



## 40 CFR Part 52

[EPA-R03-OAR-2020-0703; FRL-10021-94-Region 3]

**Approval and Promulgation of Air Quality Implementation Plans;  
District of Columbia; Regional Haze State Implementation Plan for the Second  
Implementation Period and Reasonably Available Control Technology for Major  
Stationary Sources of Nitrogen Oxides; Technical Amendment**

**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) submitted by the District of Columbia (“the District” or “DC”) through the Department of Energy and Environment (DOEE) on November 8, 2019, as satisfying applicable requirements under the Clean Air Act (CAA) and EPA’s Regional Haze Rule (RHR) for the program’s second implementation period. The District’s 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 in mandatory Class I Federal areas, including regional haze. EPA is taking this action pursuant to sections 110 and 169A of the CAA. EPA is also proposing to correct an error in the citations in our final approval of the District’s revision to the Reasonably Available Control Technology for Major Stationary Sources of Nitrogen Oxides Rule (“DC NO<sub>x</sub> RACT rule”) according to our authority under Section 110(k)(6) of the CAA.

**DATES:** Written comments must be received on or before **[insert date 30 days after date of publication in the Federal Register]**.

**ADDRESSES:** Submit your comments, identified by Docket ID No. EPA-R03-OAR-2020-0703 at <https://www.regulations.gov>, or via email to [talley.david@epa.gov](mailto:talley.david@epa.gov). For comments

submitted at Regulations.gov, follow the online instructions for submitting comments. Once submitted, comments cannot be edited or removed from Regulations.gov. For either manner of submission, EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be confidential business information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. EPA will generally not consider comments or comment contents located outside of the primary submission (i.e. on the web, cloud, or other file sharing system). For additional submission methods, 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:** Erin Trouba, Planning & Implementation Branch (3AD30), Air & Radiation Division, U.S. Environmental Protection Agency, Region III, 1650 Arch Street, Philadelphia, Pennsylvania 19103. The telephone number is (215) 814-2023. Ms. Trouba can also be reached via electronic mail at [trouba.erin@epa.gov](mailto:trouba.erin@epa.gov).

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### I. What Action is EPA Proposing?

On November 8, 2019, DC DOEE submitted a revision to its SIP to address regional haze for the second implementation period (“DC DOEE 2019 Regional Haze SIP submission”). DC DOEE 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. EPA is proposing to find that the DC DOEE 2019 Regional Haze SIP submission meets the applicable statutory and regulatory requirements and thus proposes to approve the District’s submission into its SIP.

EPA is also proposing to correct an error in the citations of the regulatory provisions in our final rule (FRN) and identification of plan of the DC NO<sub>x</sub> RACT rule (February 24, 2020, 85 FR 10295) according to our authority to make corrections to prior SIP actions under Section 110(k)(6) of the CAA.

### 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.<sup>1</sup> 42 U.S.C. 7491. 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.” 42 U.S.C. 7491(a)(1). The CAA further directs EPA to promulgate regulations to assure reasonable progress toward meeting this national

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<sup>1</sup> Areas statutorily designated as mandatory Class I Federal areas consist of national parks exceeding 6,000 acres, wilderness areas and national memorial parks exceeding 5,000 acres, and all international parks that were in existence on August 7, 1977. 42 U.S.C. 7472(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.

goal. 42 U.S.C. 7491(a)(4). On December 2, 1980, 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. These regulations, codified at 40 CFR 51.300 through 51.307, represented the first phase of EPA’s efforts to address visibility impairment. In 1990, Congress added section 169B to the CAA to further address visibility impairment, specifically, impairment from regional haze. 42 U.S.C. 7492. EPA promulgated the RHR, codified at 40 CFR 51.308,<sup>2</sup> on July 1, 1999. 64 FR 35714. These regional haze regulations are a central component of EPA’s comprehensive visibility protection program for Class I areas.

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

To address regional haze visibility impairment, the 1999 RHR established an iterative planning process that requires 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

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

<sup>3</sup> There are several ways to measure the amount of visibility impairment, i.e., haze. One such measurement is the deciview, which is the principle 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<sup>-1</sup>). The 2019 RHR 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. The formula for the deciview is  $10 \ln (b^{ext}/10 \text{ Mm}^{-1})$ . 40 CFR 51.301.

visibility” in a Class I area to periodically submit SIP revisions to address regional haze visibility impairment. 42 U.S.C. 7491(b)(2); 40 CFR 51.308(b) and (f); see also 64 FR 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,” 42 U.S.C. 7491(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). 42 U.S.C. 7491(b)(2)(A); 40 CFR 51.308(d) and (e). States’ first regional haze SIPs were due by December 17, 2007, 40 CFR 51.308(b), with subsequent SIP submissions containing revised long-term strategies originally due July 31, 2018, and every ten years thereafter. 64 FR 35768, July 1, 1999. 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.<sup>4</sup> 64 FR 35721, July 1, 1999.

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. 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 visibility conditions at the end of the implementation period. 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

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<sup>4</sup> In addition to each of the fifty states, EPA also concluded that the Virgin Islands and District of Columbia contain a Class I area and/or contain sources whose emissions are reasonably anticipated to contribute regional haze in a Class I area. See 40 CFR 51.300(b) and (d)(3).

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. 42 U.S.C. 7491(g)(1); 40 CFR 51.308(d)(1).

States were also required to calculate baseline (using the five year period of 2000-2004)<sup>5</sup> 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.<sup>6</sup> 40 CFR 51.308(d)(1)(i)(B) and (d)(2). The 1999 RHR also provided that States must submit long-term strategies that include the “enforceable emissions limitations, compliance, schedules, and other measures as necessary to achieve the reasonable progress goals,” *id.* at 40 CFR 51.308(d)(3), and required that, in establishing their long-term strategies, states consult with other states that also contribute to visibility impairment in a Class I area and include all measures necessary to obtain their shares of the emission reductions needed to meet the RPGs. *Id.* at 40 CFR 51.308(d)(3)(i) and (ii). Section 51.308(d) also contains seven additional factors states must consider in formulating their long-term strategies, *id.* at 40 CFR 51.308(d)(3)(v), as well as provisions governing monitoring and other implementation plan requirements, *id.* at 40 CFR

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<sup>5</sup> Additional information on the five-year average baseline calculation requirement in 40 CFR 51.308(f)(1)(i) is contained in: “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.” EPA Office of Air Quality Planning and Standards, Research Triangle Park (June 3, 2020). *Available at:* <https://www.epa.gov/visibility/memo-and-technical-addendum-ambient-data-usage-and-completeness-regional-haze-program>.

<sup>6</sup> 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 endpoint for the URP analysis 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 2064. However, EPA did not establish 2064 as the year by which the national goal *must* be reached. 64 FR 35731-32, July 1, 1999. 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 3084, January 10, 2017.

51.308(d)(4). Finally, the 1999 RHR required states to submit periodic progress reports—SIP revisions due every five years that contain information on states’ implementation of their regional haze plans and an assessment of whether anything additional is needed to make reasonable progress, see 40 CFR 51.308(g) and (h)—and to consult with the Federal Land Manager(s)<sup>7</sup> (FLMs) responsible for each Class I area according to the requirements in 42 U.S.C. 7491(d) and 40 CFR 51.308(i).

On January 10, 2017, EPA promulgated revisions to the RHR that apply for the second and subsequent implementation periods. 82 FR 3078. The 2017 rule 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 rule (referred to here as the 2017 RHR Revisions) are codified at 40 CFR 51.308(f). Among other changes relative to the first period requirements, 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. 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.

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

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<sup>7</sup> 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.



guidance documents. In August 2019, EPA issued “Guidance on Regional Haze State Implementation Plans for the Second Implementation Period” (“2019 Guidance”).<sup>8</sup> Additionally, 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”<sup>9</sup> (2018 Visibility Tracking Guidance), 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.<sup>10</sup>

## **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), which include representation from state and tribal governments, 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

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

<sup>9</sup> Technical Guidance on Tracking Visibility Progress for the Second Implementation Period of the Regional Haze Program. *Available at:* <https://www.epa.gov/visibility/technical-guidance-tracking-visibility-progress-second-implementation-period-regional> EPA Office of Air Quality Planning and Standards, Research Triangle Park. (December 20, 2018).

<sup>10</sup> 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. *Available at:* <https://www.epa.gov/visibility/memo-and-technical-addendum-ambient-data-usage-and-completeness-regional-haze-program> EPA Office of Air Quality Planning and Standards, Research Triangle Park (June 3, 2020).

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 non-voting 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<sup>11</sup>**

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 (ten to fifteen years) 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. 42 U.S.C. 7491(b)(2)(B). To this end, 40 CFR 51.308(f) lays out the process by which states determine what constitutes their long-term strategies, with the order of the requirements in 40 CFR 51.308(f)(1) through (3) generally mirroring the order of the steps in the reasonable progress analysis<sup>12</sup> and (f)(4) through (6) containing additional, related requirements. Broadly speaking, a state first must identify the

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<sup>11</sup> Note that this section provides a narrative description of the RHR. The actual legal requirements against which SIP submissions for the second implementation period are evaluated are those contained in CAA sections 169A and 40 CFR 51.308(f).

<sup>12</sup> 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 40 CFR 51.308(d), "tracked the actual planning sequence." 82 FR 3091 (January 10, 2017).

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) introductory text and (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. Reasonable progress is determined by applying the four factors in CAA section 169A(g)(1) to a set of sources of visibility-impairing pollutants the state has selected to assess for controls for the second implementation period. See 40 CFR 51.308(f)(2). After a state has developed its long-term strategy, including by determining what level of control for visibility-impacting sources represents reasonable progress, 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 uniform rate of progress to ensure that progress is being made towards the statutory goal of preventing any future and remedying any existing visibility impairment in Class I areas. *Id.* 40 CFR 51.308(f)(3).

In addition to satisfying the requirements at 40 CFR 51.308(f) related to reasonable progress, the SIP submissions due by July 31, 2021, for the second implementation period must address the requirements in 40 CFR 51.308(g)(1) through (5) pertaining to periodic reports describing progress towards the RPGs, 40 CFR 51.308(f)(5), as well as requirements for FLM consultation that apply to all visibility protection SIPs and SIP revisions. 40 CFR 51.309(i). A

state must submit its regional haze SIP and subsequent SIP revisions to EPA according to the requirements applicable to all SIP revisions under the CAA and EPA's regulations. See 42 U.S.C. 7491(b)(2); 7410(a). Upon EPA approval, a SIP is enforceable by the Agency and the public under the CAA. If EPA finds that a state fails to make a required SIP revision, or if EPA finds that a state's SIP is incomplete or if disapproves the SIP, the Agency must promulgate a federal implementation plan (FIP) that satisfies the applicable requirements. 42 U.S.C. 7410(c)(1).

