

rulemaking to the public, not as a basis of the action. Due to the nature of the action being taken here, this action is expected to have a neutral to positive impact on the air quality of the affected area. Consideration of EJ is not required as part of this action, and there is no information in the record inconsistent with the stated goal of E.O. 12898 of achieving environmental justice for people of color, low-income populations, and Indigenous peoples.

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

#### List of Subjects in 40 CFR Part 52

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

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

Dated: June 25, 2024.

**Earthea Nance,**

*Regional Administrator, Region 6.*

[FR Doc. 2024-14434 Filed 7-2-24; 8:45 am]

**BILLING CODE 6560-50-P**

## ENVIRONMENTAL PROTECTION AGENCY

### 40 CFR Part 52

[EPA-R07-OAR-2024-0286; FRL-12046-01-R7]

### Air Plan Partial Approval and Partial Disapproval; Missouri; Regional Haze

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

**ACTION:** Proposed rule.

**SUMMARY:** The Environmental Protection Agency (EPA) is proposing to partially approve and partially disapprove a revision to Missouri's State Implementation Plan (SIP) submitted on August 26, 2022, to satisfy applicable requirements under the Clean Air Act (CAA) and the EPA's Regional Haze Rule (RHR) for the program's second planning period. As required by section 169A of the Clean Air Act, the Federal Regional Haze Rule calls for state and Federal agencies to work together to improve visibility, including Regional Haze, in 156 national parks and

wilderness areas. The rule requires the states, in coordination with the EPA, the National Parks Service (NPS), the U.S. Fish and Wildlife Service (FWS), the U.S. Forest Service (FS), and other interested parties, to develop and implement air quality protection plans in which states revise their long-term strategies (LTS) for making reasonable progress towards the national goal of preventing any future, and remedying any existing, anthropogenic impairment of visibility in these mandatory Class I Federal areas. Disapproval does not start a mandatory sanctions clock.

**DATES:** Comments must be received on or before August 2, 2024.

**ADDRESSES:** You may send comments, identified by Docket ID No. EPA-R07-OAR-2024-0286 to <https://www.regulations.gov>. Follow the online instructions for submitting comments.

**Instructions:** All submissions received must include the Docket ID No. for this rulemaking. Comments received will be posted without change to <https://www.regulations.gov/>, including any personal information provided. For detailed instructions on sending comments and additional information on the rulemaking process, see the "Written Comments" heading of the **SUPPLEMENTARY INFORMATION** section of this preamble.

#### FOR FURTHER INFORMATION CONTACT:

Ashley Keas, Environmental Protection Agency, Region 7 Office, Air and Radiation Division, 11201 Renner Boulevard, Lenexa, Kansas 66219; telephone number: (913) 551-7629; email address: [keas.ashley@epa.gov](mailto:keas.ashley@epa.gov).

#### SUPPLEMENTARY INFORMATION:

Throughout this document "we," "us," and "our" refer to the EPA.

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#### I. Written Comments

Submit your comments, identified by Docket ID No. EPA-R07-OAR-2024-0286, at <https://www.regulations.gov>. Once submitted, comments cannot be edited or removed from *Regulations.gov*. The EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (*i.e.*, on the web, cloud, or other file sharing system). For additional submission methods, 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>.

#### II. What is being addressed in this document?

On August 26, 2022, the Missouri Department of Natural Resources (MoDNR) submitted a plan to the EPA to satisfy the regional haze program requirements pursuant to CAA sections 169A and 40 CFR 51.308. The EPA is proposing to partially approve and partially disapprove Missouri's Regional Haze plan for the second planning period. Consistent with section 110(k)(3) of the CAA, the EPA may partially approve portions of a submittal

if those elements meet all applicable requirements and may disapprove the remainder so long as the elements are fully separable.<sup>1</sup> As required by section 169A of the CAA, the Federal RHR calls for state and Federal agencies to work together to improve visibility in 156 national parks and wilderness areas. The rule requires the states, in coordination with the EPA, NPS, FWS, FS, and other interested parties, to develop and implement air quality protection plans to reduce the pollution that causes visibility impairment. Visibility impairing pollutants include fine and coarse particulate matter (PM) (e.g., sulfates, nitrates, organic carbon, elemental carbon, and soil dust) and their precursors (e.g., sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), and, in some cases, volatile organic compounds (VOC) and ammonia (NH<sub>3</sub>)). As discussed in further detail below, the EPA is proposing to find that Missouri has submitted a Regional Haze plan that does not meet all the Regional Haze requirements for the second planning period. For the reasons described in this document, the EPA is proposing to approve the elements of Missouri's plan related to requirements contained in 40 CFR 51.308(f)(1), (f)(5), (f)(6), and (g)(1) through (g)(5). The EPA is proposing to disapprove the elements of Missouri's plan related to requirements contained in 40 CFR 51.308(f)(2), (f)(3), and (i). The State's submission can be found in the docket for this action.

### III. 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>2</sup> CAA section 169A. The CAA establishes as a national goal the "prevention of any future, and the remedying of any existing, impairment of visibility in mandatory class I Federal areas which impairment results from manmade air pollution." CAA section 169A(a)(1). The CAA further directs the EPA to promulgate regulations to assure

<sup>1</sup> See CAA section 110(k)(3) and July 1992 EPA memorandum titled "Processing of State Implementation Plan (SIP) Submittals" from John Calcagni, at <https://www.epa.gov/sites/default/files/2015-07/documents/procsip.pdf>.

<sup>2</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. CAA section 162(a). There are 156 mandatory Class I areas. The list of areas to which the requirements of the visibility protection program apply is in 40 CFR part 81, subpart D.

reasonable progress toward meeting this national goal. CAA section 169A(a)(4). On December 2, 1980, the EPA promulgated regulations to address visibility impairment in mandatory Class I Federal Areas (hereinafter referred to as "Class I Areas") that is "reasonably attributable" to a single source or small group of sources. (45 FR 80084, December 2, 1980). These regulations, codified at 40 CFR 51.300 through 51.307, represented the first phase of the EPA's efforts to address visibility impairment. In 1990, Congress added section 169B to the CAA to further address visibility impairment, specifically, impairment from Regional Haze. CAA section 169B. The EPA promulgated the RHR, codified at 40 CFR 51.308,<sup>3</sup> on July 1, 1999. (64 FR 35714, July 1, 1999). These Regional Haze regulations are a central component of the EPA's comprehensive visibility protection program for Class I Areas.

Regional Haze is visibility impairment that is produced by a multitude of anthropogenic sources and activities which are located across a broad geographic area and that emit pollutants that impair visibility. Visibility impairing pollutants include fine and coarse PM (e.g., sulfates, nitrates, organic carbon, elemental carbon, and soil dust) and their precursors (e.g., SO<sub>2</sub>, NO<sub>x</sub>, and, in some cases, VOC and 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>4</sup>

<sup>3</sup> In addition to the generally applicable regional haze provisions at 40 CFR 51.308, the EPA also promulgated regulations specific to addressing regional haze visibility impairment in Class I areas on the Colorado Plateau at 40 CFR 51.309. The latter regulations are applicable only for specific jurisdictions' regional haze plans submitted no later than December 17, 2007, and thus are not relevant here.

<sup>4</sup> There are several ways to measure the amount of visibility impairment, i.e., haze. One such measurement is the deciview, which is the principal metric 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 EPA's Guidance on Regional Haze State Implementation Plans for the Second Implementation Period ("2019 Guidance") offers the flexibility for the use of light extinction in certain cases. Light extinction can be simpler to use in calculations than deciviews, since it is not a logarithmic function. See, e.g., 2019 Guidance at 16, 19, <https://www.epa.gov/visibility/guidance->

To address Regional Haze visibility impairment, the 1999 RHR established an iterative planning process that requires both states in which Class I areas are located and states "the emissions from which may reasonably be anticipated to cause or contribute to any impairment of visibility" in a Class I Area to periodically submit SIP revisions to address such impairment. CAA section 169A(b)(2);<sup>5</sup> see also 40 CFR 51.308(b), (f) (establishing submission dates for iterative Regional Haze SIP revisions); (64 FR 35714 at 35768, July 1, 1999). Under the CAA, each SIP submission must contain "a long-term (ten to fifteen years) strategy for making reasonable progress toward meeting the national goal." CAA section 169A(b)(2)(B); the initial round of SIP submissions also had to address the statutory requirement that certain older, larger sources of visibility impairing pollutants install and operate the best available retrofit technology (BART). CAA section 169A(b)(2)(A); 40 CFR 51.308(d), (e). States' first Regional Haze SIPs were due by December 17, 2007, 40 CFR 51.308(b), with subsequent SIP submissions containing updated long-term strategies originally due July 31, 2018, and every ten years thereafter. (64 FR 35714 at 35768, July 1, 1999). The EPA established in the 1999 RHR that all states either have Class I Areas within their borders or "contain sources whose emissions are reasonably anticipated to contribute to Regional Haze in a Class I Area"; therefore, all states must submit Regional Haze SIPs.<sup>6</sup> Id. at 35721.

Much of the focus in the first implementation period of the Regional Haze program, which ran from 2007 through 2018, was on satisfying states' BART obligations. First implementation period SIPs were additionally required to contain long-term strategies for making reasonable progress toward the national visibility goal, of which BART is one component. The core required elements for the first implementation

*regional-haze-state-implementation-plans-second-implementation-period*. The EPA Office of Air Quality Planning and Standards, Research Triangle Park (August 20, 2019). The formula for the deciview is  $10 \ln(b_{ext})/10 \text{ Mm}^{-1}$ . 40 CFR 51.301.

<sup>5</sup> The RHR expresses the statutory requirement for states to submit plans addressing out-of-state class I areas by providing that states must address visibility impairment "in each mandatory Class I Federal area located outside the State that may be affected by emissions from within the State." 40 CFR 51.308(d), (f).

<sup>6</sup> In addition to each of the fifty states, the EPA also concluded that the Virgin Islands and District of Columbia must also submit regional haze SIPs because they either contain a Class I area or contain sources whose emissions are reasonably anticipated to contribute regional haze in a Class I area. See 40 CFR 51.300(b), (d)(3).

period SIPs (other than BART) are laid out in 40 CFR 51.308(d). Those provisions required that states containing Class I Areas establish reasonable progress goals (RPGs) that are measured in deciviews and reflect the anticipated visibility conditions at the end of the implementation period including from implementation of states' long-term strategies. The first planning period RPGs were required to provide for an improvement in visibility for the most impaired days over the period of the implementation plan and ensure no degradation in visibility for the least impaired days over the same period. In establishing the RPGs for any Class I Area in a state, the state was required to consider four statutory factors: the costs of compliance, the time necessary for compliance, the energy and non-air quality environmental impacts of compliance, and the remaining useful life of any potentially affected sources. CAA section 169A(g)(1); 40 CFR 51.308(d)(1).

States were also required to calculate baseline (using the five year period of 2000–2004) and natural visibility conditions (*i.e.*, visibility conditions without anthropogenic visibility impairment) for each Class I Area, and to calculate the linear rate of progress needed to attain natural visibility conditions, assuming a starting point of baseline visibility conditions in 2004 and ending with natural conditions in 2064. This linear interpolation is known as the uniform rate of progress (URP) and is used as a tracking metric to help states assess the amount of progress they are making towards the national visibility goal over time in each Class I Area.<sup>7</sup> 40 CFR 51.308(d)(1)(i)(B), (d)(2). The 1999 RHR also provided that States' long-term strategies must include the "enforceable emissions limitations, compliance, schedules, and other measures as necessary to achieve the reasonable progress goals." 40 CFR

<sup>7</sup> The EPA established the URP framework in the 1999 RHR to provide "an equitable analytical approach" to assessing the rate of visibility improvement at Class I areas across the country. The start point for the URP analysis is 2004 and the endpoint was calculated based on the amount of visibility improvement that was anticipated to result from implementation of existing CAA programs over the period from the mid-1990s to approximately 2005. Assuming this rate of progress would continue into the future, the EPA determined that natural visibility conditions would be reached in 60 years, or 2064 (60 years from the baseline starting point of 2004). However, the EPA did not establish 2064 as the year by which the national goal *must* be reached. 64 FR at 35731–32. That is, the URP and the 2064 date are not enforceable targets, but are rather tools that "allow for analytical comparisons between the rate of progress that would be achieved by the state's chosen set of control measures and the URP." (82 FR 3078, 3084, January 10, 2017).

51.308(d)(3). In establishing their long-term strategies, states are required to consult with other states that also contribute to visibility impairment in a given Class I Area and include all measures necessary to obtain their shares of the emission reductions needed to meet the RPGs. 40 CFR 51.308(d)(3)(i) and (ii). Section 51.308(d) also contains seven additional factors states must consider in formulating their long-term strategies, 40 CFR 51.308(d)(3)(v), as well as provisions governing monitoring and other implementation plan requirements. 40 CFR 51.308(d)(4). Finally, the 1999 RHR required states to submit periodic progress reports—SIP revisions due every five years that contain information on states' implementation of their Regional Haze plans and an assessment of whether anything additional is needed to make reasonable progress, see 40 CFR 51.308(g), (h)—and to consult with the Federal Land Manager(s)<sup>8</sup> (FLMs) responsible for each Class I area according to the requirements in CAA section 169A(d) and 40 CFR 51.308(i).

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

<sup>8</sup> The EPA's regulations define "Federal Land Manager" as "the Secretary of the department with authority over the Federal Class I area (or the Secretary's designee) or, with respect to Roosevelt-Campobello International Park, the Chairman of the Roosevelt-Campobello International Park Commission." 40 CFR 51.301.

protection program related to periodic progress reports and FLM consultation. The specific requirements applicable to second implementation period Regional Haze SIP submissions are addressed in detail below.

The EPA provided guidance to the states for their second implementation period SIP submissions in the preamble to the 2017 RHR Revisions as well as in subsequent, stand-alone guidance documents. In August 2019, the EPA issued "Guidance on Regional Haze State Implementation Plans for the Second Implementation Period" ("2019 Guidance").<sup>9</sup> On July 8, 2021, the EPA issued a memorandum containing "Clarifications Regarding Regional Haze State Implementation Plans for the Second Implementation Period" ("2021 Clarifications Memo").<sup>10</sup> Additionally, the EPA further clarified the recommended procedures for processing ambient visibility data and optionally adjusting the URP to account for international anthropogenic and prescribed fire impacts in two technical guidance documents: the December 2018 "Technical Guidance on Tracking Visibility Progress for the Second Implementation Period of the Regional Haze Program" ("2018 Visibility Tracking Guidance"),<sup>11</sup> and the June 2020 "Recommendation for the Use of Patched and Substituted Data and Clarification of Data Completeness for Tracking Visibility Progress for the Second Implementation Period of the Regional Haze Program" and associated Technical Addendum ("2020 Data Completeness Memo").<sup>12</sup>

<sup>9</sup> Guidance on Regional Haze State Implementation Plans for the Second Implementation Period. <https://www.epa.gov/visibility/guidance-regional-haze-state-implementation-plans-second-implementation-period> The EPA Office of Air Quality Planning and Standards, Research Triangle Park (August 20, 2019).

