) directs Federal agencies to identify and address “disproportionately high and adverse human health or environmental effects” of their actions on minority populations and low-income populations to the greatest extent practicable and permitted by law. EPA defines environmental justice (EJ) as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.” EPA further defines the term fair treatment to mean that “no group of people should bear a disproportionate burden of environmental harms and risks, including those resulting from the negative environmental consequences of industrial, governmental, and commercial operations or programs and policies.” The air agency did not evaluate environmental justice considerations as part of its SIP submittal; the CAA and applicable implementing regulations neither prohibit nor require such an evaluation. EPA did not perform an EJ analysis and did not consider EJ in this action. Consideration of EJ is not required as part of this action, and there is no information in the record inconsistent with the stated goal of E.O. 12898 of achieving environmental justice for people of color, low-income populations, and Indigenous peoples.

List of Subjects in 40 CFR Part 52

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

Dated: December 20, 2023.

David Cash,

Regional Administrator, Region 1.

[FR Doc. 2023–28573 Filed 1–9–24; 8:45 am]

BILLING CODE 6560–50–P

DEPARTMENT OF THE INTERIOR

Office of the Secretary

43 CFR Part 2

[DOI–2023–0027; DS65100000
DWSN00000.000000 24XD4523WS
DP.65102]

RIN 1090–AB28

Privacy Act Regulations; Exemption for the Law Enforcement Records Management System

AGENCY: Office of the Secretary, Interior.

ACTION: Notice of proposed rulemaking.

SUMMARY: The Department of the Interior (DOI, Department) is proposing to amend its regulations to exempt certain records in the INTERIOR/DOI–10, DOI Law Enforcement Records Management System (LE RMS), system of records from one or more provisions of the Privacy Act of 1974 because of criminal, civil, and administrative law enforcement requirements.

DATES: Submit comments on or before March 11, 2024.

ADDRESSES: You may submit comments, identified by docket number [DOI–2023–0027] or Regulatory Information Number (RIN) Number 1090–AB28, by any of the following methods:

- *Federal eRulemaking Portal:*

<https://www.regulations.gov>. Follow the instructions for sending comments.

- *Email:* DOI_Privacy@ios.doi.gov.

Include docket number [DOI–2023–0027] or RIN 1090–AB28 in the subject line of the message.

- *U.S. mail or hand-delivery:* Teri Barnett, Departmental Privacy Officer, U.S. Department of the Interior, 1849 C Street NW, Room 7112, Washington, DC 20240.

Instructions: All submissions received must include the agency name and docket number [DOI–2023–0027] or RIN 1090–AB28 for this rulemaking. All comments received will be posted without change to <https://www.regulations.gov>, including any personal information provided.

Docket: For access to the docket to read background documents or comments received, go to <https://www.regulations.gov>.

FOR FURTHER INFORMATION CONTACT: Teri Barnett, Departmental Privacy Officer,

U.S. Department of the Interior, 1849 C Street NW, Room 7112, Washington, DC 20240, DOI_Privacy@ios.doi.gov or (202) 208–1605. In compliance with the Providing Accountability Through Transparency Act of 2023, the plain language summary of the proposal is available on [Regulations.gov](https://www.regulations.gov) in the docket for this rulemaking.

SUPPLEMENTARY INFORMATION:

Background

The Privacy Act of 1974, as amended, 5 U.S.C. 552a, governs the means by which the U.S. Government collects, maintains, uses, and disseminates personally identifiable information. The Privacy Act applies to information about individuals that is maintained in a “system of records.” A system of records is a group of any records under the control of an agency from which information about an individual is retrieved by the name of the individual or by some identifying number, symbol, or other identifying particular assigned to the individual. See 5 U.S.C. 552a(a)(4) and (5).

Individuals may request access to records containing information about themselves under the Privacy Act of 1974, 5 U.S.C. 552a(b), (c) and (d). However, the Privacy Act authorizes Federal agencies to exempt systems of records from access by individuals under certain circumstances, such as where the access or disclosure of such information would impede national security or law enforcement efforts. Exemptions from Privacy Act provisions must be established by regulation pursuant to 5 U.S.C. 552a(j) and (k).

The DOI Office of Law Enforcement and Security (OLES) maintains the INTERIOR/DOI–10, DOI Law Enforcement Records Management System (LE RMS), system of records to help DOI and its law enforcement bureaus and offices carry out responsibilities to prevent, detect, and investigate known and suspected criminal activity; detain and apprehend those committing crimes on DOI properties or Tribal reservations; manage investigations and law enforcement activities including use of force, critical incidents, property damage claims, traffic accidents, and domestic issues; and prevent visitor accidents or injuries on DOI properties or Tribal reservations. The system also contains statements and records of complaints, reports, correspondence from or about complainants, subjects, and victims of law enforcement investigations. Accordingly, records in the system are used during investigations and law enforcement activities and related criminal