#### **A. Identification of Class I Areas**

The SIP revision submission due by July 31, 2021, "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." 40 CFR 51.308(f); see also 40 CFR 51.308(f)(2).<sup>13</sup> Thus, the first step in developing a regional haze SIP is for a state to determine which Class I areas, in addition to those within its borders, "may be affected" by emissions from within the state. In the 1999 RHR, EPA determined that all states contribute to visibility impairment in at least one Class I area (64 FR 35720-22, July 1, 1999) 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 assessment 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

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<sup>13</sup> The RHR uses the phrase "that may be affected by emissions from the State" to implement CAA 169A(b)(2)'s requirement that a state "the emissions from which may reasonably be anticipated to cause or contribute to any impairment of visibility" submit a SIP.

implementation period. 2019 Guidance at 8-9. As explained below, the determination of which Class I areas may be affected by a state's emissions is subject to the requirement in 40 CFR 51.308(f)(2)(iii) to "document the technical basis, including modeling, monitoring, cost, engineering, and emissions information, on which the State is relying to determine the emission reduction measures that are necessary to make reasonable progress in each mandatory Class I Federal area it affects."

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

As part of assessing whether a proposed SIP submission for the second implementation period is providing for reasonable progress towards the national visibility goal, the RHR contains requirements in 40 CFR 51.308(f)(1) related to tracking visibility improvement over time. The requirements of this 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 Guidance<sup>14</sup> provides recommendations to assist states in satisfying their obligations under 40 CFR 51.308(f)(1), specifically, in developing information on baseline, current, and natural visibility conditions, and in making optional adjustments to the URP to account for the impacts of international anthropogenic emissions. See 82 FR 3103-05 (January 10, 2017).

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

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<sup>14</sup> The 2018 Visibility Tracking Guidance references and relies on parts of the 2003 Tracking Guidance: "Guidance for Tracking Progress Under the Regional Haze Rule," available at: <https://www.epa.gov/visibility/guidance-tracking-progress-under-regional-haze-rule>.

calendar year with the highest amounts of anthropogenic visibility impairment).<sup>15</sup> 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) and (iii). States must also calculate natural visibility conditions for the clearest and most impaired days,<sup>16</sup> 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, 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.<sup>17</sup> Additionally, in the 2017 RHR Revision, EPA provided states the option of proposing to adjust the end-point of the URP to account for impacts of anthropogenic sources outside the United States and/or impacts of certain types of wildland prescribed fires. These adjustments, which must be approved by EPA, are intended to avoid any

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<sup>15</sup> This document also refers to the 20% clearest and 20% most anthropogenically impaired days as the “clearest” and “most impaired” or “most anthropogenically impaired” days, respectively.

<sup>16</sup> 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, January 10, 2017: “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.”

<sup>17</sup> 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, January 10, 2017.

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 n.116 (January 10, 2017).

### **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 measures that are necessary to make reasonable progress, as determined pursuant to 40 CFR 51.308(f)(2)(i) through (iv)." 40 CFR 51.308(f)(2). The amount of progress that is "reasonable progress" is determined by 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 level of control of emissions that a particular source or group of sources needs to achieve in order to make reasonable progress towards the national visibility goal. The RHR refers to the controls identified pursuant to a four-factor analysis as "emission reduction measures." See, e.g., 40 CFR 51.308(f)(2)(i). Such measures, along with any "enforceable emissions limitations, compliance schedules, and other measures" (i.e., any compliance tools) that are necessary to ensure that the level of control identified as "reasonable progress" is in fact achieved, become part of a state's long-term strategy. 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 to which the four statutory factors will be applied in an analysis of potential controls. 40 CFR 51.308(f)(2)(i). 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. The 2019 Guidance further provides recommendations and considerations for potential approaches to selecting sources for a four-factor analysis based on the fundamental premise that “[a] state opting to select a set of its sources to analyze must reasonably choose factors [i.e., considerations for source selection] and apply them in a reasonable way given the statutory requirement to make reasonable progress towards natural visibility.” 2019 Guidance at 10. 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, is also subject to 40 CFR 51.308(f)(2)(iii)’s documentation requirement.

Once a state has selected the set of sources (if it has chosen not to analyze all sources of visibility impairment), the next step is to apply the four factors—“the costs of compliance, the time necessary for compliance, and the energy and quality environmental impacts of compliance, and the remaining useful life of any existing source subject to such requirements,” 42 U.S.C. 7491A(g)(1)—to determine what level of emissions from those sources represents reasonable progress for the second implementation period.<sup>18</sup> 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

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<sup>18</sup> The CAA provides that, “[i]n determining reasonable progress there shall be taken into consideration” the four statutory factors. 42 U.S.C. 7491(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 or on-the-books and/or on-the-way rules and measures for sources not explicitly selected for four-factor analysis for the second planning period.



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 3091 (January 10, 2017). Thus, for each source it has selected for four-factor analysis,<sup>19</sup> 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.

After identifying a reasonable set of control options for the sources it has selected, a state then collects information on the four factors with regard to each control option identified; this information will be considered when weighing the factors and selecting the control option that represents reasonable progress. 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 optional fifth factor alongside the four statutory factors.<sup>20</sup> Here, again, 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. While states have discretion to reasonably weigh the factors and to determine what level of control is needed, 40 CFR 51.308(f)(2)(i) provides that a state “must include in its implementation plan a description of . . . how the four factors were taken into consideration in selecting the measure for inclusion in its long-term

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<sup>19</sup> “Each source” or “particular source” is used here as shorthand. While a source-specific analysis is one way of applying the four factors, neither the statute nor the RHR requires states to evaluate individual sources. Rather, states have “the flexibility to conduct four-factor analyses for specific sources, groups of sources or even entire source categories, depending on state policy preferences and the specific circumstances of each state.” 82 FR 3088, January 10, 2017.

<sup>20</sup> See, e.g., Responses to Comments on Protection of Visibility: Amendments to Requirements for State Plans; Proposed Rule (81 FR 26942, May 4, 2016), Docket Number EPA-HQ-OAR-2015-0531, U.S. Environmental Protection Agency at 186; 2019 Guidance at 36-37.

strategy.”<sup>21</sup>

As explained above, 40 CFR 51.308(f)(2)(i) requires states to determine the emission reduction measures for sources that are necessary to make reasonable progress by considering the four factors. Section 51.308(f)(2) in turn requires that a state’s long-term strategy, which becomes part of its SIP, include “the enforceable emissions limitations, compliance schedules, and other measures” that are necessary to ensure that the level of control identified pursuant to the four-factor analysis, i.e., the amount of progress that is “reasonable progress,” is achieved. That is, a state must include in its SIP any emission limitations and other compliances measures (e.g., compliance schedules and monitoring, reporting, and recordkeeping requirements) that are needed to ensure that a source in fact achieves and continues to achieve the level of emissions control that resulted from application of the four factors.

As with source selection, the characterization of information on each of the factors is also subject to the documentation requirement in 40 CFR 51.308(f)(2)(iii). The reasonable progress analysis, including source selection, information gathering, characterization of the four statutory factors (and potentially visibility), balancing of the four factors, and selection of the emission reduction measures that represent reasonable progress, is a technically complex exercise, but also a flexible one that provides states with bounded discretion to design and implement approaches appropriate to their circumstances. Given this flexibility, 40 CFR 51.308(f)(2)(iii) plays an important function in requiring a state to document the technical basis for its decision making so that the public and EPA can comprehend and evaluate the information and analysis the state relied upon to determine what emission reduction measures must be in place to make reasonable progress. The technical documentation must include the modeling, monitoring, cost, engineering, and emissions information on which the state relied to determine the measures necessary to make reasonable progress. This documentation requirement can be met through the

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<sup>21</sup> This requirement extends to consideration of visibility as an optional fifth factor; because visibility is not explicitly enumerated as a potential factor in the RHR it is also not explicitly mentioned in 40 CFR 51.308(f)(2)(i).

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.

The four statutory factors (and potentially visibility) are used to determine what emission reduction measures for selected sources must be included in a state's long-term strategy for making reasonable progress. Additionally, the RHR at 40 CFR 51.308(f)(2)(iv) separately provides five additional factors<sup>22</sup> that states must consider in developing their long-term strategies, which we paraphrase: (1) emission reductions due to ongoing air pollution control programs (2) measures to reduce the impacts of construction activities; (3) source retirement and replacement schedules; (4) basic smoke management practices; and (5) the anticipated net effect on visibility. EPA has explained 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.

Because the air pollution that causes regional haze crosses state boundaries, 40 CFR 51.308(f)(2)(ii) requires a state to consult with other states that also have emissions that are reasonably anticipated to contribute to visibility impairment in a given Class I area. The purpose of consultation is 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. While there is no requirement that a state include in its long-term strategy the emission reduction measures identified by other states, the RHR does require that a state at least consider such measures for its own sources. 40 CFR 51.308(f)(2). If a state, pursuant to consultation, agrees that certain measures (e.g., a certain

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<sup>22</sup> The five additional factors for consideration in 40 CFR 51.308(f)(2)(iv) are distinct from the four factors listed in CAA section 169A(g)(1) and 40 CFR 51.308(f)(2)(i) that states must consider and apply to sources in determining reasonable progress.

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). However, 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). 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. *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, January 10, 2017; their primary purpose is to assist the public and 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) through (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 such 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 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.<sup>23</sup> The RPGs also account for the projected impacts of implementing other CAA requirements, including non-SIP based requirements. For this implementation period, the RPGs are set for 2028. Reasonable

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<sup>23</sup> RPGs are intended to reflect, among other things, the projected impacts of the measures the states include in their long-term strategies. However, due to the timing of multiple state analyses, determination of the final set of state long-term strategies, and other on-going emissions changes, a particular states' RPGs may not reflect all control measures and emissions reductions that are expected to occur by the end of the implementation period. The statute and rule address this practical challenge by requiring subsequent SIP submittals (every ten years), and periodic progress reports (due five years after each regional haze SIP).

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, 40 CFR 51.308(f)(3)(i) requires that “[t]he long-term strategy and the reasonable progress goals must provide for an improvement in visibility for the most impaired days since the baseline period and ensure no degradation in visibility for the clearest days since the baseline period.” Thus, states are required to have emission reduction measures in their long-term strategies that are projected to achieve visibility on the most impaired days that is better than the baseline period, and shows no degradation on the clearest days compared to the clearest days from the baseline period. The baseline period for the purpose of this comparison is the baseline visibility condition – the annual average visibility condition for the period 2000-2004. See 40 CFR 51.308(f)(1)(i), 82 FR 3097-98 (January 10, 2017).

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 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 contributing state 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 and 2019 Guidance 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. See 82 FR 3078 at 3093, 3099-3100, January 10, 2017; 2019 Guidance at 22.

### **E. Monitoring Strategy and Other Implementation Plan Requirements**

Section 51.308(f)(6) requires states to have certain strategies and elements in place for assessing and reporting on visibility. Individual requirements under this subsection apply either to states with Class I areas within their borders, states with no Class I areas but that are reasonably anticipated to cause or contribute to visibility impairment in any Class I area, or both. A state with Class I areas within its borders must submit with its SIP revision a monitoring strategy for measuring, characterizing, and reporting regional haze visibility impairment that is representative of all Class I areas within the state. SIP revisions for such states must also provide for the establishment of any additional monitoring sites or equipment needed to assess visibility conditions in Class I areas, as well as reporting of all visibility monitoring data to EPA at least annually. Compliance with the monitoring strategy requirement may be met through a state’s participation in the Interagency Monitoring of Protected Visual Environments (IMPROVE) monitoring network, which may be 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) introductory text and (f)(6)(i) and (iv). The IMPROVE monitor data is used to determine the 20 percent most anthropogenically impaired and 20 percent clearest sets of days every year at each Class I area and tracks visibility impairment over time.