<sup>10</sup> Clarifications Regarding Regional Haze State Implementation Plans for the Second Implementation Period. <https://www.epa.gov/system/files/documents/2021-07/clarifications-regarding-regional-haze-state-implementation-plans-for-the-second-implementation-period.pdf>. The EPA Office of Air Quality Planning and Standards, Research Triangle Park (July 8, 2021).

<sup>11</sup> Technical Guidance on Tracking Visibility Progress for the Second Implementation Period of the Regional Haze Program. <https://www.epa.gov/visibility/technical-guidance-tracking-visibility-progress-second-implementation-period-regional> The EPA Office of Air Quality Planning and Standards, Research Triangle Park. (December 20, 2018).

<sup>12</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. <https://www.epa.gov/visibility/memo-and-technical-addendum-ambient-data-usage-and-completeness-regional-haze-program> The EPA Office of Air Quality Planning and Standards, Research Triangle Park (June 3, 2020).

As previously explained in the 2021 Clarifications Memo, the EPA intends the second implementation period of the Regional Haze program to secure meaningful reductions in visibility impairing pollutants that build on the significant progress states have achieved to date. The Agency also recognizes that analyses regarding reasonable progress are state-specific and that, based on states' and sources' individual circumstances, what constitutes reasonable reductions in visibility impairing pollutants will vary from state-to-state. While there exist many opportunities for states to leverage both ongoing and upcoming emission reductions under other CAA programs, the Agency expects states to undertake rigorous reasonable progress analyses that identify further opportunities to advance the national visibility goal consistent with the statutory and regulatory requirements. See generally 2021 Clarifications Memo. This is consistent with Congress's determination that a visibility protection program is needed in addition to the CAA's National Ambient Air Quality Standards (NAAQS) and Prevention of Significant Deterioration (PSD) programs, as further emission reductions may be necessary to adequately protect visibility in Class I areas throughout the country.<sup>13</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),<sup>14</sup> which include representation from state and tribal governments, the EPA, and FLMs, were developed in the lead-up to the

first implementation period to address Regional Haze. RPOs evaluate technical information to better understand how emissions from State and Tribal land impact Class I Areas across the country, pursue the development of regional strategies to reduce emissions of PM and other pollutants leading to Regional Haze, and help states meet the consultation requirements of the RHR.

The Central Regional Air Planning association (CenRAP), one of the five RPOs mentioned above, that Missouri was a member of during the first planning period, was a collaborative effort of state governments, tribal governments, and Federal agencies established to initiate and coordinate activities associated with the management of Regional Haze, visibility, and other air quality issues in parts of the Great Plains, Midwest, Southwest, and South Regions of the United States.

After the first planning period SIPs were submitted, the CenRAP was disbanded, and the relevant regulatory entities reorganized as the Central States Air Resources Agencies (CenSARA). CenSARA is a collaborative effort of state governments established to initiate and coordinate activities associated with the management of Regional Haze and other air quality issues in parts of the Great Plains, Midwest, Southwest, and South Regions of the United States. Member states include: Arkansas, Iowa, Missouri, Louisiana, Kansas, Missouri, Nebraska, Oklahoma, and Texas. Unlike CenRAP, CenSARA's voting members are only comprised of state agency representatives. However, CenSARA continues to include interested Tribal and Federal partners on communications and regular meetings. The Federal partners of CenSARA are the EPA, NPS, FWS, and FS.

#### **IV. Requirements for Regional Haze Plans for the Second Implementation Period**

Under the CAA and the EPA's regulations, all 50 states, the District of Columbia, and the U.S. Virgin Islands are required to submit Regional Haze SIPs satisfying the applicable requirements for the second implementation period of the Regional Haze program by July 31, 2021. Each state's SIP must contain a long-term strategy for making reasonable progress toward meeting the national goal of remedying any existing and preventing any future anthropogenic visibility impairment in Class I areas. CAA section 169A(b)(2)(B). To this end, § 51.308(f) lays out the process by which states determine what constitutes their long-term strategies, with the order of

the requirements in § 51.308(f)(1) through (f)(3) generally mirroring the order of the steps in the reasonable progress analysis<sup>15</sup> and paragraphs (f)(4) through (f)(6) containing additional, related requirements. Broadly speaking, a state first must identify the Class I areas within the state and determine the Class I areas outside the state in which visibility may be affected by emissions from the state. These are the Class I areas that must be addressed in the state's long-term strategy. See 40 CFR 51.308(f) 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. A reasonable progress determination is based on applying the four factors in CAA section 169A(g)(1) to sources of visibility-impairing pollutants that the state has selected to assess for controls for the second implementation period. Additionally, as further explained below, the RHR at 40 CFR 51.3108(f)(2)(iv) separately provides five "additional factors"<sup>16</sup> that states must consider in developing their long-term strategies. See 40 CFR 51.308(f)(2). A state evaluates potential emission reduction measures for those selected sources and determines which are necessary to make reasonable progress using the four statutory factors. Those measures are then incorporated into the state's long-term strategy. After a state has developed its long-term strategy, it then establishes RPGs for each Class I area within its borders by modeling the visibility impacts of all reasonable progress controls at the end of the second implementation period, *i.e.*, in 2028, as well as the impacts of other requirements of the CAA. The RPGs include reasonable progress controls not only for sources in the state in which the Class I area is located, but also for sources in other states that contribute to

<sup>13</sup> See, *e.g.*, H.R. Rep. No. 95-294 at 205 ("In determining how to best remedy the growing visibility problem in these areas of great scenic importance, the committee realizes that as a matter of equity, the national ambient air quality standards cannot be revised to adequately protect visibility in all areas of the country."), ("the mandatory class I increments of [the PSD program] do not adequately protect visibility in class I areas").

<sup>14</sup> RPOs are sometimes also referred to as "multi-jurisdictional organizations," or MJOs. For the purposes of this document, the terms RPO and MJO are synonymous.

<sup>15</sup> The 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 3078 at 3091, January 10, 2017).

<sup>16</sup> The five "additional factors" for consideration in section 51.308(f)(2)(iv) are distinct from the four factors listed in CAA section 169A(g)(1) and 40 CFR 51.308(f)(2)(i) that states must consider and apply to sources in determining reasonable progress.

visibility impairment in that area. The RPGs are then compared to the baseline visibility conditions and the URP to ensure that progress is being made towards the statutory goal of preventing any future and remedying any existing anthropogenic visibility impairment in Class I areas. 40 CFR 51.308(f)(2)–(3).

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

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

#### A. Identification of Class I Areas

The first step in developing a Regional Haze SIP is for a state to determine which Class I areas, in addition to those within its borders, "may be affected" by emissions from within the state. In the 1999 RHR, the EPA determined that all states contribute to visibility impairment in at least one Class I area, 64 FR 35714 at 35720 through 35722, and explained that the statute and regulations lay out an "extremely low triggering threshold" for determining "whether States should be required to engage in air quality planning and analysis as a prerequisite to determining the need for control of emissions from sources within their State." *Id.* at 35721.

A state must determine which Class I areas must be addressed by its SIP by evaluating the total emissions of visibility impairing pollutants from all sources within the state. While the RHR does not require this evaluation to be conducted in any particular manner, the EPA's 2019 Guidance provides recommendations for how such an assessment might be accomplished, including by, where appropriate, using the determinations previously made for the first implementation period. 2019

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

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

As part of assessing whether a SIP submission for the second implementation period is providing for reasonable progress towards the national visibility goal, the RHR contains requirements in § 51.308(f)(1) related to tracking visibility improvement over time. The requirements of this subsection apply only to states having Class I areas within their borders; the required calculations must be made for each such Class I area. The EPA's 2018 Visibility Tracking Guidance<sup>17</sup> provides recommendations to assist states in satisfying their obligations under § 51.308(f)(1); specifically, in developing information on baseline, current, and natural visibility conditions, and in making optional adjustments to the URP to account for the impacts of international anthropogenic emissions and prescribed fires. See 82 FR 3078 at 3103 through 3105, 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 calendar year with the highest amounts of anthropogenic visibility impairment).<sup>18</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>19</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>20</sup> Additionally, in the 2017 RHR Revisions, the EPA provided states the option of proposing to adjust the endpoint of the URP to account for impacts of anthropogenic sources outside the United States and/or impacts of certain types of wildland prescribed fires. These adjustments, which must be approved by the EPA, are intended to avoid any perception that states should compensate for impacts from international anthropogenic sources and to give states the flexibility to determine that limiting the use of wildland-prescribed fire is

<sup>19</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 3078 at 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>20</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 3078 at 3093, January 10, 2017.

<sup>17</sup>The 2018 Visibility Tracking Guidance references and relies on parts of the 2003 Tracking Guidance: "Guidance for Tracking Progress Under the RHR," which can be found at <https://www3.epa.gov/ttnamti1/files/ambient/visible/tracking.pdf>.

<sup>18</sup>This publication also refers to the 20% clearest and 20% most anthropogenically impaired days as the "clearest" and "most impaired" or "most anthropogenically impaired" days, respectively.

not necessary for reasonable progress. 82 FR 3078 at 3107 footnote 116, January 10, 2017.

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

### C. Long-Term Strategy for Regional Haze

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

Section 51.308(f)(2)(i) provides the requirements for the four-factor analysis. The first step of this analysis entails selecting the sources to be evaluated for emission reduction measures; to this end, the RHR requires states to consider "major and minor stationary sources or groups of sources, mobile sources, and area sources" of visibility impairing pollutants for potential four-factor control analysis. 40

CFR 51.308(f)(2)(i). A threshold question at this step is which visibility impairing pollutants will be analyzed. As the EPA previously explained, consistent with the first implementation period, the EPA generally expects that each state will analyze at least SO<sub>2</sub> and NO<sub>x</sub> in selecting sources and determining control measures. See 2019 Guidance at 12, 2021 Clarifications Memo at 4. A state that chooses not to consider at least these two pollutants should demonstrate why such consideration would be unreasonable. 2021 Clarifications Memo at 4.

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

The EPA explained in the 2021 Clarifications Memo that each state has an obligation to submit a long-term strategy that addresses the Regional Haze visibility impairment that results from emissions from within that state. Thus, source selection should focus on the in-state contribution to visibility impairment and be designed to capture a meaningful portion of the state's total contribution to visibility impairment in Class I areas. A state should not decline to select its largest in-state sources on the basis that there are even larger out-of-state contributors. 2021 Clarifications Memo at 4.<sup>21</sup>

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

<sup>21</sup> Similarly, in responding to comments on the 2017 RHR Revisions, the EPA explained that "[a] state should not fail to address its many relatively low-impact sources merely because it only has such sources and another state has even more low-impact sources and/or some high impact sources." Responses to Comments on Protection of Visibility: Amendments to Requirements for State Plans; Proposed Rule. Docket Document ID: EPA-HQ-OAR-2015-0531-0635 at pages 87–88.

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

Once a state has selected the set of sources, the next step is to determine the emissions reduction measures for those sources that are necessary to make reasonable progress for the second implementation period.<sup>22</sup> This is accomplished by considering the Four Factors—"the costs of compliance, the time necessary for compliance, and the energy and nonair quality environmental impacts of compliance, and the remaining useful life of any existing source subject to such requirements." CAA section 169A(g)(1). The EPA has explained that the four-factor analysis is an assessment of potential emission reduction measures (*i.e.*, control options) for sources; "use of the terms 'compliance' and 'subject to such requirements' in section 169A(g)(1) strongly indicates that Congress intended the relevant determination to be the requirements with which sources would have to comply in order to satisfy the CAA's reasonable progress mandate." 82 FR 3078 at 3091, January 10, 2017. Thus, for each source it has selected for four-factor analysis,<sup>23</sup> a state

<sup>22</sup> The CAA provides that, "[i]n determining reasonable progress there shall be taken into consideration" the four statutory factors. CAA section 169A(g)(1). However, in addition to four-factor analyses for selected sources, groups of sources, or source categories, a state may also consider additional emission reduction measures for inclusion in its long-term strategy, *e.g.*, from other newly adopted, on-the-books, or on-the-way rules and measures for sources not selected for four-factor analysis for the second planning period.

<sup>23</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 3078 at 3088, January 10, 2017. However, not all approaches to grouping sources for four-factor analysis are necessarily reasonable; the reasonableness of grouping sources in any particular instance will depend on the circumstances and the manner in which grouping is conducted. If it is feasible to establish and enforce different requirements for sources or subgroups of sources, and if relevant factors can be quantified for those sources or subgroups, then states should make a separate reasonable progress

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.

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

After identifying a reasonable set of potential control options for the sources it has selected, a state then collects information on the Four Factors with regard to each option identified. The EPA has also explained that, in addition to the four statutory factors, states have flexibility under the CAA and RHR to reasonably consider visibility benefits as

determination for each source or subgroup. 2021 Clarifications Memo at 7–8.

an additional factor alongside the four statutory factors.<sup>24</sup> The 2019 Guidance provides recommendations for the types of information that can be used to characterize the Four Factors (with or without visibility), as well as ways in which states might reasonably consider and balance that information to determine which of the potential control options is necessary to make reasonable progress. See 2019 Guidance at 30–36. The 2021 Clarifications Memo contains further guidance on how states can reasonably consider modeled visibility impacts or benefits in the context of a four-factor analysis. 2021 Clarifications Memo at 12–13, 14–15. Specifically, the EPA explained that while visibility can reasonably be used when comparing and choosing between multiple reasonable control options, it should not be used to summarily reject controls that are reasonable given the four statutory factors. 2021 Clarifications Memo at 13. Ultimately, while states have discretion to reasonably weigh the factors and to determine what level of control is needed, § 51.308(f)(2)(i) provides that a state “must include in its implementation plan a description of . . . how the Four Factors were taken into consideration in selecting the measure for inclusion in its long-term strategy.”

As explained above, § 51.308(f)(2)(i) requires states to determine the emission reduction measures for sources that are necessary to make reasonable progress by considering the Four Factors. Pursuant to § 51.308(f)(2), measures that are necessary to make reasonable progress towards the national visibility goal must be included in a state’s long-term strategy and in its SIP.<sup>25</sup> If the outcome of a four-factor analysis is a new, additional emission reduction measure for a source, that new measure is necessary to make reasonable progress towards remedying existing anthropogenic visibility impairment and must be included in the

<sup>24</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.

<sup>25</sup> States may choose to, but are not required to, include measures in their long-term strategies beyond just the emission reduction measures that are necessary for reasonable progress. See 2021 Clarifications Memo at 16. For example, states with smoke management programs may choose to submit their smoke management plans to the EPA for inclusion in their SIPs but are not required to do so. See, *e.g.*, 82 FR 3078 at 3108 and 3109, January 10, 2017 (requirement to consider smoke management practices and smoke management programs under 40 CFR 51.308(f)(2)(iv) does not require states to adopt such practices or programs into their SIPs, although they may elect to do so).