All states' 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) and (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.<sup>24</sup> 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.<sup>25</sup>

Separate from the requirements related to monitoring for regional haze purposes under 40 CFR 51.308(f)(6), the RHR also contains a requirement at 40 CFR 51.308(f)(4) related to any additional monitoring that may be needed to address visibility impairment in Class I areas from a single source or a small group of sources. This is called "reasonably attributable visibility impairment."<sup>26</sup> Under this provision, if EPA or the FLM of an affected Class I area has advised a state that additional monitoring is needed to assess reasonably attributable visibility

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<sup>24</sup> See section "Step 8: Additional requirements for regional haze SIPs" in 2019 Regional Haze Guidance at 55.

<sup>25</sup> *Id.*

<sup>26</sup> 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.

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 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 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 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. Section 51.308(g)(3) requires states with Class I areas within their borders to first determine current visibility conditions for each area, 40 CFR 51.308(g)(3)(i), and then to calculate the difference between those current conditions and baseline (2000-2004) visibility conditions in order to assess progress made to date. See 40 CFR 51.308(g)(3)(ii). For the purposes of 40 CFR 51.308(f)(5) and (g)(3)(iii) provides that the relevant period for assessing changes in visibility is the period since the most recent progress report. EPA interprets this period as starting from the period that represented "current visibility conditions" in the first implementation period progress report. Since different states submitted their first implementation period progress reports at different times, the period reflecting "current visibility conditions" referenced in each state's progress report will vary.



Similarly, the relevant period for the purpose of 40 CFR 51.308(g)(4)'s analysis of emissions of visibility impairing pollutants starts with the period that represented "current visibility conditions" in the progress report for the first implementation period and runs through "current conditions" for the second implementation period. This provision requires an analysis tracking the change in emissions of pollutants contributing to visibility impairment from all sources and activities within the state; changes should be identified by (*i.e.*, attributed to) type of source(s) or activity(ies). 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 notification 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 EPA to evaluate whether FLM consultation meeting the requirements of the RHR has occurred, the SIP submission should include documentation of the timing and content of such consultation. The SIP revision submitted to EPA must also describe how the state addressed any comments provided by the FLMs. 40 CFR 51.308(i)(3). Finally, a SIP revision must provide procedures for continuing consultation between the state and FLMs regarding the state's visibility protection program, including development and review of SIP revisions, five-year progress reports, and the implementation of other programs having the potential to contribute to impairment of visibility in Class I areas. 40 CFR 51.308(i)(4).

#### **IV. EPA's Evaluation of the District's Regional Haze Submission for the Second Implementation Period**

##### **A. Background on the District's First Implementation Period SIP Submission**

The District submitted its regional haze SIP for the first implementation period to EPA on October 27, 2011. EPA published a final rule fully approving the first DC regional haze SIP submission on February 2, 2012 (77 FR 5191). 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). The District has no Class I areas within its borders. In the first implementation period, MANE-VU used two criteria to determine whether certain SO<sub>2</sub> emissions from individual jurisdictions within the region affected visibility in any Class I areas: contribution of greater than 0.1 microgram per cubic meter ( $\mu\text{g}/\text{m}^3$ ) or two percent of sulfate emission contribution. 77 FR 70929, 70935 (November 16, 2011). The District relied on MANE-VU contribution assessment modeling to assert that emissions from the District did not meet either of these criteria. Regardless, EPA explained that "the District . . . is responsible for developing a regional haze SIP that describes its long-term emission strategy, its role in the consultation processes, and how the SIP meets the other requirements in EPA's regional haze regulations." *Id.* Finding the District's SIP

submission met the applicable requirements of 40 CFR 51.308(d) and (e), EPA approved its plan for the first implementation period. Pursuant to 40 CFR 51.308(g), the District was also responsible for submitting a five-year progress report as a SIP revision for the first implementation period, which it did on March 2, 2016. EPA approved the progress report into the DC SIP on August 10, 2017 (82 FR 37305).

## **B. The District's Second Implementation Period SIP Submission and EPA Evaluation**

In accordance with CAA sections 169A and the RHR at 40 CFR 51.308(f), on November 8, 2019, DC DOEE submitted a revision to the DC SIP to address the jurisdiction's regional haze obligations for the second implementation period, which runs through 2028. The District made its 2019 Regional Haze SIP submission available for public comment on August 30, 2019 and held a hearing on September 30, 2019. No public comments were received.

The following sections describe the District's SIP submission, including the analyses conducted by MANE-VU and the District's determinations based on those analyses, the District's 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 document also contains EPA's evaluation of the District's 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 169(A)(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 incorporates this statutory requirement at 40 CFR 51.308(f) introductory text, 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.

EPA explained in the 1999 RHR preamble that the CAA section 169A(b)(2) requirement that states submit SIPs to address visibility impairment establishes “an ‘extremely low triggering threshold’ in determining which States should submit SIPs for regional haze.” 64 FR 35721, July 1, 1999 . In concluding that each of the contiguous 48 states and the District of Columbia meet this threshold,<sup>27</sup> EPA relied on “a large body of evidence demonstrat[ing] that long-range transport of fine PM contributes to regional haze,” *id.*, including modeling studies that “preliminarily demonstrated that each State not having a Class I area had emissions contributing to impairment in at least one downwind Class I area.” *Id.* at 35722. In addition to the technical evidence supporting a conclusion that each state contributes to *existing* visibility impairment, EPA also explained that the second half of the national visibility goal—preventing *future* visibility impairment—requires having a framework in place to address future growth in visibility-impairing emissions and makes it inappropriate to “establish criteria for excluding States or geographic areas from consideration as potential contributors to regional haze visibility impairment.” *Id.* at 35721. Thus, EPA concluded that the agency’s “statutory authority and the scientific evidence are sufficient to require all States to develop regional haze SIPs to ensure the prevention of any future impairment of visibility, and to conduct further analyses to determine whether additional control measures are needed to ensure reasonable progress in remedying existing impairment in downwind Class I areas.” *Id.* at 35722. EPA’s 2017 revisions to the RHR did not disturb this conclusion. See 82 FR 3094, January 10, 2017.

For the second implementation period, MANE-VU performed technical analyses to help

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<sup>27</sup> EPA determined that “there is more than sufficient evidence to support our conclusion that emissions from each of the 48 contiguous states and the District of Columbia may reasonably be anticipated to cause or contribute to visibility impairment in a Class I area.” 64 FR 35721, July 1, 1999. Hawaii, Alaska, and the U.S. Virgin Islands must also submit regional haze SIPs because they contain Class I areas.

inform source and state-level contributions to visibility impairment and the need for interstate consultation.<sup>28</sup> MANE-VU used the results of these analyses to determine which states' emissions "have a high likelihood of affecting visibility in MANE-VU's Class I areas."<sup>29</sup> The MANE-VU analyses used a combination of data analysis techniques, including emissions data, distance from Class I areas, wind trajectories, and CALPUFF dispersion modeling. Many of the analyses focused only on SO<sub>2</sub> emissions and resultant particulate sulfate contributions to visibility impairment, while others also incorporated NO<sub>x</sub> emissions to estimate particulate nitrate contributions.

One MANE-VU analysis used for contribution assessment was CALPUFF air dispersion modeling. The CALPUFF model simulated sulfate and nitrate formation and transport in MANE-VU and nearby regions from large electric generating units (EGU) point sources and other large industrial and institutional sources in the eastern and central United States. The CALPUFF modeling run included sources selected using emissions divided by distance, or "Q/d" analysis. The CALPUFF modeling summary report included the top 10 most impacting EGUs and the top 5 most impacting industrial 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.<sup>30</sup> Due to a lack of large EGUs or industrial sources, no District emissions were included in the MANE-VU CALPUFF modeling.<sup>31</sup>

The other MANE-VU analysis used a meteorologically weighted Q/d calculation.<sup>32</sup> The variable "Q" is the quantity of cumulative SO<sub>2</sub> emissions from a source or a state, which is divided by the variable "d," which is the distance of the source or state to the IMPROVE monitor

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<sup>28</sup> The technical analysis performed by MANE-VU, including the contribution assessment methodologies for MANE-VU Class I areas, is summarized in appendix 1 of the DC DOEE 2019 Regional Haze SIP submission, "Selection of States for MANE-VU Regional Haze Consultation (2018)."

<sup>29</sup> *Id.*

<sup>30</sup> See Tables 34 and 35 of appendix 4 of the DC DOEE 2019 Regional Haze SIP submission, "2016 MANE-VU Source Contribution Modeling Report – CALPUFF Modeling of Large Electrical Generating Units and Industrial Sources (MANE-VU, April 2017)."

<sup>31</sup> See appendix 4 of the DC DOEE 2019 Regional Haze SIP submission.

<sup>32</sup> The methodology used by MANE-VU for the meteorological weighted Q/d analysis can be found in appendix 3 of the DC DOEE 2019 Regional Haze SIP submission, "MANE-VU Updated Q/d\*C Contribution Assessment."

receptor at a Class I area. The result is then multiplied by a constant ( $C_i$ ), which is determined based on the prevailing wind patterns. MANE-VU selected a meteorologically weighted Q/d analysis as an inexpensive initial screening tool that could easily be repeated to determine which states, sectors, or sources have a larger relative impact and warrant further analysis. MANE-VU's analysis estimated the District's maximum sulfate contribution at 0.13% at any Class I area based on the maximum daily impact. The largest impacts from District SO<sub>2</sub> emissions were to Brigantine Wilderness and Shenandoah National Park. The MANE-VU Q/d analysis was further extended to account for nitrate contributions from NO<sub>x</sub> emissions. Nitrate impacts were not originally estimated using Q/d, but MANE-VU wanted to include an approximation of nitrate impacts from area and mobile sources. MANE-VU developed a ratio of nitrate to sulfate impacts based on the previously described CALPUFF modeling and applied those to the sulfate Q/d results. Several states, including the District, did not have CALPUFF nitrate to sulfate ratio results because there were no point sources modeled with CALPUFF. For the District, MANE-VU developed a surrogate ratio from the Maryland CALPUFF results.