SIP. If the outcome of a four-factor analysis is that no new measures are reasonable for a source, continued implementation of the source’s existing measures is generally necessary to prevent future emission increases and thus to make reasonable progress towards the second part of the national visibility goal: preventing future anthropogenic visibility impairment. See CAA section 169A(a)(1). That is, when the result of a four-factor analysis is that no new measures are necessary to make reasonable progress, the source’s existing measures are generally necessary to make reasonable progress and must be included in the SIP. However, there may be circumstances in which a state can demonstrate that a source’s existing measures are *not* necessary to make reasonable progress. Specifically, if a state can demonstrate that a source will continue to implement its existing measures and will not increase its emission rate, it may not be necessary to have those measures in the long-term strategy in order to prevent future emission increases and future visibility impairment. The EPA’s 2021 Clarifications Memo provides further explanation and guidance on how states may demonstrate that a source’s existing measures are not necessary to make reasonable progress. See 2021 Clarifications Memo at 8–10. If the state can make such a demonstration, it need not include a source’s existing measures in the long-term strategy or its SIP.

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

and emissions information on which the state relied to determine the measures necessary to make reasonable progress. This documentation requirement can be met through the provision of and reliance on technical analyses developed through a regional planning process, so long as that process and its output has been approved by all state participants. In addition to the explicit regulatory requirement to document the technical basis of their reasonable progress determinations, states are also subject to the general principle that those determinations must be reasonably moored to the statute.<sup>26</sup> That is, a state's decisions about the emission reduction measures that are necessary to make reasonable progress must be consistent with the statutory goal of remedying existing and preventing future visibility impairment.

The four statutory factors (and potentially visibility) are used to determine what emission reduction measures for selected sources must be included in a state's long-term strategy for making reasonable progress. Additionally, the RHR at 40 CFR 51.3108(f)(2)(iv) separately provides five "additional factors"<sup>27</sup> that states must consider in developing their long-term strategies: (1) emission reductions due to ongoing air pollution control programs, including measures to address reasonably attributable visibility impairment; (2) measures to reduce the impacts of construction activities; (3) source retirement and replacement schedules; (4) basic smoke management practices for prescribed fire used for agricultural and wildland vegetation management purposes and smoke management programs; and (5) the anticipated net effect on visibility due to projected changes in point, area, and mobile source emissions over the period addressed by the long-term strategy. The 2019 Guidance provides that a state may satisfy this requirement by considering these additional factors in the process of selecting sources for four-factor analysis, when performing that analysis, or both, and that not every one of the additional factors needs to be

considered at the same stage of the process. See 2019 Guidance at 21. The EPA provided further guidance on the five additional factors in the 2021 Clarifications Memo, explaining that a state should generally not reject cost-effective and otherwise reasonable controls merely because there have been emission reductions since the first planning period owing to other ongoing air pollution control programs or merely because visibility is otherwise projected to improve at Class I areas. Additionally, states generally should not rely on these additional factors to summarily assert that the state has already made sufficient progress and, therefore, no sources need to be selected or no new controls are needed regardless of the outcome of four-factor analyses. 2021 Clarifications Memo at 13.

Because the air pollution that causes Regional Haze crosses state boundaries, § 51.308(f)(2)(ii) requires a state to consult with other states that also have emissions that are reasonably anticipated to contribute to visibility impairment in a given Class I area. Consultation allows for each state that impacts visibility in an area to share whatever technical information, analyses, and control determinations may be necessary to develop coordinated emission management strategies. This coordination may be managed through inter- and intra-RPO consultation and the development of regional emissions strategies; additional consultations between states outside of RPO processes may also occur. If a state, pursuant to consultation, agrees that certain measures (e.g., a certain emission limitation) are necessary to make reasonable progress at a Class I area, it must include those measures in its SIP. 40 CFR 51.308(f)(2)(ii)(A). Additionally, the RHR requires that states that contribute to visibility impairment at the same Class I area consider the emission reduction measures the other contributing states have identified as being necessary to make reasonable progress for their own sources. 40 CFR 51.308(f)(2)(ii)(B). If a state has been asked to consider or adopt certain emission reduction measures, but ultimately determines those measures are not necessary to make reasonable progress, that state must document in its SIP the actions taken to resolve the disagreement. 40 CFR 51.308(f)(2)(ii)(C). The EPA will consider the technical information and explanations presented by the submitting state and the state with which it disagrees when considering whether to approve the state's SIP. See

*id.*; 2019 Guidance at 53. Under all circumstances, a state must document in its SIP submission all substantive consultations with other contributing states. 40 CFR 51.308(f)(2)(ii)(C).

#### D. Reasonable Progress Goals

Reasonable progress goals "measure the progress that is projected to be achieved by the control measures states have determined are necessary to make reasonable progress based on a four-factor analysis." 82 FR 3078 at 3091, January 10, 2017. Their primary purpose is to assist the public and the EPA in assessing the reasonableness of states' long-term strategies for making reasonable progress towards the national visibility goal. See 40 CFR 51.308(f)(3)(iii) and (iv). States in which Class I areas are located must establish two RPGs, both in deciviews—one representing visibility conditions on the clearest days and one representing visibility on the most anthropogenically impaired days—for each area within their borders. 40 CFR 51.308(f)(3)(i). The two RPGs are intended to reflect the projected impacts, on the two sets of days, of the emission reduction measures the state with the Class I area, as well as all other contributing states, have included in their long-term strategies for the second implementation period.<sup>28</sup> The RPGs also account for the projected impacts of implementing other CAA requirements, including non-SIP based requirements. Because RPGs are the modeled result of the measures in states' long-term strategies (as well as other measures required under the CAA), they cannot be determined before states have conducted their four-factor analyses and determined the control measures that are necessary to make reasonable progress. See 2021 Clarifications Memo at 6.

For the second implementation period, the RPGs are set for 2028. Reasonable progress goals are not enforceable targets, 40 CFR 51.308(f)(3)(iii); rather, they "provide a way for the states to check the projected outcome of the [long-term strategy] against the goals for visibility improvement." 2019 Guidance at 46.

<sup>28</sup> RPGs are intended to reflect the projected impacts of the measures all contributing states include in their long-term strategies. However, due to the timing of analyses and of control determinations by other states, other on-going emissions changes, a particular state's RPGs may not reflect all control measures and emissions reductions that are expected to occur by the end of the implementation period. The 2019 Guidance provides recommendations for addressing the timing of RPG calculations when states are developing their long-term strategies on disparate schedules, as well as for adjusting RPGs using a post-modeling approach. 2019 Guidance at 47–48.

<sup>26</sup> See *Arizona ex rel. Darwin v. U.S. EPA*, 815 F.3d 519, 531 (9th Cir. 2016); *Nebraska v. U.S. EPA*, 812 F.3d 662, 668 (8th Cir. 2016); *North Dakota v. EPA*, 730 F.3d 750, 761 (8th Cir. 2013); *Oklahoma v. EPA*, 723 F.3d 1201, 1206, 1208–10 (10th Cir. 2013); cf. also *Nat'l Parks Conservation Ass'n v. EPA*, 803 F.3d 151, 165 (3d Cir. 2015); *Alaska Dep't of Envtl. Conservation v. EPA*, 540 U.S. 461, 485, 490 (2004).

<sup>27</sup> The five "additional factors" for consideration in section 51.308(f)(2)(iv) are distinct from the Four Factors listed in CAA section 169A(g)(1) and 40 CFR 51.308(f)(2)(i) that states must consider and apply to sources in determining reasonable progress.

While states are not legally obligated to achieve the visibility conditions described in their RPGs, § 51.308(f)(3)(i) requires that “[t]he long-term strategy and the reasonable progress goals must provide for an improvement in visibility for the most impaired days since the baseline period and ensure no degradation in visibility for the clearest days since the baseline period.” Thus, states are required to have emission reduction measures in their long-term strategies that are projected to achieve visibility conditions on the most impaired days that are better than the baseline period and 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 through 2004. See 40 CFR 51.308(f)(1)(i), 82 FR 3078 at 3097 and 3098, 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 state that contributes to visibility impairment in the Class I area must demonstrate, based on the four-factor analysis required under 40 CFR 51.308(f)(2)(i), that no additional emission reduction measures would be reasonable to include in its long-term strategy. 40 CFR 51.308(f)(3)(ii). To this end, 40 CFR 51.308(f)(3)(ii) requires that each state contributing to visibility impairment in a Class I area that is projected to improve more slowly than the URP provide “a robust demonstration, including documenting the criteria used to determine which sources or groups [of] sources were evaluated and how the Four Factors required by paragraph (f)(2)(i) were taken into consideration in selecting the measures for inclusion in its long-term strategy.” The 2019 Guidance provides suggestions about how such a “robust demonstration” might be conducted. See 2019 Guidance at 50–51.

The 2017 RHR, 2019 Guidance, and 2021 Clarifications Memo also explain that projecting an RPG that is on or

below the URP based on only on-the-books and/or on-the-way control measures (*i.e.*, control measures already required or anticipated before the four-factor analysis is conducted) is not a “safe harbor” from the CAA’s and RHR’s requirement that all states must conduct a four-factor analysis to determine what emission reduction measures constitute reasonable progress. The URP is a planning metric used to gauge the amount of progress made thus far and the amount left before reaching natural visibility conditions. However, the URP is not based on consideration of the four statutory factors and therefore cannot answer the question of whether the amount of progress being made in any particular implementation period is “reasonable progress.” See 82 FR 3078 at 3093, 3099 and 3100, January 10, 2017; 2019 Guidance at 22; 2021 Clarifications Memo at 15–16.

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

Section 51.308(f)(6) requires states to have certain strategies and elements in place for assessing and reporting on visibility. Individual requirements under this subsection apply either to states with Class I areas within their borders, states with no Class I areas but that are reasonably anticipated to cause or contribute to visibility impairment in any Class I area, or both. A state with Class I areas within its borders must submit with its SIP revision a monitoring strategy for measuring, characterizing, and reporting Regional Haze visibility impairment that is representative of all Class I areas within the state. SIP revisions for such states must also provide for the establishment of any additional monitoring sites or equipment needed to assess visibility conditions in Class I areas, as well as reporting of all visibility monitoring data to the EPA at least annually. Compliance with the monitoring strategy requirement may be met through a state’s participation in the Interagency Monitoring of Protected Visual Environments (IMPROVE) monitoring network, which is used to measure visibility impairment caused by air pollution at the 156 Class I areas covered by the visibility program. 40 CFR 51.308(f)(6), (f)(6)(i), and (f)(6)(iv). The IMPROVE monitoring data is used to determine the 20% most anthropogenically impaired and 20% clearest sets of days every year at each Class I area and tracks visibility impairment over time.

All states’ SIPs must provide for procedures by which monitoring data and other information are used to determine the contribution of emissions

from within the state to Regional Haze visibility impairment in affected Class I areas. 40 CFR 51.308(f)(6)(ii) 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>29</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>30</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 § 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>31</sup> Under this provision, if the EPA or the FLM of an affected Class I area has advised a state that additional monitoring is needed to assess reasonably attributable visibility impairment, the state must include in its SIP revision for the second implementation period an appropriate strategy for evaluating such impairment.

<sup>29</sup> See “Step 8: Additional requirements for regional haze SIPs” in 2019 Regional Haze Guidance at 55.

<sup>30</sup> *Id.*

<sup>31</sup> The 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.

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

Section 51.308(f)(5) requires a state's Regional Haze SIP revision to address the requirements of 40 CFR 51.308(g)(1) through (5) so that the plan revision due in 2021 will serve also as a progress report addressing the period since submission of the progress report for the first implementation period. The Regional Haze progress report requirement is designed to inform the public and the EPA about a state's implementation of its existing long-term strategy and whether such implementation is in fact resulting in the expected visibility improvement. See 81 FR 26942, 26950 (May 4, 2016), (82 FR 3078 at 3119, January 10, 2017). To this end, every state's SIP revision for the second implementation period is required to describe the status of implementation of all measures included in the state's long-term strategy, including BART and reasonable progress emission reduction measures from the first implementation period, and the resulting emissions reductions. 40 CFR 51.308(g)(1) and (2).

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

Similarly, states must provide analyses tracking the change in emissions of pollutants contributing to visibility impairment from all sources and activities within the state over the period since they submitted their first implementation period progress reports. See 40 CFR 51.308(f)(5) and (g)(4). Changes in emissions should be identified by the type of source or activity. Section 51.308(g)(5) also addresses changes in emissions since

the period addressed by the previous progress report and requires states' 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*

CAA section 169A(d) requires that before a state holds a public hearing on a proposed Regional Haze SIP revision, it must consult with the appropriate FLM or FLMs; pursuant to that consultation, the state must include a summary of the FLMs' conclusions and recommendations in the notice to the public. Consistent with this statutory requirement, the RHR also requires that states "provide the [FLM] with an opportunity for consultation, in person and at a point early enough in the State's policy analyses of its long-term strategy emission reduction obligation so that information and recommendations provided by the [FLM] can meaningfully inform the State's decisions on the long-term strategy." 40 CFR 51.308(i)(2). Consultation that occurs 120 days prior to any public hearing or public comment opportunity will be deemed "early enough," but the RHR provides that in any event the opportunity for consultation must be provided at least 60 days before a public hearing or comment opportunity. This consultation must include the opportunity for the FLMs to discuss their assessment of visibility impairment in any Class I area and their recommendations on the development and implementation of strategies to address such impairment. 40 CFR 51.308(i)(2). In order for the EPA to evaluate whether FLM consultation meeting the requirements of the RHR has occurred, the SIP submission should include documentation of the timing and content of such consultation. The SIP revision submitted to the EPA must also describe how the state addressed any comments provided by the FLMs. 40 CFR 51.308(i)(3). Finally, a SIP revision must provide procedures for continuing consultation between the state and FLMs regarding the state's visibility protection program, including development and review of SIP revisions, five-year progress reports, and the implementation of other programs having the potential to contribute to

impairment of visibility in Class I areas. 40 CFR 51.308(i)(4).

**V. The EPA's Evaluation of Missouri's Regional Haze Submission for the Second Implementation Period**

*A. Background on Missouri's First Implementation Period SIP Submission*

Missouri submitted its Regional Haze SIP for the first implementation period to the EPA on August 5, 2009, and supplemented on January 30, 2012. Missouri relied on the Clean Air Interstate Rule (CAIR) to satisfy BART requirements. The EPA approved Missouri's first implementation period Regional Haze SIP submission on June 26, 2012 (77 FR 38007, June 26, 2012).<sup>32</sup> 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). In July 2008, the CAIR rule was vacated by the District of Columbia Circuit Court.<sup>33</sup> In response on August 8, 2011, the EPA replaced CAIR with the Cross-State Air Pollution Rule (CSAPR).<sup>34</sup> Afterwards, the EPA promulgated the CSAPR better than BART rule, allowing states to rely on CSAPR to satisfy BART requirements.<sup>35</sup> In that same action, the EPA issued FIPs to replace reliance on CAIR for BART with reliance on CSAPR to satisfy BART requirements. This action included Missouri. Pursuant to 40 CFR 51.308(g), Missouri was also required to submit a five-year progress report as a SIP revision for the first implementation period. On August 5, 2014, Missouri submitted the required progress report to the EPA. The EPA approved the progress report on September 29, 2015 (80 FR 58410, September 29, 2015). On July 31, 2017, Missouri submitted a SIP revision to change their reliance on CAIR for BART to relying on CSAPR for BART. The EPA approved this SIP revision.<sup>36</sup>

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

In accordance with CAA sections 169A and the RHR at 40 CFR 51.308(f), (g), and (i), on August 26, 2022, Missouri submitted a revision to Missouri's SIP to address its Regional

<sup>32</sup> The EPA's action included a limited approval as the state relied on the EPA's Federal Implementation Plan (FIP) for the interstate transport program to address the required best available retrofit technology (BART) requirements for certain electric generating units (EGUs).

<sup>33</sup> *North Carolina v. EPA*, 531 F.3d 896 (D.C. Cir. 2008), modified on rehearing, *North Carolina v. EPA*, 550 F.3d 1176, 1178 (D.C. Cir. 2008).

<sup>34</sup> 76 FR 48208 August 8, 2011.

<sup>35</sup> 77 FR 33642 June 7, 2012.

<sup>36</sup> 81 FR 50531 September 24, 2018.

Haze obligations for the second implementation period. Missouri made its second implementation period Regional Haze SIP submission available for public comment from March 28, 2022, through May 5, 2022. The state held a public hearing for the plan on April 28, 2022. Missouri received and responded to public comments and included both the comments and responses to those comments in their submission.

The following sections describe Missouri's SIP submission as well as the EPA's evaluation to determine if Missouri's submission meets all of the requirements of the CAA and RHR for the second implementation period of the Regional Haze program.

### C. Identification of Class I Areas

Section 169A(b)(2) of the CAA requires each state in which any Class I area is located or "the emissions from which may reasonably be anticipated to cause or contribute to any impairment of visibility" in a Class I area to have a plan for making reasonable progress toward the national visibility goal. The RHR implements this statutory requirement at 40 CFR 51.308(f), which provides that each state's plan "must address Regional Haze in each mandatory Class I Federal area located within the State and in each mandatory Class I Federal area located outside the State that may be affected by emissions from within the State," and paragraph (f)(2), which requires each state's plan to include a long-term strategy that addresses Regional Haze in such Class I areas.

The EPA 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 35714 at 35721, July 1, 1999. In concluding that each of the contiguous 48 states and the District of Columbia meet this threshold,<sup>37</sup> the 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, the 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, the 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. The EPA's 2017 revisions to the RHR did not disturb this conclusion. *See* 82 FR 3078 at 3094, January 10, 2017.

Missouri contains two Class I Areas: Hercules-Glades Wilderness Area and Mingo National Wildlife Refuge. In Missouri's Regional Haze plan for the first planning period, submitted on August 5, 2009, and supplemented on January 30, 2012, Missouri analyzed four Class I Areas as potentially affected by Missouri emissions. In addition to the two Class I Areas in Missouri, the state identified Caney Creek Wilderness Area and Upper Buffalo Wilderness Area located in Arkansas.<sup>38</sup> In Missouri's Regional Haze plan for the second planning period, submitted August 26, 2022, Missouri identifies nine Class I Areas: Hercules-Glades Wilderness Area and Mingo National Wildlife Refuge in Missouri, Upper Buffalo Wilderness Area, Arkansas, Seney National Wildlife Refuge and Isle Royale Wilderness in Michigan, Mammoth Cave National Park, Kentucky, Linville Gorge Wilderness Area and Shining Rock Wilderness Area in North Carolina, and Sipsey Wilderness Area, Alabama; as potentially affected by Missouri emissions. To make this determination, Missouri primarily relied on the cumulative sulfate and nitrate extinction weighted residence time (EWRT) multiplied by Q/d (emissions

divided by distance) analysis performed by a CenSARA contractor to identify the sources with the highest estimated contributions to Class I Areas. As further discussed in section E of this preamble, Missouri selected sources contributing more than 1 percent to any Class I Area for further evaluation.<sup>39</sup>

CenSARA performed technical analyses to help assess source and state-level contributions to visibility impairment and the need for interstate consultation. CenSARA's analyses relied on a back-trajectory model combined with air quality measurement data and emission inventories to identify the geographic areas and emission sources with a high probability of contributing to anthropogenically impaired visibility at Class I areas within CenSARA and nearby states. For the EWRT multiplied by Q/d analysis, back trajectory residence times were first calculated by summing the amount of time trajectories reside in a specific geographic area (*e.g.*, modeling grid cell). The trajectory residence times were then weighted by sulfate and nitrate extinction coefficients to account for the varying contributions of sulfates and nitrates to total light extinction. To determine the potential impact from sources of SO<sub>2</sub> and NO<sub>x</sub> emissions (precursors of SO<sub>4</sub> and NO<sub>3</sub>, respectively), the EWRT values for SO<sub>4</sub> and NO<sub>3</sub> were combined with emissions (Q) from sources of SO<sub>2</sub> and NO<sub>x</sub>, respectively. CenSARA states chose to focus on electric generating units (EGU) and non-EGU stationary point sources since these sources comprise major fractions of the NO<sub>x</sub> and SO<sub>2</sub> emissions inventory. To incorporate the effects of dispersion, deposition and chemical transformation along the path of the trajectories, emissions were inversely weighted by the distance (*d*) between the centers of the grid cell emitting the emissions and the grid cell containing the IMPROVE site.

Missouri also included Class I Areas that were identified through the consultation process as being affected by sources in Missouri, when the consulting state identified specific Missouri sources that impact the downwind Class I Area.<sup>40</sup> Missouri also consulted with MANE-VU on Class I Areas in Maine, New Jersey, New Hampshire and Vermont. Neither MANE-VU nor Missouri specifically list which Areas in those states are affected by Missouri sources. The EPA believes the affected Class I areas may include:

<sup>37</sup> The 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 35714 at 35721, July 1, 1999. Hawaii, Alaska, and the U.S. Virgin Islands must also submit regional haze SIPs because they contain Class I areas.

<sup>38</sup> "State of Missouri Air Quality State Implementation Plan Regional Haze, Section D, Plan Revision" Page 47, submitted November 9, 2009. Available in Docket: EPA-R07-OAR-2012-0153.

<sup>39</sup> See Table 36, starting on page 103 of Missouri's August 2022 submittal.

<sup>40</sup> See Table 37, starting on page 104 of Missouri's submittal.

Acadia, Moosehorn, and Roosevelt Campobello in Maine; Great Gulf and Presidential Range-Dry River in New Hampshire; Brigantine Wilderness, New Jersey; and Lye Brook, Vermont. New Jersey consulted with Missouri. Neither MANE-VU nor New Jersey specify a source for which Missouri should conduct a four-factor analysis for its impact on Brigantine Wilderness. Missouri does not explicitly state why it treats the MANE-VU Areas different than the other consulted Areas, other than to point out MANE-VU and New Jersey did not specify a Missouri source to evaluate. While MANE-VU and New Jersey did not specify a source for Missouri to analyze, MANE-VU did have six “Asks” of other states. Although Missouri does not include the MANE-VU Class I Areas in the same way as the other identified Areas, Missouri did consult with MANE-VU and New Jersey on the “Asks.” Despite the apparent inconsistencies in Missouri’s treatment of Class I Areas, we find the resulting identification of Class I Areas as being impacted by Missouri sources to be reasonable. However, the EPA finds this requirement is not separable from the overarching requirement of 40 CFR 51.308(f)(2) to establish a long-term strategy and as explained in section V.E. of this preamble, the EPA is proposing to disapprove Missouri’s long-term strategy. Accordingly, the EPA proposes to disapprove this element of Missouri’s second planning period regional haze plan.

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

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

In Chapter 3 of MoDNR’s submittal, Missouri determines and presents the baseline, natural, and current visibility conditions as well as the differences between these for both the 20 percent most anthropogenically impaired days and the 20 percent clearest days for the state’s two Class I Areas consistent with the EPA’s RHR and guidance. Specifically, Missouri presents the latest available visibility monitoring data as accessed on January 14, 2020, for the most recent 5-year period (2014–2018) and the baseline period (2000–2004) as collected at IMPROVE sites and made available on the Federal Land Manager Environmental Database (FED). Using the EPA’s revised IMPROVE equation (Pitchford et al., 2007), Missouri also calculated the light extinction

contributions from individual particle components. The state provides the required calculated visibility data as summarized in Table 1 of this preamble. Missouri also presents the progress made since the baseline period (2000–2004) as well as the difference between current (2014–2018) and natural visibility conditions for both the most impaired and clearest days. Missouri presents the uniform rate of progress data for each Missouri Class I Area and additional light extinction information for specific particle components in section 3.3.6 of the state’s submittal. Missouri calculated annual URP values of 0.27 dv/year and 0.29 dv/year needed to reach natural visibility on the 20% most impaired days at Hercules-Glades and Mingo, respectively.<sup>41</sup> Missouri’s URP values for 2028 are shown in Table 1 of this preamble. Missouri did not choose to adjust its URP for international anthropogenic impacts or to account for the impacts of wildland prescribed fires as allowed in 40 CFR 51.308(f)(1)(vi)(B). Missouri additionally compares observed and modeled visibility conditions and extinction compositions in section 3.3.9 of the submittal. The EPA further reviews the state’s calculations and visibility data in the technical support document (TSD) as contained in the docket for this rulemaking. Based on the EPA’s review, detailed in the TSD, the EPA proposes to find that Missouri appropriately determined the baseline, current and natural visibility conditions as well as the other required calculations for the two Missouri Class I Areas and thus meets the requirements of 40 CFR 51.308(f)(1). Therefore, the EPA proposes to approve this element of Missouri’s submission.

TABLE 1—MISSOURI CLASS I AREAS VISIBILITY CONDITIONS

Missouri Class I area	Baseline 2000–2004 average visibility (dv)		Natural visibility (dv)		Current 2014–2018 average visibility (dv)		2028 Uniform rate of progress (dv)
	20% Most impaired days	20% Clearest days	20% Most impaired days	20% Clearest days	20% Most impaired days	20% Clearest days	
Hercules Glades .....	25.17	12.84	9.30	4.69	18.72	9.71	18.82
Mingo .....	26.31	14.37	9.24	5.3	20.13	11.08	19.48

*E. Long-Term Strategy for Regional Haze*

1. Source Selection

40 CFR 51.308(f)(2)(i) requires states to “. . . consider evaluating major and minor stationary sources or groups of sources, mobile sources, and area

sources. The State must include in its implementation plan a description of the criteria it used to determine which sources or groups of sources it evaluated and how the four factors were taken into consideration in selecting the measures for inclusion in its long-term strategy.”

As part of its reasonable progress determinations, the state must describe the criteria used to determine which sources or group of sources were evaluated (*i.e.*, subjected to four-factor analysis) for the second implementation period and how the Four Factors were

<sup>41</sup> See “Table 9. Uniform Annual Rate of Improvements Needed to Reach 2016 Natural

Visibility for the Most Impaired Days” in the MO Regional Haze SIP—Final August 2022.

taken into consideration in selecting the emission reduction measures for inclusion in the long-term strategy. 40 CFR 51.308(f)(2)(iii).

States may rely on technical information developed by the RPOs of which they are members to select sources for four-factor analysis and to conduct that analysis, as well as to satisfy the documentation requirements under § 51.308(f). Where an RPO has performed source selection and/or four-factor analyses (or considered the five additional factors in § 51.308(f)(2)(iv)) for its member states, those states may rely on the RPO's analyses for the purpose of satisfying the requirements of § 51.308(f)(2)(i) so long as the states have a reasonable basis to do so and all state participants in the RPO process have approved the technical analyses. 40 CFR 51.308(f)(3)(iii). States may also satisfy the requirement of § 51.308(f)(2)(ii) to engage in interstate consultation with other states that have emissions that are reasonably anticipated to contribute to visibility impairment in a given Class I area under the auspices of intra- and inter-RPO engagement.

Missouri explains various methods the state considered when determining which sources to bring forward for further evaluation. Ultimately, Missouri primarily relied on the cumulative sulfate and nitrate extinction weighted residence time (EWRT) multiplied by  $Q/d$  (emissions divided by distance) analysis performed by a CenSARA contractor to determine the sources with the highest estimated contributions to Class I Areas. Missouri selected sources contributing more than 1 percent to any Class I Area for further evaluation.<sup>42</sup> This resulted in the selection of nine Missouri sources and eighteen out of state sources. Missouri also considered sources identified by other states, RPOs or FLMs and explained whether they would be further evaluated or not and the rationale behind that decision. Missouri removed two sources initially selected, Buzzi Unicem and Ameren Meramec, due to decreasing emissions trends. Specifically, Buzzi Unicem provided the state with updated emissions information and demonstrated that the reductions were due to an enforceable consent decree entered in 2017. After the state reevaluated Buzzi Unicem's impacts with the updated emissions information, the visibility contribution dropped below the 1 percent threshold used by the state and was therefore removed from further consideration.

Regarding Ameren Meramec, Missouri points out that the facility voluntarily switched two boilers from burning coal to natural gas in 2016 and that the facility was expected to retire by December 2022. Due to the expected shutdown date before 2028, Missouri removed Meramec from consideration of additional control measures. However, the shutdown date cited by Missouri for Ameren Meramec is not federally enforceable. The EPA independently confirmed that emissions from the Meramec facility have indeed decreased significantly consistent with reduced operations preparing for shutdown and with no reported emissions or operating hours in 2023. Given these facts, the EPA finds that removal of these two sources is consistent with the EPA's 2019 Guidance and 2021 Clarifications Memo. However, Missouri may also consider in future planning periods whether evaluation of the removed sources (assuming continued operation of the sources) would result in a more effective control technology being found reasonable.

The seven sources Missouri selected for further evaluation are: John Twitty Energy Center, Associated Electric Cooperative Incorporated (AECI) New Madrid Power Plant, AECI Thomas Hill Power Plant, Sikeston Power Station, Ameren Labadie Energy Center, Ameren Rush Island Energy Center, and Mississippi Lime Company. More information on these sources is provided here and in the TSD.

John Twitty Energy Center is located in Springfield, Missouri in Greene County. Units 1 and 2 are dry bottom wall fired boilers. Unit 1 has a capacity of 205 megawatts (MW). Unit 2 has a capacity of 309.6 MW. Both units burn Powder River Basin low sulfur coal. Unit 1 does not utilize SO<sub>2</sub> controls. Unit 2 has fluidized bed limestone injection for SO<sub>2</sub> control. Both units have selective catalytic reduction (SCR) for NO<sub>x</sub> control. Unit 2 also has overfire air (OFA). Both units have baghouses for particulate control.

AECI New Madrid Power Plant is located near Marston, Missouri in New Madrid County. Units 1 and 2 are cyclone boilers with capacities of 640 MW each and burn Powder River Basin low sulfur coal. The units do not utilize SO<sub>2</sub> control. For NO<sub>x</sub> control, both units have SCR and OFA. For particulate control, both units have electrostatic precipitators (ESP).