In order to develop a final set of contribution estimates, MANE-VU weighted the results from both the Q/d and CALPUFF analyses. However, only Q/d results were used for the District, since there were no CALPUFF results for the District. The MANE-VU mass-weighted sulfate and nitrate contribution results were reported for the MANE-VU Class I areas (the Q/d summary report included results for several non-MANE-VU areas as well). The largest District mass-weighted sulfate and nitrate contribution to any Class I area was 0.2% to Brigantine Wilderness. Based on the results of the MANE-VU screening analyses, the District concludes in its regional haze submission that it is “not ‘reasonably anticipated to contribute to visibility impairment’ in any Class I Federal area.”<sup>33</sup>

As explained above, EPA concluded in the 1999 RHR that “all [s]tates [including the District of Columbia] contain sources whose emissions are reasonably anticipated to contribute

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<sup>33</sup> Section 2.4.3 of the DC DOEE 2019 Regional Haze SIP submission at 9.

to regional haze in a Class I area,” 64 FR 35721, July 1, 1999 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.

The screening analyses on which MANE-VU relied are useful for certain purposes. MANE-VU used the technical analysis information to rank the largest contributing states to sulfate and nitrate impairment in five Class I areas within MANE-VU states and three additional, nearby Class I areas.<sup>34</sup> 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), and large individual source impacts were used to target MANE-VU control analysis “Asks” of states and sources both within and upwind of MANE-VU.<sup>35</sup> EPA finds the nature of the analyses appropriate to make those types of conclusions. The District has participated in the MANE-VU visibility analysis and has provided information in its SIP submission on the magnitude of visibility impacts from certain District emissions on 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, a Q/d analysis with a relatively simplistic accounting for wind trajectories and CALPUFF applied to major industrial sources of SO<sub>2</sub> and NO<sub>x</sub> are not scientifically rigorous tools capable of ruling out a contribution to visibility impairment from *all*

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<sup>34</sup> The Class I areas analyzed were Acadia National Park in Maine, Brigantine Wilderness in New Jersey, Great Gulf Wilderness in New Hampshire, Lye Brook Wilderness in Vermont, Moosehorn Wilderness in Maine, Shenandoah National Park in Virginia, James River Face Wilderness in Virginia, and Dolly Sods/Otter Creek Wildernesses in West Virginia.

<sup>35</sup> The MANE-VU consultation report (Appendix 7 of the DC DOEE 2019 Regional Haze SIP submission) 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.”

emissions in a state. This is particularly true for the District since the MANE-VU CALPUFF modeling did not include any District sources and because the nitrate impacts used in the Q/d analysis were derived from another state's ratio of nitrate to sulfate impacts. EPA does agree that the contribution to visibility impairment from District emissions at all nearby Class I areas is relatively small, and in fact may be amongst the smallest impacts to visibility impairment from the MANE-VU states. However, based on the information presented in the District's submission, there is not sufficient evidence for EPA to either agree or disagree with the conclusion that emissions from the District are not reasonably anticipated to cause or contribute to any impairment of visibility at any Class I area.

Regardless, the District 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 five 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.<sup>36</sup> The District's 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 MANE-VU has laid out for its states. As discussed in further detail below, EPA is proposing to find that the District 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 for the second implementation period.

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

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

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<sup>36</sup> See appendix 8 of the DC DOEE 2019 Regional Haze SIP submission, "Statement of the Mid-Atlantic/Northeast Visibility Union (MANE-VU) Concerning a Course of Action within MANE-VU toward Assuring Reasonable Progress for the Second Regional Haze Implementation Period (2018-2028), (August 2017)."



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 condition and natural visibility condition, and the uniform rate of progress. This section also provides the option for states to propose adjustments to the URP line to account for the impacts from anthropogenic sources outside the United States and the impacts from wildland prescribed fires that were conducted for certain, specified objectives. 40 CFR 51.308(f)(1)(vi)(B). Because the District does not have any Class I areas within its borders, it is not required to calculate baseline, current, and natural visibility conditions, or to calculate a URP line.<sup>37</sup>

### **E. Long-Term Strategy for Regional Haze**

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 Section II.A. of this document, the long-term strategy must include the enforceable emission limitations, compliance schedules, and other measures that are necessary to make reasonable progress, as determined pursuant to 40 CFR 51.308(f)(2)(i) through (iv). 40 CFR 51.308(f)(2). In determining the emission reduction measures necessary to make reasonable progress, the state must consider the costs of compliance, time necessary for compliance, energy and non-air quality environmental impacts of compliance, and the remaining useful life of any existing source. 40 CFR 51.308(f)(2)(i). As part of this analysis, 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 measures for inclusion in the long-term strategy. 40 CFR 51.308(f)(2)(iii). The long-term strategy for making reasonable progress also encompasses any other emission reduction measures a state chooses to

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<sup>37</sup> While the District noted that it was not required to comply with 40 CFR 51.308(f)(1), elsewhere in its SIP submission (section 2.22) it included visibility metric graphs of nearby Class I areas, which were taken from appendix 13, “Mid-Atlantic/Northeast U.S. Visibility Data 2004-2017 (2nd RH SIP Metrics) (MANE-VU, December 2018).”

include in its overall strategy to address visibility impairment, e.g., newly adopted or on-the-books/on-the-way measures identified pursuant to the five additional factors in 40 CFR 51.308(f)(2)(iv).

### **1. The District's Response to the Six MANE-VU Asks**

This section of the document summarizes how the District's SIP submission addressed the requirements of 40 CFR 51.308(f)(2)(i); specifically, it describes MANE-VU's development of the six Asks and how the District addressed each. EPA's evaluation of the District's SIP revision with regard to the same is contained in the following section, Section IV.E.2. of this document.

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

The District 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. 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.<sup>38</sup> 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.”<sup>39</sup> 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.”<sup>40</sup>

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 the District’s 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)<sup>41</sup> at MANE-VU and nearby Class I areas. MANE-VU found that while SO<sub>2</sub> 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<sub>x</sub> emissions have begun to play a more significant role in visibility impacts in recent years, especially at Brigantine

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<sup>38</sup> See appendix 8 of the DC DOEE 2019 Regional Haze SIP submission, “Statement of the Mid-Atlantic/Northeast Visibility Union (MANE-VU) States Concerning a Course of Action Within MANE-VU Toward Assuring Reasonable Progress for the Second Regional Haze Implementation Period (2018-2028)” at 1 August 25, 2017.

<sup>39</sup> *Id.*

<sup>40</sup> *Id.*

<sup>41</sup> The period of 2012-2016 was the most recent period for which data was available at the time of analysis.

Wilderness Area. The District included this analysis in its submission.<sup>42</sup>

To support development of the Asks, MANE-VU gathered information on each of the four factors for six source sectors it determined “had emissions 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.<sup>43</sup> MANE-VU also collected data on individual sources within the EGU, ICI boiler, and cement kiln sectors.<sup>44</sup> Information for the six sectors included explanations of technically feasible control options for SO<sub>2</sub> or NO<sub>x</sub>, 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.<sup>45</sup> Source-specific data included SO<sub>2</sub> emissions<sup>46</sup> and existing controls<sup>47</sup> for certain existing EGUs, ICI boilers, and cement kilns. MANE-VU had this information on the four factors as well as the analyses developed by the RPO’s Technical Support Committee before it when it determined the specific emission reduction measures that are reasonable for certain sources within two of the sectors it had examined—EGUs and ICI boilers.

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<sup>42</sup> See appendix 14 of the DC DOEE 2019 Regional Haze SIP submission, “Mid-Atlantic/Northeast U.S. Visibility Data 2004-2016 (2nd RH SIP Metrics).”

<sup>43</sup> MANE-VU Four Factor Data Collection Memo at 1, March 30, 2017, *available at* <https://otcair.org/MANEVU/Upload/Publication/Reports/Four-Factor%20Data%20Collection%20Memo%20-%2020170314.pdf>. The six sectors were identified in the first implementation period pursuant to MANE-VU’s contribution assessment; MANE-VU subsequently updated its information on these sectors for the second implementation period.

<sup>44</sup> 2016 Updates to the Assessment of Reasonable Progress for Regional Haze in MANE-VU Class I Areas, January 31, 2016, *available at* [https://s3.amazonaws.com/marama.org/wp-content/uploads/2019/09/13095234/FINAL\\_Updates\\_to\\_4Factor\\_Reasonable\\_Progress\\_Report\\_2016\\_01\\_31.pdf](https://s3.amazonaws.com/marama.org/wp-content/uploads/2019/09/13095234/FINAL_Updates_to_4Factor_Reasonable_Progress_Report_2016_01_31.pdf).

<sup>45</sup> *Id.*

<sup>46</sup> Table 1 of MANE-VU’s “Four Factor Data Collection Memo” March 30, 2017 contains 2011 SO<sub>2</sub> data from specific sources.

<sup>47</sup> The “Status of the Top 167 Electric Generating Units (EGUs) that Contributed to Visibility Impairment at MANE-VU Class I Areas during the 2008 Regional Haze Planning Period” July 25, 2016 reviews the existing and soon to be installed, at the time of the report, emission controls at individual EGU sources that were a part of the MANE-VU Ask from the first implementation period. *Available at:* <https://otcair.org/MANEVU/Upload/Publication/Reports/Status%20of%20the%20Top%20167%20Stacks%20from%20the%202008%20MANE-VU%20Ask.pdf>.

MANE-VU Ask 1 is “ensuring the most effective use of control technologies on a year-round basis” at EGUs with a nameplate capacity larger than or equal to 25 megawatts (MW) with already installed NO<sub>x</sub> and/or SO<sub>2</sub> controls.<sup>48</sup> In its submission, the District explained that it has no coal-fired EGUs with a nameplate capacity greater than 25 MW and that it is currently meeting Ask 1.

MANE-VU Ask 2 consists of a request that states “perform a four-factor analysis for reasonable installation or upgrade to emissions controls” for specified sources. MANE-VU developed its Ask 2 list of sources for analysis by performing modeling and identifying facilities with the potential for 3.0 inverse megameters (Mm<sup>-1</sup>) or greater impacts on visibility at any Class I area in the MANE-VU region. The District explained that it has no facilities that were modeled by MANE-VU to impact visibility at any Class I area by 3.0 Mm<sup>-1</sup> or more and concluded that it is currently meeting Ask 2.

Ask 3 is for each MANE-VU state to pursue an ultra low-sulfur fuel oil standard if it has not already done so in the first implementation period. The Ask includes percent by weight standards for #2 distillate oil (0.0015% sulfur by weight or 15 part per million (ppm)), #4 residual oil (0.25-0.5% sulfur by weight), and #6 residual oil (0.3-0.5% sulfur by weight). The District explains that, in 2016, EPA approved into the DC SIP the District’s regulation to reduce the sulfur content of commercial fuel oil (20 DCMR Section 801). 81 FR 70020 (Oct. 11, 2016). The final rule called for a 2,500 ppm limit (0.25% sulfur by weight) on #4 oil in 2016 and a 15 ppm limit (0.0015% sulfur by weight) on #2 oil starting in 2018. The rule also banned the sale of #5 and #6 fuel oil after July 1, 2016. The emissions reductions expected from implementing the 15 ppm provisions will be achieved during the second implementation period and the ultra low-sulfur fuel oil regulations in the District are a part of its long-term strategy. The District therefore concluded that it is meeting Ask 3.