AECI Thomas Hill Power Plant is located in Clifton Hill, Missouri in Randolph County. Units 1 and 2 are cyclone boilers. Unit 3 is a dry bottom wall fired boiler. Unit 1 has capacity of 185 MW. Unit 2 has a capacity of 305

MW. Unit 3 has capacity of 777 MW. All units burn Powder River Basin low sulfur coal and do not utilize SO<sub>2</sub> control. Units 1 and 2 have OFA and SCR for NO<sub>x</sub> control. Unit 3 has OFA, low NO<sub>x</sub> burners, and SCR for NO<sub>x</sub> control. For particulate control, all 3 units have ESP.

Sikeston Power Station is located near Sikeston, Missouri in Scott County. Unit 1 is a dry bottom wall fired boiler with capacity of 235 MW and burns Powder River Basin low sulfur coal. Unit 1 has a tray/Venturi wet scrubber with control device efficiency of 76% (per state's four factor analysis), but the scrubber is not operating and is not easily restarted. The facility does not currently utilize any SO<sub>2</sub> control. For NO<sub>x</sub> control, Unit 1 has low NO<sub>x</sub> burners with OFA. For particulate control, Unit 1 has an ESP.

Ameren Labadie Energy Center is located in Labadie, Missouri in Franklin County. Units 1 and 2 are tangentially fired boilers with capacities of 675 MW each and burn Powder River Basin low sulfur coal. Units 3 and 4 are tangentially fired boilers with capacities of 690 MW each and burn Powder River Basin low sulfur coal. None of the units utilize control for SO<sub>2</sub>. For NO<sub>x</sub> control, all of the units have low NO<sub>x</sub> burners, separated overfire air (SOFA), and neural network optimization. For particulate control, all of the units have ESP.

Ameren Rush Island Energy Center is located in Festus, Missouri in Jefferson County. Units 1 and 2 are tangentially fired boilers with capacities of 621 MW each and burn Powder River Basin low sulfur coal. The units do not utilize SO<sub>2</sub> control. For NO<sub>x</sub> control, both units have low NO<sub>x</sub> burners, SOFA, and neural network optimization. For particulate control, both units have ESP.

Mississippi Lime Company is a lime processing plant located in Ste. Genevieve, Missouri in Ste. Genevieve County. The following emission units were determined to be the plant's primary sources of NO<sub>x</sub> and SO<sub>2</sub> emissions: Peerless Rotary Kilns and Mississippi Rotary Kilns which fire coal and coke. For SO<sub>2</sub> control, the Mississippi Rotary Kilns are equipped with wet scrubbers. Some kilns have lime injection. The remaining Mississippi Rotary Kiln units do not have lime injection; however, the facility indicates that the exhaust stream provides inherent process scrubbing of the exhaust stream due to lime in the process. The facility indicates good combustion and optimization of processes control of NO<sub>x</sub> on all the units, and that the Peerless kilns also utilize a preheater. The units do not have any add-on NO<sub>x</sub> controls.

<sup>42</sup> See Table 36, starting on page 103 of Missouri's submittal.

Although the EPA finds Missouri's source selection methodology and the sources selected for further analysis reasonable for the second planning period, the EPA believes the RHR requirement at 51.308(f)(2), to consider the four factors in establishing the long-term strategy, encompasses the selection of sources for further analysis, and therefore is not separable. For the reasons described in section E.2 of this preamble, the EPA is proposing to disapprove Missouri's long-term strategy, which encompasses source selection, in Missouri's second implementation period regional haze plan as not meeting the requirements of 40 CFR 51.308(f)(2).

## 2. Four-Factor Analysis

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 section 169A(b)(2)(B). As explained in the Background section of this document, reasonable progress is achieved when all states contributing to visibility impairment in a Class I area are implementing the measures determined—through application of the four statutory factors to sources of visibility impairing pollutants—to be necessary to make reasonable progress. 40 CFR 51.308(f)(2)(i). Each state's long-term strategy must include the enforceable emission limitations, compliance schedules, and other

measures that are necessary to make reasonable progress. 40 CFR 51.308(f)(2). All new (*i.e.*, additional) measures that are the outcome of four-factor analyses are necessary to make reasonable progress and must be in the long-term strategy. If the outcome of a four-factor analysis and other measures necessary to make reasonable progress is that no new measures are reasonable for a source, that source's existing measures are necessary to make reasonable progress, unless the state can demonstrate that the source will continue to implement those measures and will not increase its emission rate. Existing measures that are necessary to make reasonable progress must also be included as permanent and federally enforceable<sup>43</sup> emissions limits in the long-term strategy. In developing its long-term strategies, a state must also consider the five additional factors in § 51.308(f)(2)(iv).

In Chapter 4 of Missouri's submittal, the state explains the four-factor analyses performed either by the state or the source for the seven Missouri sources that were brought forward for further evaluation. The state describes how each of the four factors is considered. First, Missouri explains the cost of compliance is considered by performing a cost analysis for each source and each technically feasible control measure for both SO<sub>2</sub> and NO<sub>x</sub>. The state also describes the process used to establish the cost threshold that the state uses to determine whether the cost effectiveness of each control

measure is reasonable and therefore should be included in the long-term strategy. Specifically, Missouri refers to control cost values from the first implementation period, compiled by the state of Arkansas, to set a cost threshold derived from those values. Second, Missouri generally describes how the state assumed the time necessary for compliance for each control type based on prior EPA studies and literature. Third, Missouri describes how energy and non-air quality environmental impacts of compliance are considered. For example, quantifiable energy impacts for a given control type are included in the cost estimates. Fourth, Missouri explains the two methods used to estimate the remaining useful life of the sources evaluated while also considering the remaining useful life of the control types. In response to comment on this point, Missouri included cost estimates assuming the default remaining useful life values that the EPA recommends using for specific control devices.

Ameren Missouri and Mississippi Lime Company provided full four-factor analyses for their respective facilities. Missouri performed the four-factor analyses for the remaining sources. The four-factor analyses presented in Missouri's SIP cover what Missouri determined to be technically feasible control measures for both SO<sub>2</sub> and NO<sub>x</sub> for each source. Specifically, the control technologies evaluated by Missouri are displayed in Table 2 of this preamble.

TABLE 2—CONTROL TECHNOLOGIES EVALUATED BY MISSOURI

### SO<sub>2</sub> Control Technologies

Flue Gas Desulfurization (FGD)—Wet, Spray Dry, Dry Scrubber (50% to 99% control efficiency):

- Wet Lime Scrubber, typical control efficiency 90%–99%
- Wet Limestone Scrubber, typical control efficiency 90%–99%
- Dual-Alkali Scrubber, typical control efficiency 90%–95%
- Spray Dry Absorber (SDA), typical control efficiency 90%–95%
- Dry Sorbent Injection (DSI), typical control efficiency 50%–80%
- Circulating Dry Scrubber
- Hydrated Ash Reinjection

Limestone Injection.

Low sulfur content coal.

Fuel Switch.

### NO<sub>x</sub> Control Technologies

Selective Catalytic Reduction (SCR), typical control efficiency 90%.

Low NO<sub>x</sub> Burners (LNB), typical control efficiency 40%–60%.

Selective Non-Catalytic Reduction (SNCR), typical control efficiency 35%–50%.

Overfire Air (OFA), typical control efficiency 20%.

Flue Gas Recirculation (FGR).

Low Excess Air (LEA).

<sup>43</sup> The EPA also interprets the requirement to be permanent and federally enforceable as being practically enforceable, *i.e.*, an operational or

emissions limit with the necessary reporting and recordkeeping requirements such that the source

reports compliance with and that can practically be measured and enforced.

The full details for the state and source performed four-factor analyses are included in Appendix C to the state submittal included in the docket for this action.

TABLE 3—SUMMARY OF RESULTS OF MISSOURI’S FOUR-FACTOR ANALYSES

Facility	Unit	Pollutant	Control technology	Annualized cost (\$)	Emission reduction (tons per year)	Effective cost (\$/ton)	
Labadie Energy Center *	B1 .....	SO <sub>2</sub> .....	DSI .....	\$27,074,061	7,011	\$3,862	
		NO <sub>x</sub> .....	SNCR .....	3,261,106	450	7,247	
	B2 .....	SO <sub>2</sub> .....	DSI .....	27,074,061	7,031	3,851	
		NO <sub>x</sub> .....	SNCR .....	3,261,106	450	7,247	
	B3 .....	SO <sub>2</sub> .....	DSI .....	25,419,801	6,592	3,856	
		NO <sub>x</sub> .....	SNCR .....	3,333,575	425	7,844	
	B4 .....	SO <sub>2</sub> .....	DSI .....	25,419,801	6,854	3,709	
		NO <sub>x</sub> .....	SNCR .....	3,333,575	425	7,844	
	Rush Island Energy Center*.	B1 .....	SO <sub>2</sub> .....	DSI .....	28,751,220	6,831	4,209
			NO <sub>x</sub> .....	SNCR .....	3,000,218	375	8,001
		B2 .....	SO <sub>2</sub> .....	DSI .....	28,822,931	7,337	3,928
			NO <sub>x</sub> .....	SNCR .....	3,000,218	375	8,001
Mississippi Lime Company*.	EP-069, EP-070, EP-071.	SO <sub>2</sub> .....	DSI .....	984,041	11.61	84,800	
		NO <sub>x</sub> .....	SNCR .....	465,644	24	19,100	
	EP-640, EP-645 .....	SO <sub>2</sub> .....	DSI .....	1,344,685	8.62	156,000	
		NO <sub>x</sub> .....	SNCR .....	809,506	85	9,500	
EP-180H, EP-186N, EP-187N.	SO <sub>2</sub> .....	Wet Lime Scrubber .....	1,632,862	171.09	9,500		
New Madrid Power Plant*.	B1 .....	SO <sub>2</sub> .....	DSI .....	20,268,773	5,025	4,033	
	B2 .....	SO <sub>2</sub> .....	DSI .....	22,003,761	5,561	3,957	
Thomas Hill Energy Center*.	B1 .....	SO <sub>2</sub> .....	DSI .....	8,255,270	1,837	4,494	
	B2 .....	SO <sub>2</sub> .....	DSI .....	12,245,800	2,867	4,271	
	B3 .....	SO <sub>2</sub> .....	DSI .....	29,936,230	7,698	3,889	
John Twitty Energy Center*.	B1 .....	SO <sub>2</sub> .....	DSI .....	6,764,511	1,794	3,771	
Sikeston Power Station *	B1 .....	SO <sub>2</sub> .....	DSI .....	13,532,594	3,443	3,930	
		NO <sub>x</sub> .....	SCR .....	7,899,846	774	10,209	

\* Missouri noted these cost estimates were calculated assuming a remaining useful life consistent with the EPA’s control cost manual (CCM), however, some values still do not comport with EPA’s control cost manual. Specifically, Missouri assumed a 25-year useful life for Wet FGD, SDA and DSI controls when the EPA recommends a 30-year useful life. Missouri assumed a 30-year useful life for SCR and a 20-year useful life for SNCR, consistent with the CCM.

The results of Missouri’s four-factor analyses are shown in Table 3 of this preamble. Missouri details the cost effectiveness for each control type and unit and categorically concludes that each control measure is not reasonable because the cost effectiveness exceeds the cost threshold set by Missouri, as discussed later in this section. Consistent with the finding that new control measures are not necessary, Missouri finds that current existing operations at each facility are needed for reasonable progress.

For the reasons described below, the EPA proposes to find that Missouri has not adequately supported the conclusion that existing measures satisfy the requirement to make reasonable progress. Missouri has not definitively shown that further reductions of visibility impairing pollutants are not reasonable and has not adequately explained how its approach is consistent with the CAA’s

requirement to make reasonable progress. The EPA discusses each of the following lines of evidence that support this proposed finding. First, the state rejected otherwise reasonable control measures that would reduce tens of thousands of tons of visibility impairing pollutants and improve visibility at Missouri and other states’ Class I areas. This decision was based primarily on the unreasonable justification and use of the selected cost threshold. Second, the state’s cost effectiveness calculations do not fully align with EPA guidance such as the Control Cost Manual. When the EPA corrects the deficiencies of Missouri’s cost analysis, we find cost effective controls are available on most if not all sources evaluated by Missouri. Third, Missouri has not included practically enforceable emissions limits as part of its long-term strategy to make reasonable progress. Specifically, the included source agreements do not contain explicit enforceable emissions

limits associated with existing operations in addition to problematic provisions included in the source agreements rendering them unenforceable and not permanent.

*Missouri’s Justification and Use of the Selected Cost Threshold Is Unreasonable*

Missouri chose to establish a cost threshold based on control cost values from the first planning period adjusted to 2021 dollars. Using a database of first planning period control costs,<sup>44</sup> Missouri selected a cost threshold of \$3,658 per ton specific to SO<sub>2</sub> for EGUs by calculating the first planning period

<sup>44</sup> Missouri relied on a dataset compiled by the State of Arkansas. Note that the EPA is not proposing an action with respect to Arkansas’s regional haze SIP and we are not commenting on the approvability of Arkansas’s use of the cost methodology, their cost threshold, or their overall SIP. Missouri’s cost threshold dataset is available in Appendix F to the state submittal, in the docket for this action.

mean cost per ton value plus one standard deviation specifically for new control technologies (*i.e.*, excluding upgrades to existing controls or reliance on lower sulfur coal). Application of this threshold means that Missouri considers all cost effectiveness values greater than \$3,658 per ton to be not cost effective and therefore rejects the control measure. Using a similar methodology for NO<sub>x</sub> controls, Missouri selected a cost threshold of \$5,370 per ton. The EPA commented during both the early engagement period and the formal comment period requesting further documentation and justification for use of such a cost threshold. In response to comments, Missouri revised the control cost thresholds to be slightly higher than originally proposed and provided additional documentation. The EPA also commented on the fact that multiple sources in the underlying statistical data (in the Appendix F spreadsheet) installed controls at costs above the state's threshold including at sources similar to the sources selected by Missouri. This dataset does not include any Missouri units. By selecting the mean plus one standard deviation as a cost effectiveness threshold, Missouri appears to ignore those costs that fall above the threshold, costs that were found reasonable at nine units (or twenty percent) of the previously analyzed EGUs, most of similar size to the Missouri EGUs. EPA guidance states that "when the cost/ton of a possible measure is within the range of the cost/ton values that have been incurred multiple times by sources of similar type to meet regional haze requirements or any other [Clean Air Act] requirement, this weighs in favor of concluding that the cost of compliance is not an obstacle to the measure being considered necessary to make."<sup>45</sup> Missouri states that higher cost/ton values are largely associated with smaller capacity EGUs and therefore are not directly comparable with cost values for their larger capacity EGUs. However, in the EPA's review of the state's cost threshold statistical data, the EPA finds that values presented for EGUs greater than 500 MW yield maximum costs in the range of \$5,000/ton to \$6,000/ton for SO<sub>2</sub> control and generally exceed the cost effectiveness of SO<sub>2</sub> control at smaller (less than 500 MW) EGUs.

Additionally, the EPA notes that CenRAP (predecessor organization to CenSARA) conducted a sensitivity

analysis which evaluated controls for sources with a Q/d>5 and cost-effectiveness up to \$10,000/ton related to the first regional haze planning period. Based on that analysis, CenRAP suggested that a range from \$4,000 to \$5,000/ton (in 2005 dollars) would be a reasonable threshold for controls because of diminishing emission reductions as costs increase beyond that range.<sup>46</sup> In 2021 dollars, the CenRAP range becomes \$6,060 to \$7,600/ton.<sup>47</sup> As described earlier, Missouri relied on other analyses performed by CenSARA for this planning period, as well as considered costs from the prior planning period so the EPA finds this analysis further undermines the reasonableness of Missouri's selected cost threshold.

Similarly, the EPA recently proposed a BART FIP for Texas that references past BART decisions, specifically that several controls were required by either the EPA or States as BART with average cost-effectiveness values in the \$4,200 to \$5,100/ton range (escalated to 2020 dollars).<sup>48</sup> In 2021 dollars, this range is \$5,300/ton to \$6,500/ton.

Despite the costs from the first planning period being adjusted to 2021 dollars, the cost thresholds set by Missouri are lower than historical values found necessary for BART and reasonable progress determinations as evidenced by the control costs above Missouri's threshold in the cost effectiveness spreadsheet.<sup>49</sup> Missouri's cost thresholds are based on costs found reasonable during the first planning period and therefore do not account for control costs found reasonable since that time. For example, other states have since found higher control costs to be reasonable, such as Oregon<sup>50</sup> selecting a \$10,000/ton threshold. Additionally, Arkansas's second planning period regional haze SIP,<sup>51</sup> which relies on the same underlying statistical cost data to establish a threshold as used by Missouri, sets a threshold of \$5,086 per

ton for EGUs for both SO<sub>2</sub> and NO<sub>x</sub> control measures.

One reason for considering higher cost effectiveness thresholds for the second planning period (compared to the first planning period) is that most of the cheapest available cost-effective emissions reductions were required and implemented during the first planning period. These were typically SO<sub>2</sub> and NO<sub>x</sub> controls at the largest uncontrolled point sources (mostly electric generating units), which in many cases had cost-effectiveness values well under \$1,000 per ton. These relatively cheap controls lead to a low bias when using first planning period cost database numbers to calculate mean costs (even when adding in one standard deviation). Most remaining point sources have smaller emissions and do not have cost effective controls at those previously "cheap" levels. However, by itself, that is not a reasonable justification to reject otherwise potentially cost-effective controls in the second planning period and beyond. As we move forward in time to subsequent planning periods, source emissions will get smaller and potential controls will get more expensive on a cost per ton basis. However, the statute still requires states to continue to make reasonable progress towards the national goal.

Missouri's use of the selected cost threshold has the effect of rejecting control measures that historically have been widely used to meet the regional haze rule requirements, without requiring additional emissions reductions or enforceable shutdowns beyond existing operations. The EPA has not established a bright line or a recommended cost effectiveness threshold to be used by States. However, the EPA finds that Missouri's justification and use of the selected cost threshold to summarily reject control measures, often with cost effectiveness values just above the selected threshold value, is not reasonable and does not comport with the stated goals of the CAA and RHR. This is especially apparent when considering the magnitude of available emissions reductions at Missouri sources and associated visibility improvements at Missouri and other states' Class I Areas.

Missouri still has multiple power plants that are uncontrolled for SO<sub>2</sub>. In fact, Missouri has had the second highest statewide total SO<sub>2</sub> emissions in the country for each of the last five years (2018–2022). Further, of the EGUs selected by Missouri, three were among the top 15 SO<sub>2</sub> emitters in the country in 2023, with Ameren Labadie being the

<sup>45</sup> EPA's 2019 "Guidance on Regional Haze State Implementation Plans for the Second Implementation Period" <https://www.epa.gov/visibility/guidance-regional-haze-state-implementation-plans-second-implementation-period>.

<sup>46</sup> See "Sensitivity Run Specifications for CenRAP Consultation.pdf," available in the docket for this action. See also "so2\_cost\_ton.xls" and "nox\_cost\_ton.xls," also available in the docket for this action.

<sup>47</sup> Based on the Chemical Engineering Plant Cost Index (CEPCI). For 2005 the CEPCI value is 468.2. For 2021, the CEPCI value is 708.8.

<sup>48</sup> See 88 FR 28918, 28963. For 2020 the CEPCI value is 596.2.

<sup>49</sup> The sources listed in the cost effectiveness spreadsheet (Appendix F to the state submittal) are accompanied by a link to the relevant EPA action.

<sup>50</sup> The EPA proposed approval of Oregon's second planning period regional haze SIP on February 23, 2024, 89 FR 13622.

<sup>51</sup> <https://www.adeg.state.ar.us/air/planning/sip/regional-haze.aspx>.

highest SO<sub>2</sub> emitter in 2023.<sup>52</sup> As described earlier, many states relied on transport programs to satisfy BART in the first planning period instead of requiring source specific control determinations, including Missouri.<sup>53</sup> While trading programs are effective at reducing emissions on a regional scale, they do not require emission reductions or installation of controls on specific sources. Therefore, individual sources may avoid installing controls or reducing emissions through the purchase or trading of allowances from other sources that did opt to install controls or reduce emissions. Many of the sources selected by Missouri for further evaluation, such as Ameren Labadie, have not installed post combustion control equipment. Generally, sources that did not install or consistently operate post combustion control equipment relied on the purchase of allowances for trading program compliance. And as discussed further below, the EPA proposes to find that sources in Missouri have the potential for cost-effective control options.

As noted previously, the EPA agrees with FLM assertions that there is the potential for significant visibility improvement associated with the controls evaluated by Missouri at these sources. However, MoDNR argues in each four-factor analysis summary that additional controls are not needed. Among the reasons cited, MoDNR states that “All Class I areas impacted by sources in Missouri have made steady and significant improvement in visibility, and modeling shows they are projected to be below, or well below, their uniform rate of progress (URP) glidepaths in 2028.”<sup>54</sup> Although the EPA agrees there has been improvement in the Class I areas impacted by Missouri sources, several of these Class I areas have the highest remaining anthropogenic visibility impairment in the country. In particular, based on the latest available IMPROVE data averaged over the five-year period of 2018–2022, Mammoth Cave, Mingo, and Hercules-Glades are in the top 10 of Class I areas with the greatest anthropogenic visibility impairment.<sup>55</sup> Furthermore,

the EPA’s modeling shows that a significant amount of visibility impairment is projected to remain in these Class I areas in 2028.<sup>56</sup> While not explicitly presented by the state as a reason for rejecting additional controls, the EPA has reiterated through regulation and guidance that the URP is not a safe harbor and an area’s position with respect to the URP should not be a factor in determining whether a control measure is reasonable. See 2019 Guidance at 22, 49, and 50 and 2021 Clarifications Memo at 2, 12, 13 and 15.

The national goal set by Congress outlines both the remedying of any existing visibility impairment, and also preventing any future visibility impairment. CAA section 169A(a). Further, the EPA has stated that in order to accomplish the national goal set by Congress, cumulative progress must be made including relatively small reductions and visibility benefits from many sources over a wide area over time. To that end, visibility should not be used as the sole factor in rejecting an otherwise reasonable control measure. See 2021 Clarifications Memo at 13.

CAA section 169A(b)(2) requires states to include in their SIPs “emission limits, schedules of compliance and other measures as may be necessary to make reasonable progress.” While these emission limits must apply to individual sources or units, CAA section 169A(g)(1) does not explicitly require states to consider the four factors on a source-specific basis when determining what amount of emission reductions (and corresponding visibility improvement) constitutes “reasonable progress.” The EPA has consistently interpreted the CAA to provide states with 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. While the CAA and the RHR provide states with flexibility in evaluating the four reasonable progress factors, states must exercise reasoned judgment when choosing which sources, groups of sources, or source categories to analyze. Consistent with the state’s obligation to exercise reasoned judgment in its

anthropogenic impairment of 10.4 dv, and Mingo is 6th on the list at 10.1 dv. Hercules-Glades is 10th on the list with a 5-year average anthropogenic impairment of 8.9 dv.

<sup>56</sup> *Technical Support Document for EPA’s Updated 2028 Regional Haze Modeling*, Office of Air Quality Planning and Standards, United States Environmental Protection Agency (September 2019). See Table 3–2: Base and future year deciview values on the 20% clearest and 20% most impaired days at each Class I area for the base model period (2014–2017) and future year (2028).

analysis, the EPA’s role in reviewing a SIP is not limited to accepting at face value a state’s analysis in its own SIP submission and its determination that it has fully satisfied the requirements of the CAA. Rather, Congress tasked the EPA with the responsibility of ensuring that a SIP submission satisfies the requirements of the CAA. Abundant case law reflects an understanding that the EPA must evaluate SIP submissions under CAA section 110(k)(2) and (3).<sup>57</sup> If a SIP submission is deficient in whole or in part, the EPA must so find, and if not corrected, implement the relevant requirements through a FIP under CAA section 110(c). Courts have held that the EPA’s ability to ensure that a SIP submission satisfies the requirements of the CAA includes the ability to review a state’s analysis to ensure that it is “reasonably moored to the Act’s provisions and . . . based on reasoned analysis.”<sup>58</sup> Thus, EPA’s oversight role is “more than the ministerial task of routinely approving SIP submissions.”<sup>59</sup> If the EPA’s role were otherwise, Congress would not have expressly tasked the agency with both reviewing SIPs for completeness (CAA section 110(k)(1)(B)) and reviewing the substance of SIPs (CAA section 110(k)(2)–(4)).

For these reasons, the EPA finds that Missouri does not sufficiently justify the use of the selected cost threshold to repeatedly reject otherwise reasonable control measures that would result in potentially meaningful visibility improvements and significant emissions reductions. And as explained later in this section, the EPA’s revised cost analyses for many of the selected Missouri sources result in cost effective controls. For these reasons, the EPA finds that Missouri’s rejection of new control measures is unreasonable and inconsistent with the goals of the RHR.

#### *Deficiencies in Missouri’s Cost Analyses*

The EPA thoroughly reviewed Missouri’s cost analysis for each

<sup>57</sup> See e.g., *Oklahoma v. EPA*, 723 F.3d 1201, 1209 (10th Cir. 2013) (upholding EPA’s disapproval of “best available retrofit technology” (BART) SIP, noting BART “does not differ from other parts of the CAA—states have the ability to create SIPs, but they are subject to EPA review”); see also *Westar Energy v. EPA*, 608 Fed. App’x 1, 3 (D.C. Cir. 2015) (“EPA acted well within the bounds of its delegated authority when it disapproved of Kansas’s proposed [good neighbor] SIP.”).

<sup>58</sup> *North Dakota v. EPA*, 730 F.3d 750, 761 (8th Cir. 2013).

<sup>59</sup> *North Dakota v. EPA*, 730 F.3d 750, 761 (8th Cir. 2013). See also *Alaska Department of Environmental Conservation v. EPA*, 540 U.S. 461, (2004) (concluding that EPA was not limited to verifying that a BACT determination had been made, but rather EPA could examine the substance of the BACT determination).

<sup>52</sup> According to 2023 reported emissions available at <https://campd.epa.gov/>.

<sup>53</sup> 77 FR 38007, June 26, 2012 and 83 FR 48242, September 24, 2018.

<sup>54</sup> See Appendix C–1–7 to the state’s submission.

<sup>55</sup> Based on “Daily Impairment Values Including Patched Values” IMPROVE data spreadsheet, <https://vista.cira.colostate.edu/Improve/rhr-summary-data/>. For the 20% most impaired days from 2018–2022, Mammoth Cave is the 5th most anthropogenically impaired Class I area with a 5-year average

selected source. During both the pre-proposal and formal public comment period, the EPA commented on the cost analysis presented in the state's plan. The EPA identified specific errors, over- or underestimations, inappropriate or unexplained assumptions, and inconsistencies with the EPA Air Pollution Control Cost Manual.<sup>60</sup> In response, Missouri addressed many of the EPA's concerns by correcting certain identified errors or assumptions. For example, Missouri removed disallowed costs from the cost assumptions such as owner's costs and updated cost estimates to also include the default remaining useful life as recommended by the EPA. However, the EPA believes that Missouri did not correct all the deficiencies in the cost assumptions and proposes to find certain aspects of the cost analyses are not well supported. The EPA further explains these deficiencies in the state's cost analyses in the technical support document (TSD), contained in the docket for this action. For example, the EPA commented on Missouri's reliance on Ameren's four-factor analysis which included a non-default retrofit factor of 1.5 for wet FGD and SDA and 1.2 for SCR evaluated at the Ameren facilities (Labadie and Rush Island). Missouri and Ameren did provide additional documentation in response to the EPA's comment. However, Missouri's reliance on Ameren's non-default retrofit factors should include more detailed cost estimates related to the specific retrofit hardships at each facility. The EPA Air Pollution Control Cost Manual (CCM) includes a retrofit factor in the control cost calculations to account for the relative difficulty in installing a control device. The default value of 1 is associated with average difficulty in retrofitting an existing unit with a control device. A value of 0.77 is generally assumed for new units. Therefore, the default retrofit factor of 1 already includes a 30% increase in costs compared to new construction. A retrofit factor of 1.5 is the maximum value allowed in the Control Cost Manual spreadsheets and has the effect of inflating base cost estimates by 50%. The Control Cost Manual (CCM) specifically notes that the retrofit factor should be between 0.7 and 1.3 for wet FGD systems and between 0.8 and 1.5 for dry FGD systems<sup>61</sup> and

documentation of site congestion, site access, complex ductwork construction and capacity of existing infrastructure is needed to determine the complexity of the retrofit and associated retrofit factor. Therefore, to support a retrofit factor above 1 a source should provide site specific documentation detailing the inflated costs associated with the CCM criteria (site congestion, site access, ductwork complexity as well as capacity of existing infrastructure that would lead to above average retrofit difficulty). The EPA commented on Missouri's reliance on Ameren's four-factor analysis which included a non-default retrofit factor of 1.5 for SDA and wet FGD and 1.2 for SCR evaluated at the two Ameren facilities (Labadie and Rush Island). Specifically, the EPA commented that the state and source needed to provide additional documentation to support the use of this non-default retrofit factor. In response to the EPA's comment, Missouri and Ameren provided additional documentation in the form of aerial imagery documenting the site congestion and site access as well as engineering plans and schematics of potential control device location, rerouted ductwork, and other construction projected as part of installation of wet FGD at Labadie. However, these do not appear to be accompanied by site-specific cost estimates for the various aspects of the retrofit hardship. Ameren also included cost estimates based on prior source specific studies for wet FGD and DSI at Labadie and Rush Island (See Table 3 in Appendices C-6 and C-7 of the state submittal, respectively). However, no specifics are provided about these prior studies nor are the underlying cost assumptions provided for comparison with the new CCM calculations provided. Ameren reasoned that a higher retrofit factor was needed because the prior source-specific studies resulted in cost estimates higher than the estimates using the CCM assumptions. However, this assumption is not well supported. The EPA does not have access to and therefore cannot review the necessary underlying cost assumptions from these prior studies to determine the reasonableness of those estimates. To support the retrofit factor of 1.2 for SCR, the state points to the documentation provided for the wet FGD as supplied by Ameren but there is no documentation specific to the retrofit factor for SCR. Additionally, these higher retrofit factors are utilized in the cost calculations for both Ameren

facilities (Labadie and Rush Island) but the documentation including imagery and schematics appear specific to Labadie. Therefore, there appears to be no site-specific documentation provided for the non-default retrofit factors used for Rush Island.