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<sup>48</sup> See appendix 8 of the DC DOEE 2019 Regional Haze SIP submission, “Statement of the Mid-Atlantic/Northeast Visibility Union (MANE-VU) Concerning a Course of Action within MANE-VU toward Assuring Reasonable Progress for the Second Regional Haze Implementation Period (2018-2028), (August 2017).”

MANE-VU Ask 4 requests states to update permits to “lock in” lower emissions rates for NO<sub>x</sub>, SO<sub>2</sub>, and PM at emissions sources larger than 250 million British Thermal Units (MMBtu) per hour heat input that have switched to lower emitting fuels. According to the District’s SIP submission, the only facility in the District that is larger than 250 MMBtu is the U.S. General Services Administration Central Heating and Refrigeration Plant (“GSA Central Heating Plant”). While the facility originally burned coal, in July 2000 it was limited through a federally enforceable Title V permit revision to the use of natural gas, with #2 fuel oil (maximum 0.05% sulfur by weight) to be used only as a back-up fuel when the natural gas supply is interrupted by the supplier. The District stated that no additional updates are needed at the facility for this Ask.

Ask 5 requests that states “control NO<sub>x</sub> emissions for peaking combustion turbines” (capable of generating 15 MW or more of electricity) “that have the potential to operate on high electric demand days” by either (1) meeting NO<sub>x</sub> emissions standards specified in the Ask for turbines that run on natural gas and for fuel oil, (2) performing a four-factor analysis for reasonable installation of or upgrade to emission controls, or (3) obtaining equivalent emission reductions on high electric demand days.<sup>49</sup> The District states in its submission that it has no combustion turbines that sell electricity to the grid during high electricity demand days, but also notes that its reasonably available control technology (RACT) rule for combustion turbines, associated heat recovery steam generators, and duct burners that was approved into the SIP on February 24, 2020 (85 FR 10295), applies to *all* combustion turbines in the District regardless of their electricity generation capabilities. The District further explains that its RACT rule, which the District adopted to comply with the NO<sub>x</sub> RACT requirements under the 2008 Ozone National Ambient Air Quality Standards (NAAQS), meets the NO<sub>x</sub> emission rates that MANE-VU provided states should strive to meet under Ask 5.<sup>50</sup> The District states in its submission that it finds that this RACT rule would comply with Ask 5.

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<sup>49</sup> See appendix 8 of the DC DOEE 2019 Regional Haze SIP submission.

<sup>50</sup> See Section V of this proposed rulemaking for a discussion of the correction that EPA is proposing for the DC NO<sub>x</sub> RACT rule.

The last Ask for states within MANE-VU (Ask 6) requests states to report in their regional haze SIPs about programs that decrease energy demand and increase the use of combined heat and power (CHP) and other distributed generation technologies such as fuel cells, wind and solar. The District explains in its SIP submission that it “has a variety of programs and initiatives underway that reduce air pollution through reduced energy use, energy efficiency, cogeneration, or clean distributed generation.”<sup>51</sup> The SIP submission specifically cites three cogeneration facilities the District has permitted since 2011 as well as its 2006 Green Building Act.

## **2. EPA’s Evaluation of the District’s Response to the Six MANE-VU Asks and Compliance with 40 CFR 51.308(f)(2)(i)**

EPA is proposing to find that the District has satisfied the requirements of 40 CFR 51.308(f)(2)(i) related to development of a long-term strategy. As explained above, MANE-VU conducted an inventory analysis to identify the source sectors that produced the greatest amount of SO<sub>2</sub> and NO<sub>x</sub> 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 SO<sub>2</sub> 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<sub>x</sub> include on-road vehicles, non-road vehicles, and EGUs.<sup>52</sup> The RPO’s documentation explains that “[EGUs] emitting SO<sub>2</sub> and NO<sub>x</sub> and industrial point sources emitting SO<sub>2</sub> 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.”<sup>53</sup> Thus, in selecting sources and source sectors for further analysis, we are proposing to find that the

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<sup>51</sup> See section 2.5.6 of the DC DOEE 2019 Regional Haze SIP submission at 16.

<sup>52</sup> See “Contribution Assessment Preliminary Inventory Analysis (October 10, 2016)” *available at*: <https://otcair.org/MANEVU/Upload/Publication/Reports/Contribution%20Assessment%20Preliminary%20Inventory%20Analysis.pdf>.

<sup>53</sup> See appendix 7 of the DC DOEE 2019 Regional Haze SIP submission, “MANE-VU Regional Haze Consultation Report” at 3, July 27, 2018.

District's reliance on the technical analysis provided by MANE-VU, and adopted by all "State participants," per 40 CFR 51.308(f)(2)(iii), demonstrates that the District reasonably evaluated sources of the two pollutants—SO<sub>2</sub> and NO<sub>x</sub>—that drive visibility impairment within the MANE-VU region and that it adequately explained and supported its choice of sources and source categories for further analysis.

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 factors to sources. 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 and requests for states to perform four-factor analyses for specific sources the RPO identified as potentially contributing to visibility impairment. As laid out in further detail below, EPA is proposing to find that MANE-VU's four-factor analysis conducted to support Ask 3, in conjunction with the District's analysis and explanation of how it has either complied with each Ask or determined that it is not applicable, satisfies the requirement to determine the emission reduction measures that are necessary to make reasonable progress by considering the costs of compliance, time necessary for compliance, energy and non-air quality impacts of compliance, and remaining useful life of any potentially affected sources.

The District concluded that it satisfied Ask 1 because it has no coal-fired EGUs with a nameplate capacity of greater than 25 MW. EPA notes that Ask 1 does not refer exclusively to coal-fired EGUs; however, a review of the NEI and Clean Air Markets Division data shows that the District does not have any EGUs with a capacity greater than 25 MW.<sup>54</sup> EPA therefore proposes to find that the District's conclusion that it is currently meeting Ask 1 is reasonable.

Ask 2 addresses the sources MANE-VU determined have the potential for  $\geq 3 \text{ Mm}^{-1}$  visibility impact at any MANE-VU Class I area; the Ask requests MANE-VU states to conduct

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<sup>54</sup> EPA notes that the GSA Central Heating Plant and Capital Power Plant are not considered EGUs and therefore finds it reasonable that the District did not include them in its consideration of Ask 1.



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.”<sup>55</sup>

The District did not conduct a four-factor analysis for any individual point sources of visibility-impairing pollutants. It is relevant to our evaluation of the reasonableness of this decision that not only did MANE-VU not identify any large EGUs or other industrial sources of visibility impairing pollutants within the District, the District does not actually contain any point sources with large emissions of visibility impairing pollutants. The 2014 NEI data included in the District’s submission show that total actual point source emissions for SO<sub>2</sub> District-wide were less than 50 tons and less than 500 tons for NO<sub>x</sub>. Data EPA pulled from the 2017 NEI show that total actual point source emissions for SO<sub>2</sub> District-wide were less than 30 tons and less than 400 tons for NO<sub>x</sub>.<sup>56</sup> That the District’s emissions are this low on a jurisdiction-wide basis reinforces the reasonableness of the its decision to not apply the four factors to any individual point source of visibility impairing pollutants in the second implementation period.

The District does contain one source that is > 250 MMBtu/hour, the GSA Central Heating Plant; a steam plant and refrigeration facility (produces both steam for heat and process energy and chilled water for refrigeration) that also uses co-generation to produce both heat energy and electricity for use on site. The GSA Central Heating Plant is the largest point source of emissions (by combined NO<sub>x</sub> and SO<sub>2</sub> emissions) in the District as reported under the NEI. It was also the subject of the NPS’s 2018 early engagement source evaluation request in which that agency provided a list of sources and requested that states review and consider those sources for

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<sup>55</sup> Id at 4.

<sup>56</sup> See “2017 National Emissions Inventory Data for the District of Columbia for Select Pollutants” in the docket.

inclusion in their long-term strategies.<sup>57</sup> For the following reasons, EPA believes the District reasonably declined to conduct a four-factor analysis for the GSA Central Heating Plant.<sup>58</sup> First, as reported under the 2017 NEI, the GSA Central Heating Plant's total emissions are relatively low at 127 tons per year NO<sub>x</sub> and 0.6 tons per year SO<sub>2</sub>.<sup>59</sup> Second, emissions from the source are already subject to both operational limits and enforceable emission limits including the District's NO<sub>x</sub> RACT rule, which has been adopted into its SIP.<sup>60</sup> The Plant's NO<sub>x</sub> emissions come from five boilers and one cogeneration system that is comprised of two combustion turbine generators, one heat recovery steam generator, and duct burners.<sup>61</sup> Each of the five boilers is equipped with low NO<sub>x</sub> burners or dry low NO<sub>x</sub> burners<sup>62</sup> and is limited by the source's Title V permit (permit No. 032) to burning natural gas except for periods of service interruption, when the boilers are permitted to burn #2 fuel oil.<sup>63</sup> The 15 ppm low sulfur fuel oil rule applies to any fuel oil that would be used at the GSA Central Heating Plant. The boilers, three of which are rated at 250 MMBtu/hour and two of which are rated at 500 MMBtu/hour, are additionally limited under the NO<sub>x</sub> RACT rule to 0.25 lb NO<sub>x</sub>/MMBtu when powered by fuel oil or a combination of oil and natural gas, and 0.2 lb NO<sub>x</sub>/MMBtu when powered by natural gas. The two larger boilers, as well as the cogeneration unit, are further subject to a cap of 25 tons of NO<sub>x</sub> total per ozone season; this cap was required pursuant to EPA's NO<sub>x</sub> SIP call and has been approved into the District's SIP.<sup>64</sup> The combustion turbines that are part of the GSA Central Heating Plant's cogeneration system are also limited to burning natural gas except for periods of service interruption, when they are permitted to burn #2 fuel oil. The turbines are inherently low

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<sup>57</sup> See appendix 9 of the DC DOEE 2019 Regional Haze SIP submission, "National Park Service Letter to MANE-VU (April 2018)."

<sup>58</sup> The District's response to the NPS's early engagement request is contained in section 2.5.7. of the DC DOEE 2019 Regional Haze SIP submission at 17.

<sup>59</sup> See "2017 National Emissions Inventory Data for the District of Columbia for Select Pollutants" in the docket.

<sup>60</sup> 85 FR 10295 (February 24, 2020). The District's NO<sub>x</sub> RACT rule went into effect on July 23, 2018.

<sup>61</sup> The District of Columbia's DOEE SIP Submission on Reasonably Available Control Technology (RACT) for Oxides of Nitrogen (NO<sub>x</sub>) Determination for the 2008 8-Hour Ozone National Ambient Air Quality Standards (NAAQS) ("DC DOEE 2018 NO<sub>x</sub> RACT submission") at 5-6, August 29, 2018. (February 24, 2020, 85 FR 10295).

<sup>62</sup> DC DOEE 2018 NO<sub>x</sub> RACT submission at 5-6.

<sup>63</sup> Section 2.5.7 of the DC DOEE 2019 Regional Haze SIP submission at 18.

<sup>64</sup> 81 FR 8656 (February 22, 2016); DC DOEE 2018 NO<sub>x</sub> RACT Submission at 9.

emitting by virtue of their dry low NO<sub>x</sub> burners and emissions are also limited by the NO<sub>x</sub> RACT rule, which contains requirements for combustion turbines and associated heat recovery steam generators and duct burners equivalent to the New Source Performance Standards (NSPS) in subpart KKKK. The duct burners at the GSA Central Heating Plant are fired exclusively on natural gas.<sup>65</sup> Based on the fact that the GSA Central Heating Plant's emissions are already relatively low and controlled as the result of SIP-based limits on SO<sub>2</sub> (low sulfur fuel oil rule) and NO<sub>x</sub> (NO<sub>x</sub> RACT rule and limits related to NO<sub>x</sub> SIP call), EPA believes it was reasonable for the District not to conduct a four-factor analysis for this source, whether or not it was on the MANE-VU list of sources pursuant to Ask 2.

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;<sup>66</sup> specifically, for reducing the sulfur content of distillate oil to 15 ppm. The analysis started with an assessment of the costs of retrofitting refineries to produce 15 ppm heating oil in sufficient quantities to support implementation of the standard, as well as the impacts of requiring a reduction in sulfur content on consumer prices. The analysis noted that, as a result of previous EPA rulemakings to reduce the sulfur content of on-road and non-road-fuels to 15 ppm, technologies are currently available to achieve sulfur reductions and many refiners are already meeting this standard, meaning that the capital investments for further reductions in the sulfur content of heating oil are expected to be relatively low compared to costs incurred in the past. The analysis also examined, by way of example, the impacts of New York's existing 15 ppm sulfur requirements on heating oil prices and concluded that the cost associated with reducing sulfur was relatively small in terms of the absolute price of heating oil compared to the magnitude of volatility in crude oil prices. It also noted that the slight price premium is

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<sup>65</sup> DC DOEE 2019 Regional Haze SIP submission at 17-18; DC DOEE 2018 NO<sub>x</sub> RACT submission at 15.

<sup>66</sup> See "2016 Updates to the Assessment of Reasonable Progress for Regional Haze in MANE-VU Class I Areas" at 8-4, January 31, 2016, *available at*: [https://s3.amazonaws.com/marama.org/wp-content/uploads/2019/09/13095234/FINAL\\_Updates\\_to\\_4Factor\\_Reasonable\\_Progress\\_Report\\_2016\\_01\\_31.pdf](https://s3.amazonaws.com/marama.org/wp-content/uploads/2019/09/13095234/FINAL_Updates_to_4Factor_Reasonable_Progress_Report_2016_01_31.pdf).

compensated by cost savings due to the benefits of lower-sulfur fuels in terms of equipment life and maintenance and fuel stability. Consideration of the time necessary for compliance with a 15 ppm sulfur standard was accomplished through a discussion of the amount of time refiners had needed to comply with EPA's on-road and non-road fuel 15 ppm requirement, and the implications existing refinery capacity and distribution infrastructure may have for compliance times with a 15 ppm heating oil standard. The analysis concluded that with phased-in timing for states that have not yet adopted a 15 ppm heating oil standard there "appears to be sufficient time to allow refiners to add any additional heating oil capacity that may be required."<sup>67</sup> The analysis further noted the beneficial energy and non-air quality environmental impacts of a 15 ppm sulfur heating oil requirement and that reducing sulfur content may also have a salutary impact on the remaining useful life of residential furnaces and boilers.<sup>68</sup>

EPA proposes to find that the District reasonably relied on MANE-VU's four-factor analysis for a low-sulfur fuel oil regulation, which engaged with each of the factors and explained how the information supported a conclusion that a 15 ppm-sulfur fuel oil standard is reasonable. The agency further proposes to determine that the District's SIP-approved ultra-low sulfur fuel oil rule satisfies the requirement of 40 CFR 51.308(f)(2) that its long-term strategy include the enforceable measures that are necessary to make reasonable progress, as determined through consideration of the four factors.<sup>69</sup>

The District concluded that no additional updates were needed to meet Ask 4, which requests MANE-VU states to pursue updating permits, enforceable agreements, and/or rules to lock-in lower emission rates for sources > 250 MMBtu per hour that have switched to lower emitting fuels. As explained above, the GSA Central Heating Plant is the only point source > 250 MMBtu per hour in the District. While the boilers were originally configured to burn coal,

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<sup>67</sup> *Id.* at 8-7.

<sup>68</sup> *Id.* at 8-8.

<sup>69</sup> The District notes in its SIP submission, its regulations were incorporated into its SIP on October 11, 2016 (81 FR 70020).

in 2000 the source updated its Title V permit to limit the source to using only natural gas as a primary fuel and #2 fuel oil during natural gas supply interruptions.<sup>70</sup> Thus, EPA proposes to find that the District reasonably determined it has satisfied Ask 4.

Ask 5 addresses NO<sub>x</sub> emissions from peaking combustion turbines that have the potential to operate on high electric demand days. The District notes that, while it has no combustion turbines that sell electricity to the grid during such days, its SIP-adopted NO<sub>x</sub> RACT rule applies to all combustion turbines and meets the emission rates contained in Ask 5. EPA therefore proposes to find that the District reasonably concluded that its existing regulations would comply with Ask 5.

Finally, with regard to Ask 6, the District reports three cogeneration facilities it has permitted and describes the provisions of its 2006 Green Building Act. EPA is proposing to find that the District 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, EPA is proposing to find that, based on the District's participation in the MANE-VU planning process, how it has addressed each of the Asks, and EPA's assessment of the District's emissions and point sources, the District has complied with the requirements of 40 CFR 51.308(f)(2)(i). The Agency notes that MANE-VU concluded that sulfates from SO<sub>2</sub> emissions were still the primary driver of visibility impairment in the second implementation period<sup>71</sup> and that MANE-VU conducted a four-factor analysis to support Ask 3, which requests that states pursue ultra-low sulfur fuel oil standards to address SO<sub>2</sub> emissions. The District has done so and included its regulations in its SIP, thus satisfying the requirements that states determine the emission reduction measures necessary to make reasonable progress by considering the four factors and that their long-term strategies include the enforceable emission

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<sup>70</sup> See section 2.5.4 of the DC DOEE 2019 Regional Haze SIP submission.

<sup>71</sup> See section 2.4.2 of the DC DOEE 2019 Regional Haze SIP submission.

limitations, compliance schedules, and other measures necessary to make reasonable progress. EPA further believes it is reasonable that the District did not examine additional sources for potential emission reduction measures in the second implementation period because there are no large point sources of visibility-impairing pollutants in the jurisdiction; furthermore, the largest category of area sources of SO<sub>2</sub> emissions are oil-fired residential, commercial, and industrial sources that are covered by the fuel oil standard and the largest area source category of NO<sub>x</sub> emissions is mobile sources. In particular, EPA believes it was reasonable for the District not to conduct a four-factor analysis for the GSA Central Heating Plant—the largest point source of emissions—because that facility’s emissions are already relatively low and, critically, are already limited by SIP-based emission limits, in addition to permit-based fuel requirements. Additionally, to the extent that MANE-VU has identified the measures in Asks 4 through 6 as being part of the region’s strategy for making reasonable progress, we propose to find it reasonable for the District to address these Asks by pointing to existing and on-the-way measures that satisfy each.

### **3. Additional Long-Term Strategy Requirements**

EPA also proposes to determine that the District has satisfied the consultation requirements of 40 CFR 51.308(f)(2)(ii). The District participated in and provided documentation of the MANE-VU intra- and inter-RPO consultation processes and addressed each of the MANE-VU Asks, either by explaining why an Ask is not applicable or providing information on the measures it has in place that satisfy an Ask.<sup>72</sup> EPA proposes to find that the District’s explanations with regard to Asks 1 and 2, for which the District did not offer any measures pursuant to MANE-VU’s requests, are reasonable given the District’s lack of sources that fit the applicability criteria for those Asks (EGUs with capacity  $\geq$  25 MW and sources with

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<sup>72</sup> The District provided documentation of the MANE-VU consultation process in appendix 5, “Inter-RPO State/Tribal and FLM Consultation Framework (5/10/2006)”, appendix 6, “MANE VU Regional Haze Consultation Plan (5/5/2017)”, and appendix 7, “MANE-VU Regional Haze Consultation Report (7/27/2018)” of its 2019 Regional Haze SIP submission.

the potential for  $\geq 3.0 \text{ mm}^{-1}$  visibility impact).

The District chose to rely on MANE-VU's technical information, modeling, and analysis to support development of its long-term strategy. EPA proposes to find that the documentation developed by MANE-VU and provided and referenced by the District in its submission satisfies the requirements of 40 CFR 51.308(f)(2)(iii). As required in 40 CFR 51.308(f)(2)(iii), the emissions information considered to determine what is necessary to make reasonable progress included information on emissions for the most recent year for which the state has submitted triennial emissions data to EPA (or a more recent year), with a 12-month exemption period for newly submitted data. The District's submission includes emissions inventory data from 2014, which was the most recent year of data that the District had submitted to EPA to meet the triennial reporting requirement within 12 months prior to the District's submittal in November 2019.<sup>73</sup> EPA proposes to find that the District has satisfied the emission inventory requirement in 40 CFR 51.308(f)(2)(iii).

EPA also proposes to find that the District considered the five additional factors in 40 CFR 51.308(f)(2)(iv) in developing its long-term strategy. Pursuant to 40 CFR 51.308(f)(2)(iv)(A), the District noted that ongoing federal emission control programs, including boiler and Reciprocating Internal Combustion Engine (RICE) National Emission Standards for Hazardous Air Pollutants (NESHAP) requirements, portable fuel container rules, and New Source Performance Standards (NSPS) for stationary compression ignition engines, would impact emissions from point and nonpoint sources in the second implementation period. For the on-road and non-road source categories, the District identified equipment turnover, fuel requirements, and the transportation conformity regulation (May 28, 2010, 75 FR 29894) as continuing factors that contribute to emission reductions through 2028. On-going measures from various source categories that the District considered in developing its long-term strategy were the NO<sub>x</sub> emissions budget approved by EPA on February 22, 2016 (81 FR 8656), NO<sub>x</sub> RACT requirements for Combustion Turbines (February 24, 2020, 85 FR 10295), and the sulfur content

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<sup>73</sup> See section 2.20 of the DC DOEE 2019 Regional Haze SIP submission.

of fuel oil rule (October 11, 2016, 81 FR 70020).