Detailed, technical cost information and robust documentation is needed to justify the inflated costs resulting from the use of the maximum retrofit factor value for SO<sub>2</sub> controls at each Ameren facility. Other electric generating units in the state (and outside the state) do not rely on such a non-default retrofit factor despite having similar limitations, such as physical space limitations, to accommodate control device retrofits.<sup>62</sup> The EPA invites comment on the reasonableness of using a non-default retrofit factor and whether other cases of using such a factor may be instructive to the outcome of this specific scenario.

In addition to reviewing Missouri's cost analyses, the EPA performed independent cost calculations for certain control measures at the selected sources to compare with Missouri's cost calculations. These calculations are summarized below and further detailed in the TSD included in the docket for this action. The EPA updated certain aspects of the Missouri cost calculations to follow EPA guidance. For example, the EPA used the default retrofit factor of 1 in our calculations for all facilities evaluated. This change, along with the other corrections made in the EPA's cost analyses, result in cost effectiveness values of SO<sub>2</sub> controls near or within the cost range established by Missouri. Further, the EPA calculated cost effectiveness numbers are similar to maximum control costs implemented in the first planning period for several states.

The EPA's analysis also changed the emissions baseline used in determining the emission reduction for a given control to arrive at the cost effectiveness (or cost per ton) value. While Missouri relied on the average of reported annual emissions to define the reduction estimate, the EPA recommends using the maximum annual emissions for the analyzed time period when setting the baseline emissions to calculate the cost effectiveness. Similarly, the time period selected for the baseline emissions also influences the final cost effectiveness value. For this reason, the EPA performed the cost analyses using both the same time period used by Missouri

<sup>60</sup> EPA Air Pollution Control Cost Manual, <https://www.epa.gov/economic-and-cost-analysis-air-pollution-regulations/cost-reports-and-guidance-air-pollution>.

<sup>61</sup> Section 5—Chapter 1: Wet and Dry Scrubbers for Acid Gas Control, Section 1.2.3.5. <https://www.epa.gov/sites/default/files/2021-05/>

[documents/wet\\_and\\_dry\\_scrubbers\\_section\\_5\\_chapter\\_1\\_control\\_cost\\_manual\\_7th\\_edition.pdf](https://www.epa.gov/sites/default/files/2021-05/documents/wet_and_dry_scrubbers_section_5_chapter_1_control_cost_manual_7th_edition.pdf).

<sup>62</sup> See the EPA's response to comment including comment on the range of retrofit factors for wet and dry FGD on EGUs. [https://www.epa.gov/sites/default/files/2021-05/documents/rtdocument\\_wet\\_and\\_dry\\_scrubbers\\_controlcostmanual\\_7thedition.pdf](https://www.epa.gov/sites/default/files/2021-05/documents/rtdocument_wet_and_dry_scrubbers_controlcostmanual_7thedition.pdf).

(2016–2020) for a direct comparison and the most recent time period (2018–2022) in order to fully evaluate the range of cost effectiveness values using all currently available data. The baseline emissions assumption alone makes a significant difference when comparing the EPA’s cost effectiveness values with the state’s values, but other updates to the cost analysis refine and generally reduce the overall costs. Further, when the calculations are corrected to be consistent with EPA guidance, there are control costs near and within the cost range as identified as reasonable by Missouri. For example, the EPA’s calculations result in SO<sub>2</sub> control costs as low as \$2,688 per ton. Therefore, we propose to find there are likely cost-effective control options at most, if not all, sources selected by Missouri. As noted previously, there are control costs that were previously found reasonable by states or the EPA, in the dataset used by Missouri to set a cost threshold, that are similar to the range of costs as calculated by Missouri and the EPA. States should provide a sufficient justification in order to reject measures that have been required at similarly situated facilities in a similar cost range.

The Federal land managers commented on the state’s use of an “unreasonably low threshold” and the inappropriate assumptions utilized in the state’s cost analyses. On page 54 of Appendix G–2 to the state’s submittal, the National Park Service (NPS) references the aspects of Missouri’s cost analyses that are inconsistent with the EPA rules or guidance and provides their own estimates of cost effectiveness for the selected sources, often significantly lower than the values presented by Missouri. The cost values provided by the NPS further corroborate the EPA’s revised cost analyses, as contained in the TSD, that result in cost effective controls at most of the state’s selected sources.

In Table 21 of the TSD, the EPA identifies the cost effectiveness in 2021 dollars for SO<sub>2</sub> control measures such as DSI, SDA and wet FGD. For NO<sub>x</sub>, the EPA evaluates SCR and SNCR. In Table 29 of the TSD, the EPA identifies the cost effectiveness in 2021 dollars for SCR and SNCR. The spreadsheets included in the docket contain all the underlying data for the EPA’s cost analyses including the cost effectiveness values in 2021 dollars using both baseline time periods as previously mentioned.<sup>63</sup> For example, the EPA’s estimated cost effectiveness values for DSI range from \$2,688 per ton to \$4,119 per ton. The EPA’s estimated cost effectiveness values for SDA range from \$3,966 per ton to \$7,846 per ton. The EPA’s estimated cost effectiveness values for wet FGD range from \$4,081 per ton to \$9,201 per ton. The EPA’s estimated cost effectiveness values for SCR range from \$795 per ton to \$27,208 per ton. The lowest costs in this dataset are associated with the units that already have SCR installed. In this case, the control cost is entirely associated with operation of the existing SCR with no additional capital cost of installation since they are already installed on those units. The EPA’s estimated cost effectiveness values for SNCR range from \$7,429 per ton to \$16,580 per ton. Consistent with Missouri’s cost analyses, the EPA did not calculate the cost effectiveness of SNCR on units that already have SCR installed. Additionally, the EPA did not evaluate SNCR for Sikeston as a prior technical infeasibility determination was made by the source.<sup>64</sup>

Table 4 of this preamble below includes an abbreviated summary of the EPA’s cost analyses for certain SO<sub>2</sub> control devices. The EPA’s methodology for the cost calculations is included in the TSD along with the full table of control cost results. In table 4 of this preamble below, we present only the values associated with wet FGD with an

emissions limit of 0.06 lb/mmBTU. The TSD also presents costs associated with wet FGD with an emissions limit of 0.04 lb/mmBTU. Cost effectiveness values associated with the 0.04 lb/mmBTU emissions limit are lower due to the greater emissions reductions. To be conservative, this table presents only the highest cost per ton values (*i.e.*, least cost-effective) from the two time periods evaluated by the EPA for each control type by unit. Values for both time periods are presented in the TSD. Generally, the EPA’s resulting cost effectiveness values are lower (more cost effective) than the values presented by Missouri. The cost effectiveness of wet FGD is higher than SDA. However, wet FGD delivers significant improvements in cost effectiveness as the tonnage of SO<sub>2</sub> removal increases due to the greater level of control. DSI appears the most cost effective given the lower capital cost compared with SDA and wet FGD, but also comes with lower control efficiency. For facilities with higher cost effectiveness values for SDA and wet FGD, DSI may be a reasonable option. The EPA notes that there are examples nationally of each of these control types being implemented at large electric generating units such that these types of controls are technically and economically feasible at such sources. Specifically, these types of SO<sub>2</sub> controls were implemented at the sources included in the underlying data for Missouri’s cost threshold, and in some cases, with cost effectiveness values higher than the threshold set by Missouri. As previously discussed, if Missouri would have set the cost threshold for this planning period nearer other states thresholds or near the maximum of costs from the first planning period (*i.e.*, around \$6,000/ton), both the cost effectiveness values presented by Missouri and the EPA’s revised values would be below that threshold for most SO<sub>2</sub> control types.

TABLE 4—SUMMARY OF THE EPA’S COST EFFECTIVENESS VALUES FOR DSI, SDA AND WET FGD

Facility	Unit	Date range with highest cost per ton	Control	SO <sub>2</sub> reduction (tons per year), based on CCM/RCA cost spreadsheet calculations	2021\$ Cost effectiveness (\$/ton), based on CCM spreadsheet (for SDA/WFGD) and 2023 version of RCA for DSI
John Twitty .....	1 .....	2018–2022	DSI .....	2392	2928
		2018–2022	SDA .....	2520	7011
		2018–2022	WFGD .....	2520	8205

<sup>63</sup> The following values presented as minimum and maximum cost effectiveness values include the full range of values for both baseline emission time periods.

<sup>64</sup> In January 2009, Sikeston submitted an applicability determination request to install SNCR. However, after initial testing, Sikeston determined that SNCR was infeasible at the facility due to stalactite formation, drooping and damaging the

boiler tubes. Based on that information, Missouri removed SNCR from further consideration in Sikeston’s four-factor analysis. Similarly, the EPA did not evaluate SNCR at Sikeston. See Appendix C–5 to Missouri’s submittal for more information.

TABLE 4—SUMMARY OF THE EPA’S COST EFFECTIVENESS VALUES FOR DSI, SDA AND WET FGD—Continued

Facility	Unit	Date range with highest cost per ton	Control	SO <sub>2</sub> reduction (tons per year), based on CCM/RCA cost spreadsheet calculations	2021\$ Cost effectiveness (\$/ton), based on CCM spreadsheet (for SDA/WFGD) and 2023 version of RCA for DSI
Labadie .....	1 .....	2016–2020	DSI .....	8177	3609
		2016–2020	SDA .....	9008	4780
		2016–2020	WFGD .....	9008	5038
	2 .....	2016–2020	DSI .....	8308	3608
		2016–2020	SDA .....	9023	4774
		2016–2020	WFGD .....	9023	5048
	3 .....	2016–2020	DSI .....	8497	3606
		2016–2020	SDA .....	9100	4825
		2016–2020	WFGD .....	9100	5010
	4 .....	2016–2020	DSI .....	8255	3614
		2016–2020	SDA .....	8692	5019
		2016–2020	WFGD .....	8692	5212
New Madrid .....	1 .....	2018–2022	DSI .....	5657	3774
		2016–2020	SDA .....	6104	6444
		2016–2020	WFGD .....	6104	6730
	2 .....	2018–2022	DSI .....	5953	3739
		2018–2022	SDA .....	6518	6057
		2018–2022	WFGD .....	6518	6322
Rush Island .....	1 .....	2018–2022	DSI .....	7668	3629
		2018–2022	SDA .....	8264	4732
		2018–2022	WFGD .....	8264	5055
	2 .....	2018–2022	DSI .....	9159	3580
		2018–2022	SDA .....	9689	4111
		2018–2022	WFGD .....	10114	4209
Sikeston .....	1 .....	2018–2022	DSI .....	5661	3711
		2018–2022	SDA .....	4809	4292
		2018–2022	WFGD .....	4809	4901
Thomas Hill .....	1 .....	2018–2022	DSI .....	2006	4119
		2018–2022	SDA .....	2248	7846
		2018–2022	WFGD .....	2248	9201
	2 .....	2016–2020	DSI .....	2864	3982
		2016–2020	SDA .....	3210	7559
		2016–2020	WFGD .....	3210	8520
	3 .....	2016–2020	DSI .....	8316	3658
		2016–2020	SDA .....	9371	5300
		2016–2020	WFGD .....	9371	5338

Table 5 below includes a summary of the EPA’s cost effectiveness values for NO<sub>x</sub> controls.

TABLE 5—SUMMARY OF THE EPA’S COST EFFECTIVENESS VALUES FOR SCR AND SNCR

Facility	Unit	Date range with highest cost per ton	Control	NO <sub>x</sub> reduction (tons per year), based on CCM/RCA cost spreadsheet calculations	2021\$ Cost effectiveness (\$/ton), based on CCM spreadsheet for SCR and 2023 version of RCA for SNCR
John Twitty .....	1 .....	2018–2022	SCR .....	359	3,313
Labadie .....	1 .....	2018–2022	SCR .....	948	24,483
		2018–2022	SNCR .....	302	9,064
	2 .....	2016–2020	SCR .....	977	23,960
		2018–2022	SNCR .....	301	9,130
	3 .....	2018–2022	SCR .....	1,106	21,747
		2018–2022	SNCR .....	359	8,245
	4 .....	2018–2022	SCR .....	971	23,878
		2018–2022	SNCR .....	355	8,306
New Madrid .....	1 .....	2016–2020	SCR .....	10,691	798
	2 .....	2018–2022	SCR .....	9,617	832
Rush Island .....	1 .....	2016–2020	SCR .....	869	23,960
		2018–2022	SNCR .....	208	11,181
	2 .....	2018–2022	SCR .....	763	26,659

TABLE 5—SUMMARY OF THE EPA’S COST EFFECTIVENESS VALUES FOR SCR AND SNCR—Continued

Facility	Unit	Date range with highest cost per ton	Control	NO <sub>x</sub> reduction (tons per year), based on CCM/RCA cost spreadsheet calculations	2021\$ Cost effectiveness (\$/ton), based on CCM spreadsheet for SCR and 2023 version of RCA for SNCR
Sikeston .....	1 .....	2018–2022	SNCR .....	130	15,427
	1 .....	2016–2020	SCR .....	598	15,520
Thomas Hill .....	1 .....	2016–2020	SCR .....	3,237	872
	2 .....	2016–2020	SCR .....	4,695	876
	3 .....	2016–2020	SCR .....	4,999	1,349

The cost effectiveness of SCR is higher than SNCR for units that do not already have SCR installed. However, SCR delivers significant improvements in cost effectiveness as the tonnage of NO<sub>x</sub> removal increases due to the greater level of control of SCR over SNCR. The cost effectiveness of operating already installed SCR is extremely cost effective in comparison. As required in the Missouri source agreements submitted with the SIP, the EPA agrees that existing SCR should be required to be operated continuously on those units already equipped with SCR at the John Twitty, Thomas Hill, and New Madrid plants. Similar to the SO<sub>2</sub> control summary, the EPA’s revised cost effectiveness values for NO<sub>x</sub> controls are generally lower than the values presented by Missouri. For units that have relatively low inlet NO<sub>x</sub> values, post-combustion controls have lower removal efficiency and accordingly high cost effectiveness values. Similar to Missouri’s assessment, the EPA finds the cost effectiveness values for installing new post combustion NO<sub>x</sub> controls are considerably higher than the highest cost effectiveness values found to be reasonable in the first planning period (the dataset underlying Missouri’s cost threshold) and therefore may not be economically feasible for the second planning period.

Importantly as part of this action, the EPA is not proposing that any given control technology or numeric emissions limit as evaluated in our TSD is necessary for a given unit. Rather, the EPA provided its own cost effectiveness calculations as evidence that Missouri’s control decisions, that reject what may be otherwise reasonable control measures based solely on the state’s selected cost threshold, are unreasonable.