The District's consideration of measures to mitigate the impacts of construction activities as required by 40 CFR 51.308(f)(2)(iv)(B) includes discussion of a report that found that, from a regional haze perspective, crustal material from anthropogenic sources does not play a major role in visibility impairment at MANE-VU Class I areas.<sup>74</sup> While construction activities can be responsible for direct PM emissions in the region, the dust settles out of the air relatively close to the sources and does not impact visibility at distant Class I areas significantly. The District cited its 'Control of Fugitive Dust' regulation which requires reasonable precautions to minimize emissions of fugitive dust (August 28, 1995, 60 FR 44431) as one measure used to control PM emissions in the District. A summary of the PM emission inventory in the District can be found in Section IV.H. of this rulemaking.<sup>75</sup>

Source retirements and replacement schedules are addressed pursuant to 40 CFR 51.308(f)(2)(iv)(C) in section 2.7.3 of the District's submission. The shutdown of only one large EGU or industrial source in the District—the Pepco Benning Road Generation Station, which retired in 2012—is reflected in the emissions inventories used for the MANE-VU contribution assessment. In addressing smoke management as required in 40 CFR 51.308(f)(2)(iv)(D), the District explained that it is an urban area and does not have agricultural or prescribed forest burns and thus does not have a smoke management plan.<sup>76</sup> The District also asserts that additional measures to mitigate smoke emissions from agricultural and forest fires are not needed in its SIP, although the submission does cite a regulation that limits seasonal open burning (August 28, 1995, 60 FR 44431).

The District discussed its consideration of the anticipated net effect of projected changes in emissions as required by 40 CFR 51.308(f)(2)(iv)(E) by explaining how MANE-VU's

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<sup>74</sup> See appendix 12 of the DC DOEE 2019 Regional Haze SIP submission, "The Nature of the Fine Particle and Regional Haze Air Quality Problems in the MANE-VU Region: A Conceptual Description (NESCAUM, November 2006, Revised August 2010)" at 3-8 of section 3.1.4.

<sup>75</sup> Section 2.20.2 of the DC DOEE 2019 Regional Haze SIP submission addresses the PM10 inventory for DC.

<sup>76</sup> See section 2.7.4 of the DC DOEE 2019 Regional Haze SIP submission at 24.



visibility modeling for 2028 incorporates such projected changes. MANE-VU conducted photochemical modeling for the 2018-2028 implementation period after consultation with states within and outside of the RPO. The 2028 base case considers only on-the-books controls, and a 2028 control case considers implementation of the MANE-VU Asks. For the District, the 2028 base-case modeling included the District's measures pursuant to Asks 4 and 5, while the low sulfur fuel oil measure consistent with Ask 3 was included only in the 2028 control case modeling. The SIP revision notes the projected visibility conditions in five Class I areas—Brigantine Wilderness, Otter Creek/Dolly Sods Wildernesses, James River Face Wilderness, and Shenandoah National Park—on the most impaired and clearest days under the 2028 base case.<sup>77</sup>

Because the District has considered each of the five additional factors, discussed the measures it has in place to address each (or discussed why such measures are not needed), and, where relevant, explained how each factor informed MANE-VU's technical analysis for second implementation period planning for reasonable progress, EPA proposes to find that the District has satisfied the requirements of 40 CFR 51.308(f)(2)(iv).

#### **F. Reasonable Progress Goals**

Section 51.308(f)(3)(i) requires a state in which a Class I area is located to establish reasonable progress goals—one each for the most impaired and clearest days—reflecting the visibility conditions that will be achieved as a result of implementing the long-term strategy. The District is not required to establish RPGs because it does not have a Class I area.

Section 51.308(f)(3)(ii) applies in circumstances in which a Class I area's RPG for the most impaired days represents a slower rate of visibility improvement than the uniform rate of progress calculated under 40 CFR 51.308(f)(1)(vi). Under 40 CFR 51.308(f)(3)(ii)(B), a state that contains sources that are reasonably anticipated to contribute to visibility impairment in such a Class I area must demonstrate that there are no additional emission reduction measures that would be reasonable to include in its long-term strategy. The District's SIP revision included the

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<sup>77</sup> See appendix 11 or section 2.22 of the DC DOEE 2019 Regional Haze SIP submission.

modeled MANE-VU 2028 visibility projections at nearby Class I areas.<sup>78</sup> While these projections may not represent the final RPGs for these Class I areas, all of the 2028 projections for the most impaired days at these areas (Brigantine, Dolly Sods/Otter Creek, Shenandoah, and James River Face) are well below the respective 2028 glidepaths. In addition, we note that the District's largest contribution is to Brigantine Wilderness in New Jersey. New Jersey submitted its regional haze SIP to EPA on March 26, 2020 and the proposed RPG for Brigantine was also well below the 2028 glidepath.<sup>79</sup> EPA proposes to determine that the District has satisfied the applicable requirements of 40 CFR 51.308(f)(3) relating to reasonable progress goals.

### **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 necessary reporting and recordkeeping measures needed to assess and report on visibility. A main requirement of this subsection is for states with Class I areas to submit monitoring strategies for measuring, characterizing, and reporting on visibility impairment. The District does not have a Class I area and therefore its SIP is not required to provide for a monitoring strategy and associated requirements. It is also not subject to the requirements of 40 CFR 51.308(f)(6)(i), (ii), and (iv), which apply only to states with Class I areas and pertain to the establishment of monitoring sites and reporting and use of monitoring data. However, the District's SIP is required to provide for procedures by which monitoring data and other information are used in determining the contribution to emissions to visibility impairment in other states. 40 CFR 51.308(f)(6)(iii). Pursuant to this requirement, the District commits to continuing support of ongoing IMPROVE visibility monitoring in Class I areas.<sup>80</sup>

The District asserts that it is subject only to the requirements of 40 CFR

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<sup>78</sup> Section 2.22 of the DC DOEE 2019 Regional Haze SIP submission.

<sup>79</sup> New Jersey submitted its second regional haze SIP on March 26, 2020 and supplemented the documentation on September 8, 2020. At the time of this document, EPA has not yet proposed to approve or disapprove New Jersey's determination with regard to the RPGs for Brigantine Wilderness Area.

<sup>80</sup> Section 2.15 of the DC DOEE 2019 Regional Haze SIP submission at 28.

51.308(f)(6)(iii).<sup>81</sup> EPA disagrees with this statement; the District is also subject to 40 CFR 51.308(f)(6)(v) and (vi), which apply to all states regardless of whether it has a Class I area. Despite the District's misstatement, EPA is proposing to find that its SIP provides for the necessary elements to satisfy the applicable requirements.

Section 51.308(f)(6)(v) requires each state, including states without Class I areas, to provide for an inventory of emissions of pollutants that are reasonably anticipated to cause or contribute to visibility impairment, including emissions for the most recent year for which data are available and estimates of future projected emissions. It also requires a commitment to update the inventory periodically. The District provides for emissions inventories and estimates for future projected emissions by participating in the MANE-VU RPO and complying with the AERR. In 40 CFR part 51, subpart A, the AERR requires states and the District of Columbia to submit 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 a triennial state-wide inventory of pollutants that are reasonably anticipated to cause or contribute to visibility impairment. MANE-VU also developed projections of future emissions of visibility impairing pollutants and in its submission the District commits to continue coordinating with MANE-VU on progress reports, SIP revisions, and face-to-face consultation meetings as necessary to maintain and improve the visibility in Class I Federal areas.<sup>82</sup>

Section 2.20 of the District's second implementation period regional haze SIP submission includes tables of National Emissions Inventory (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 Air Markets Program Data (AMPD) point sources and non-AMPD point sources.<sup>83</sup> The District

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<sup>81</sup> *Id.*

<sup>82</sup> See Executive Summary at vii and section 1.5 at 4 of the DC DOEE 2019 Regional Haze SIP submission.

<sup>83</sup> AMPD sources are facilities that participate in EPA's emission trading programs. The majority of AMPD sources are electric generating units (EGUs).

included NEI emissions inventories for the following years: 2002 (one of the regional haze program baseline years), 2008, 2011, and 2014; and for the following pollutants: SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>10</sub>, and NH<sub>3</sub>. The District's SIP revision was submitted in November 2019 and the 2017 NEI was not published until 2020; therefore, the year of the most recent NEI at the time of submission to EPA was 2014. There are additional data from the years of 2016 and 2017 for SO<sub>2</sub> and NO<sub>x</sub> from the only AMPD source listed in the District: the GSA Central Heating Plant. While not included in its regional haze submission, the District has a complete NEI for 2017.

As required in 40 CFR 51.308(f)(6)(v), states must commit to update the inventory of emissions of pollutants that are reasonably anticipated to cause or contribute to visibility impairment periodically. The District chose to rely on the NEI as the inventory of these emissions. Under the AERR, states are required to submit estimates for all emissions categories to EPA on a three-year cycle. EPA finds that the requirements to periodically update the national inventory for all emission categories suffices to meet the requirement to commit to updating a visibility impairing pollutant inventory for the District.

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. The District explains in its submission that MANE-VU projected emissions to 2028, which is the end of the second implementation period.<sup>84</sup> 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.<sup>85</sup> For the District, the only emission reductions from new measures included in the control case was implementation of the low sulfur fuel oil standard Ask 3. EPA proposes that the District has met the requirements of 40 CFR 51.308(f)(6)(v) by its continued participation in MANE-VU and on-going compliance with the

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<sup>84</sup> See section 2.6 of the DC DOEE 2019 Regional Haze SIP submission.

<sup>85</sup> The District cites these as appendices 9 and 10 in the document, but they are “Technical Support Document for the 2011 Northeastern U.S. Gamma Emission Inventory (January 2018)” appendix 10 and “Ozone Transport Commission/Mid-Atlantic Northeastern Visibility Union 2011 Based Modeling Platform Support Document – October 2018 Update (October 2018)” appendix 11 in the SIP submission respectively.

AERR, and that no further elements are necessary at this time for the District to assess and report on visibility pursuant to 40 CFR 51.308(f)(6)(vi).

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

Section 51.308(f)(5) requires that periodic comprehensive revisions of states' regional haze plans also address the progress report requirements of 40 CFR 51.308(g)(1) through (5). The purpose of these requirements is to evaluate progress towards the reasonable progress goal for each Class I area within the state and each Class I area outside the state that may be affected by emissions from within that state. Section 51.308(g)(1) and (2) apply to all states and require a description of the status of implementation of all measures included in a state's first implementation period regional haze plan and a summary of the emission reductions achieved through implementation of those measures. Section 51.308(g)(3) applies only to states with Class I areas within their borders and requires such states to assess current visibility conditions, changes in visibility relative to baseline (2000-2004) visibility conditions, and changes in visibility conditions relative to the period addressed in the first implementation period progress report. Section 51.308(g)(4) applies to all states and requires an analysis tracking changes in emissions of pollutants contributing to visibility impairment from all sources and sectors since the period addressed by the first implementation period progress report. This provision further specifies the year or years through which the analysis must extend depending on the type of source and the platform through which its emission information is reported. Finally, 40 CFR 51.308(g)(5), which also applies to all states, requires an assessment of any significant changes in anthropogenic emissions within or outside the state have occurred since the period addressed by the first implementation period progress report, including whether such changes were anticipated and whether they have limited or impeded expected progress towards reducing emissions and improving visibility.

The District's submission describes the status of the measures of the long-term strategy

from the first implementation period and contains a summary of the emission reductions achieved by implementing those measures.<sup>86</sup> As a member of MANE-VU, the District considered the MANE-VU Asks and adopted corresponding measures into its long-term strategy for the first implementation period.

One of the MANE-VU Asks from the first implementation period was for states to address emissions from 167 EGUs across the middle and eastern United States. The District did not have any of those sources within its borders, and so did not incorporate any measures in response to this Ask into its plan. The District did have two units that met the eligibility requirements for BART, but the facility—the Pepco Benning Road Generation Station—took enforceable permit conditions to shut down both units in 2012 and therefore did not undergo BART determinations. The shutdown met another of the MANE-VU Asks, i.e., timely implementation of BART, by elimination of the would-be BART sources and their emissions from the inventory entirely. The emission reductions achieved through these source closures are summarized in the source retirement section of the submission.<sup>87</sup> Lastly, in response to a MANE-VU Ask in 2015 the District promulgated a rule to reduce the sulfur content in commercial heating oil and to prohibit the use of heavy heating oils that contain high levels of sulfur. EPA approved this rule into the SIP on May 1, 2017. 82 FR 20270. The SO<sub>2</sub> and NO<sub>x</sub> emission reductions achieved by implementing this measure are presented in section 2.18 of the District’s submission.

EPA proposes to find that the District 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 strategy from the first implementation period, as well as the status of their implementation and the emission reductions achieved through such implementation.

Section 51.308(g)(3) requires states with Class I areas to report on the visibility

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<sup>86</sup> Section 2.17 of the DC DOEE 2019 Regional Haze SIP submission.

<sup>87</sup> Section 2.7.3 of the DC DOEE 2019 Regional Haze SIP submission.

conditions and changes at those areas. The District does not have any Class I areas and is not required to address this provision.

Pursuant to 40 CFR 51.308(g)(4), the District provided a summary of emissions of SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>10</sub>, and NH<sub>3</sub> from all sources and activities, including from point, nonpoint, non-road mobile, and on-road mobile sources, for the time period from 2002 to 2014.<sup>88</sup> The District explained that 2014 was the most recent year for which it had submitted emission estimates to fulfill the requirements of part 51 subpart A (the AERR).

The emissions information submitted by the District indicates that SO<sub>2</sub> emissions decreased over the 2002 through 2014 period. Due to source retirements, the District had zero tons of SO<sub>2</sub> emissions in 2014 from EGUs that report to EPA's AMPD and the submission indicates these emissions continued to be zero in 2016 and 2017. SO<sub>2</sub> emissions from non-AMPD point sources and nonpoint, non-road, and on-road sources all declined steadily from 2002 to 2014.<sup>89</sup>

Total NO<sub>x</sub> emissions have also declined from 2002 to 2014, although not all categories have shown a consistent decrease. Reductions in NO<sub>x</sub> emissions from AMPD sources are primarily due to EGU retirements, while reductions in non-road and on-road NO<sub>x</sub> are due to a range of federal requirements for different types of engines and fuels.<sup>90</sup>

Emissions of PM<sub>10</sub> decreased overall from 2002 to 2014, with point, nonpoint, and non-road categories having lower emissions in 2014 and on-road sources showing an increase in PM<sub>10</sub> emissions. Similarly, NH<sub>3</sub> emissions in the District were lower overall in 2014 relative to 2002, although emissions from nonpoint sources do show an increase relative to the baseline.<sup>91</sup>

EPA is proposing to find that the District has satisfied the requirements of 40 CFR 51.308(g)(4) by providing emissions information for SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>10</sub>, and NH<sub>3</sub> broken down by

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<sup>88</sup> See "2017 National Emissions Inventory Data for the District of Columbia for Select Pollutants" in the docket.

<sup>89</sup> See section 2.20.3 of the DC DOEE 2019 Regional Haze SIP submission.

<sup>90</sup> See section 2.20.2 of the DC DOEE 2019 Regional Haze SIP submission.

<sup>91</sup> See section 2.20.1 of the DC DOEE 2019 Regional Haze SIP submission.

type of source. At the time of the District's SIP submission, the year of the most recent data submitted to NEI was 2014; therefore, the endpoint of the analysis of changes in emissions is 2014. The District also provided SO<sub>2</sub> and NO<sub>x</sub> data for sources that report to EPA's AMPD for 2016 and 2017.

The District uses the emissions trend data to support the assessment that anthropogenic haze-causing pollutant emissions in the District have decreased during the reporting period and that changes in emissions have not limited or impeded progress for the regional haze program. EPA is proposing to find that the District has met the requirements of 40 CFR 51.308(g)(5).

### **I. Requirements for State and Federal Land Manager Coordination**

Section 51.308(i)(2)'s FLM consultation provision requires that a state must provide FLMs with an opportunity for consultation that is early enough in the state's policy analyses of its long-term strategy emission reduction obligation for the FLMs' input to meaningfully inform the state's decisions. 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, however, the opportunity for consultation must be provided at least sixty days before a public hearing or public comment period at the state level. Section 51.308(i)(2) also provides two substantive topics which FLMs must be provided an opportunity to discuss with states, and 40 CFR 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. The District participated in these consultation meetings and calls.<sup>92</sup>

As part of this early engagement with the FLMs, in April 2018 the NPS sent letters to the MANE-VU states requesting that they consider evaluating particular sources for inclusion in their long-term strategies.<sup>93</sup> The sources the NPS identified were selected based on a Q/d analysis it performed using cumulative NO<sub>x</sub> and SO<sub>2</sub> emissions as the quantity variable Q and the distance to the nearest national park as the variable d. Sources with a Q/d greater than or equal to 1 were included on the 2018 NPS source list; the GSA Central Heating Plant met this threshold based on 2014 NEI data and its proximity to Shenandoah National Park. The District noted that the NPS's methodology did not account for meteorological considerations such as wind direction, and that it disagreed with the NPS's conclusion that the GSA Central Heating Plant was reasonably anticipated to impair visibility at Shenandoah National Park. However, the District decided to respond to the consultation request by explaining the existing emission control measures at the facility. The District's explanation is summarized in section IV.E.2. of this document (addressing EPA's evaluation of the District's response to MANE-VU Ask 2).

On April 10, 2019, the District 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).<sup>94</sup> The U.S. Forest Service commented that the draft it received was acceptable and no changes were needed.<sup>95</sup> The National Park Service and the U.S. Fish and Wildlife Service did not provide comments during this consultation period. The District published its regional haze SIP in the District of Columbia Register for a 30-day comment period within the District on August 30, 2019. A public hearing was held on September 30, 2019. No comments were received. Consistent with 40 CFR

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<sup>92</sup> See appendix 7 of the DC DOEE 2019 Regional Haze SIP submission, "MANE-VU Regional Haze Consultation Summary (MANE-VU, July 2018)."

<sup>93</sup> See appendix 9 of the DC DOEE 2019 Regional Haze SIP submission, "National Park Service Letter to MANE-VU (April 2018)."

<sup>94</sup> See appendix 15 of the DC DOEE 2019 Regional Haze SIP submission, "FLM Consultation Initiation Letter (April 2019)."

<sup>95</sup> See appendix 17 of the DC DOEE 2019 Regional Haze SIP submission, "US Forest Service Consultation Response Letter (June 2019)."

51.308(i)(2), the opportunity for FLM consultation took place more than 120 days prior to holding any public hearing.

For the reasons stated above, EPA proposes to find that the District has met its requirements under 40 CFR 51.308(i) to consult with the FLMs on its regional haze SIP for the second implementation period. The District committed in its SIP to ongoing consultation with the FLMs on regional haze issues throughout the implementation period, consistent with the requirement of 40 CFR 51.308(i)(4).<sup>96</sup>

## **V. Error Correction**

### **A. What is EPA's authority to correct errors in SIP rulemakings?**

Section 110(k)(6) of the CAA provides EPA with authority to make corrections to prior SIP actions that are subsequently found to be in error in the same manner as the prior action, and to do so without requiring any further submission from the state. This determination and the basis must be provided to the state and the public.

### **B. What rule is EPA proposing to correct?**

EPA approved the District's revision to the DC NO<sub>x</sub> RACT rule (20 DCMR 805) into the SIP on February 24, 2020 (85 FR 10295). The revisions to that rule amended the regulation to remove old provisions and replace them with new and/or more stringent regulations or controls for combustion turbines and associated heat recovery steam generators and duct burners and amended the applicability provisions of these regulations to include all combustion turbines and associated heat recovery steam generators and duct burners, among other related revisions and updates to the rule.

After we finalized the rulemaking, EPA discovered that we had erred in identifying the particular sections of the DC NO<sub>x</sub> RACT rule for incorporation by reference into the DC SIP. In several instances, the substance of the District's revisions to its rule in section 805.4(a) and (b) were correctly represented and evaluated in EPA rulemaking, but were cited as being in section

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<sup>96</sup> See section 2.28 of the DC DOEE 2019 Regional Haze SIP submission at 43.

805.1 of the DC NO<sub>x</sub> RACT rule. The District also submitted revisions to section 805.1(a) and 805.1(a)(2), which were appropriately discussed and correctly cited in the rulemaking (see 84 FR at 47918, September 11, 2019). Throughout the prior rulemaking we incorrectly referred to section 805.4 as being section 805.1 in both in the narrative and regulatory table.

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

EPA is proposing to use our authority under CAA section 110(k)(6) to correct errors in the regulatory citation in our February 24, 2020 final action on the DC NO<sub>x</sub> RACT rule and to codify this correction by revising the appropriate entries under 40 CFR 52.470 (Identification of Plan). EPA previously proposed and took public comment on the substance of the DC NO<sub>x</sub> RACT rule and our evaluation thereof in the September 11, 2019 NPRM (84 FR 47914).

Because this proposed rulemaking is limited to correcting our error in conflating the citations for 805.1 and 805.4, the scope of our present request for comment is limited to whether we are properly effectuating this correction and we will not be taking comment on the substance of the DC NO<sub>x</sub> RACT rule. Therefore, as required in CAA section 110(k)(6), in the same manner as the prior action, EPA is proposing for public review and comment the correction to the citations of the provisions which were approved in the previous action. Specifically, we are proposing to amend the table in paragraph (c) of 40 CFR 52.470 to correctly reflect our approval of 20 DCMR sections 805.1(a), 805.1(a)(2), 805.4(a) and 805.4(b), as described in our February 24, 2020 final rule action. This proposal is separate from the proposal to approve the DC DOEE 2019 Regional Haze SIP submission, and as such EPA is taking public comments on the citation correction through this docket, but as a severable action.

### **VI. Proposed Action**

EPA is proposing to approve the revision to the District of Columbia SIP submitted by the District through DC DOEE on November 8, 2019. EPA is proposing to approve the District's SIP submission as satisfying the regional haze requirements for the second implementation period.

## 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 approves 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 (Public Law 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);
- 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; and

- Does not provide EPA with the discretionary authority to address, as appropriate, disproportionate human health or environmental effects, using practicable and legally permissible methods, under Executive Order 12898 (59 FR 7629, February 16, 1994).

In addition, this proposed rulemaking, the District's regional haze state implementation plan for the second implementation period and correction for the RACT rule for major stationary sources of NO<sub>x</sub>, 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 State, 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, Nitrogen dioxide, Ozone, Particulate matter, Sulfur oxides.

Dated: April 5, 2021.

Diana Esher,  
Acting Regional Administrator,  
Region III.