*Legal Deficiencies of Missouri’s Consent Agreements*

To formalize the finding that existing measures are sufficient to make reasonable progress, Missouri entered

into new consent agreements with each source selected and analyzed, with the exception of Mississippi Lime Company.<sup>65</sup> The full source consent agreements are contained in Appendix E to the state’s plan, available in the docket for this rulemaking.

In the new consent agreements, Missouri required that each facility’s future fuel purchase be western sub-bituminous coal derived from the powder river basin. In addition, each facility agreed to operate any existing control devices at all times when burning coal in the boiler(s) except during periods of start-up, shutdown, or malfunction pursuant to 10 CSR 10–6.050. Through these consent agreements, the state required two facilities to run their existing selective catalytic reduction (SCR) technology when burning coal. The EPA reviewed the consent agreements and provided comment through the state’s public process. The EPA commented on the significant approvability concerns related to the permanence and enforceability of the agreements. Specifically, the EPA commented that the agreements do not contain the necessary numerical emissions limitations associated with the operational requirements needed to be practically enforceable and, therefore, are not consistent with the relevant CAA and RHR requirements. For example, CAA section 110(a)(2)(A) states that each implementation plan submitted by a state shall “include enforceable emission limitations and other control measures, means, or techniques . . . as well as schedules and timetables for compliance, as may be necessary or appropriate to meet the

applicable requirements of this chapter.”<sup>66</sup> The EPA also commented that the sole requirement to burn western sub-bituminous coal still allows for a wide variability in the sulfur content of the coal and, therefore, emissions from the source. Similarly, the requirement to operate existing SCR technology without a particular numeric emissions limit or operating parameters allows for a wide variability in the control efficiency and operations of the SCR and, therefore, emissions from the source.<sup>67</sup> Missouri did not amend the agreements in response to the EPA’s formal comments.

The CAA requires that SIPs, including regional haze SIPs, contain elements sufficient to ensure emission limitations are practically enforceable. CAA section 110(a)(2) states that the monitoring, recordkeeping, and reporting provisions of states’ SIPs must: “(A) include enforceable emissions limitations and other control measures, means, or techniques (including economic incentives such as fees, marketable permits, and auctions of emissions rights), as well as schedules and timetables for compliance, as may be necessary or appropriate to meet the applicable requirements of this chapter; . . . (C) include a program to provide for the enforcement of the measures described in subparagraph (A), and regulation of the modification and construction of any stationary source within the areas covered by the plan as necessary to assure that national ambient air quality standards are achieved, including a permit program as required in parts C and D of this subchapter; . . . (F) require, as may be

<sup>65</sup> For the Mississippi Lime Company, Missouri’s plan appears to rely on current operational practices consistent with the parameters and limits in the Mississippi Lime Air Pollution Control Title V Permit to Operate instead of entering a new consent agreement. The EPA notes that Title V permit requirements are not permanent and therefore may not be relied upon for SIP requirements unless those components of the permit are submitted for inclusion into the SIP.

<sup>66</sup> See CAA Section 110(a)(2) and section 110(a)(2)(A); see also *Committee for a Better Arvin v. U.S. E.P.A.*, 786 F.3d 1169, 1175 (9th Cir. 2015)

<sup>67</sup> The EPA provided variability analyses to demonstrate how these operational requirements without a numerical emissions limit do not practically limit emissions to an explicit level. See the EPA’s comment letters on both the pre-hearing draft (dated September 28, 2021) and the public notice draft (dated May 5, 2022) of Missouri’s second planning period regional haze SIP.

prescribed by the Administrator—(i) the installation, maintenance, and replacement of equipment, and the implementation of other necessary steps, by owners or operators of stationary sources to monitor emissions from such sources, (ii) periodic reports on the nature and amounts of emissions and emissions-related data from such sources, and (iii) correlation of such reports by the State agency with any emissions limitations or standards established pursuant to this chapter, which reports shall be available at reasonable times for public inspection.”<sup>68</sup>

Accordingly, 40 CFR part 51, subpart K, Source Surveillance, requires the SIP to provide for monitoring the status of compliance with the regulations in the SIP, including “[p]eriodic testing and inspection of stationary sources,”<sup>69</sup> and “legally enforceable procedures” for recordkeeping and reporting.<sup>70</sup> Furthermore, 40 CFR part 51, appendix V, Criteria for Determining the Completeness of Plan Submissions, states in section 2.2 that complete SIPs contain: “(g) Evidence that the plan contains emission limitations, work practice standards and recordkeeping/reporting requirements, where necessary, to ensure emission levels”; and “(h) Compliance/enforcement strategies, including how compliance will be determined in practice.”<sup>71</sup>

As previously mentioned, emission reduction measures that are necessary to make reasonable progress may be either new, additional control measures, or they may be the existing emission reduction measures that a source is already implementing. *See* 2019 Guidance at 43; 2021 Clarifications Memo at 8–10. Such measures must be represented by “enforceable emissions limitations, compliance schedules, and other measures” (*i.e.*, any additional compliance tools) in a state’s long-term strategy in its SIP. 40 CFR 51.308(f)(2). The EPA proposes to find that the source agreements, submitted by Missouri to serve as the enforceable mechanism of the long-term strategy, do not meet the requirements of 40 CFR 51.308(f)(2) to include *enforceable* emissions limitations. Specifically, the source agreements do not contain the necessary numeric emissions limits to constitute a practically enforceable measure needed for reasonable progress as required by the RHR.

The EPA also has concerns with the delayed compliance date in the

agreements. Specifically, the consent agreements state that requirements of the agreements must be complied with “Starting 180 days after the approval of this agreement by the EPA as an attachment to Missouri’s SIP for the second planning period of the RH program and consistent with the exemption and termination provisions set forth in the Consent Agreement.” The EPA believes the agreements should include a reasonable compliance date based on the expected time necessary to implement controls or other operational requirements. The control requirements under the consent agreements are premised on operating existing installed emissions controls (for NO<sub>x</sub>) and for continued purchase and combustion of low sulfur coal (for SO<sub>2</sub>). The EPA has consistently found that such emissions control strategies are capable of being implemented in a matter of weeks, if not immediately given the nature of the requirements. *E.g.*, 88 FR 36654, 36720–22 (June 5, 2023); 86 FR 23054, 23088–89 (April 30, 2021); and 81 FR 74504, 74561 (October 26, 2016). Instead, the state tied the effectiveness of these emissions reductions to an event that is irrelevant to substantive compliance with the regional haze program, *i.e.*, the effective date of any final action by the EPA to approve the Consent Agreements into Missouri’s SIP. This was improper; as a result of this provision, even at this point in time, Missouri has not imposed the requirements of the Consent Agreements on the affected sources and, under the plain terms of the Consent Agreements, to this day the covered sources are under no obligation to comply with them.

The EPA further has concerns with certain other provisions (including but not limited to termination provisions) in the agreements. For example, the consent agreements contain provisions that allow for the state and the affected sources to modify them without following the statutorily-mandated process for SIP revisions and without requisite analysis by the EPA under CAA section 110(l). *See* CAA section 110(i); 110(l). While the EPA will allow for consent agreements or permitting requirements to be incorporated by reference into a state’s SIP to meet SIP requirements, 50 CFR Pt. 51 App’x V, para. 2.1.(b), it is important that the state provides that to the extent such provisions are approved and incorporated into the state’s SIP, such provisions, as approved, cannot be modified by later changes made to the underlying agreements or permits outside of the SIP revision process. Once approved by the EPA into the SIP

as meeting the applicable SIP requirements, only changes made through the statutory SIP revision process may modify the approved requirements of the state’s SIP. In this instance, the terms of the Consent Agreements explicitly authorize the state and the affected sources to cancel the agreements in toto and without the EPA’s approval of such a modification, which would in effect negate the emissions limitations in their entirety. This is antithetical to the requirement that SIP provisions be permanent and enforceable, and not changed except pursuant to the statutory and regulatory processes for SIP revisions.

The consent agreements should not be unilaterally terminated by either the source or the state since the state has presented the consent agreements as necessary to achieve reasonable progress within the SIP revision submitted to the EPA for approval. Missouri is relying on Consent Agreements that include termination clauses that render the agreements and any contained requirements as not permanent and therefore not consistent with CAA and RHR requirements. Specifically, paragraph 12 of the consent agreements allows for termination of the agreement upon “mutual written agreement of” the source and the state. Paragraph 12 remains an unambiguous statement authorizing termination of the Agreements upon agreement of the parties to them.<sup>72</sup> If the source and the MoDNR chose to exercise their rights in Paragraph 12, the Consent Agreements would be terminated without review or approval from the EPA and without input from the public, and the source would be under no obligation to comply. Therefore, the EPA concludes that paragraph 12 violates the CAA’s prohibition on modification of SIPs outside the authorized SIP revision process pursuant to sections 110(i) and (l) of the CAA. SIP provisions cannot authorize a state to make changes in the EPA-approved and federally enforceable SIP requirements applicable to sources without going through the statutorily required SIP-revision process. The EPA refers to SIP provisions that purport to authorize states to make unilateral changes to existing SIP requirements as impermissible “director’s discretion” provisions. *See, e.g.*, 86 FR 15104, 15116 (March 22, 2021). However, the EPA interprets the CAA to allow two

<sup>72</sup>The courts would also likely interpret this language similarly to the EPA. *See, e.g., New York v. U.S. EPA*, 525 F.Supp.3d 340, 356 (N.D.N.Y. 2021) (“[T]he scope of a consent decree must be discerned within its four corners . . . .”) (quoting *Firefighters Local Union No. 1784 v. Stotts*, 467 U.S. 561, 574 (1984)).

<sup>68</sup> 42 U.S.C. 7410(a)(2)(A), (C), and (F).

<sup>69</sup> 40 CFR 51.212.

<sup>70</sup> *Id.* § 51.214.

<sup>71</sup> 40 CFR part 51, appendix V.

types of such provisions: (1) where the provision provides director's discretion for the state to make changes, but specifies that such changes have no effect for purposes of Federal law or alter SIP requirements unless and until the EPA approves the changes through a SIP revision pursuant to CAA requirements; or (2) where the provision provides director's discretion that is adequately bounded, such that at the time the EPA approves the SIP provision the Agency can evaluate it for compliance with applicable CAA requirements and evaluate the potential impacts of the state's exercise of that discretion. The EPA interprets CAA section 110(I) to allow SIP provisions with director's discretion of either type. In the case of an adequately bounded provision, the EPA considers such provisions consistent with section 110(I) because, at the time of initial approval into the SIP, the Agency will already have evaluated the provision for compliance with applicable requirements and evaluated the potential impacts from exercise of the discretion. *E.g.*, 86 FR 15116, March 22, 2021.

In *Environ. Comm. Fl. Elec. Power v. EPA*, 94 F.4th 77 (D.C. Cir. 2024), the D.C. Circuit held that the EPA impermissibly issued a SIP call, under CAA section 110(k)(5), in its 2015 SSM SIP Action<sup>73</sup> for certain SIP provisions applicable to emissions during SSM events, including certain director's discretion type provisions that the EPA had previously approved. However, the Court did not foreclose that some director's discretion provisions may be so unbounded as to interfere with the Agency's ability to predict the impact on compliance with the CAA's requirements. *Id.* At 111. Further, *Enviro. Comm. Fl. Elec. Power* concerns the EPA's authority to issue a SIP call for certain provisions that it previously approved and not the EPA's authority to approve or disapprove a SIP submission in the first instance. Compare CAA section 110(k)(3) with (k)(5).

Here, Paragraph 12 of the Consent Agreements in effect provides unbounded discretion to the state to eliminate the requirements, even though the MoDNR has submitted these Consent Agreements as necessary to satisfy Missouri's obligation to achieve reasonable progress in the regional haze program. Thus, Paragraph 12, which allows Missouri and its sources to agree between themselves to terminate these emissions control requirements at any time for any reason, is unacceptably too unbounded to meet regional haze

obligations. Likewise, the EPA finds Paragraph 12 to be inconsistent with CAA section 110(i) and (I) because it permits the state not merely discretion to modify some provision within the overall operation of a broader regulatory scheme, but the ability to terminate the Agreements completely—*i.e.*, the entirety of the emissions control program the state has put forward—at will. The EPA agrees that emissions controls on these sources are necessary (albeit not sufficient as discussed earlier in this section) for Missouri to achieve reasonable progress and it would be inappropriate for the EPA to approve as SIP provisions these Consent Agreements that the state could eliminate without undertaking the necessary SIP revision process mandated by the Act.

Here, Paragraph 12 violates the anti-backsliding provisions of section 110(I) of the CAA, which requires that the EPA shall not approve any revision of a plan if the revision would interfere with any applicable requirement concerning attainment and reasonable further progress. 42 U.S.C. 7410(I). The termination provision would allow a unilateral amendment to the SIP, potentially removing emissions and pollution control limits without an evaluation of whether the removal would interfere with attainment or reasonable further progress or would interfere with any other applicable requirement of the Act.

As mentioned above, the Consent Agreements include termination clauses that render them unenforceable depending on the nature of the action the EPA takes. Even if the EPA could have explored the possibility of a limited or partial approval of the consent agreements, it is not able to do this if doing so would render the emissions control measures established through the consent agreements unenforceable, by triggering the sources' ability to unilaterally withdraw from the agreements. Nor does the EPA have discretion to partially approve the consent agreements by not including within its approval those provisions of the Consent Agreements such as Paragraph 13 (and others discussed in this section) that are not approvable. To do so would be to render the SIP revision more stringent than the state intended, which the EPA is not authorized to do. See *Bethlehem Steel Corp. v. Gorsuch*, 742 F.2d 1028 (7th Cir. 1984).

Despite this, there remain multiple problematic provisions of the Consent Agreements that render them non-permanent and unenforceable. It is this language in the Agreements themselves,

in addition to the possibility of a future modification to them, that renders them not approvable as a SIP revision for the purposes of ensuring reasonable progress under the regional haze program. However, because the consent agreements are otherwise not approvable, the EPA need not further evaluate the SSM, force majeure, or other exemption provisions of the agreements for compliance with the Act. Due to the identified flaws in the consent agreements as described above, the EPA cannot approve these consent agreements as a revision to Missouri's SIP nor as enforceable measures of the long-term strategy under 40 CFR 51.308(f)(2).

For the reasons described in this section and in the TSD, the EPA proposes to find that Missouri failed to submit an approvable Long-Term Strategy because it (1) failed to reasonably "evaluate and determine the emission reduction measures that are necessary to make reasonable progress by considering 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 anthropogenic source of visibility impairment," as required by 40 CFR 51.308(f)(2)(i); CAA section 169A(g)(1); (2) has not adequately supported its conclusions that existing measures satisfy the requirement to make reasonable progress; and (3) has not shown that further reductions of visibility impairing pollutants are not reasonable and has not adequately explained how its approach is consistent with the CAA's requirement to make reasonable progress. In addition, the state rejected otherwise reasonable control measures based primarily on the unreasonable justification and use of the selected cost threshold and on cost effectiveness calculations that do not fully align with EPA guidance. Further, Missouri has not included practically enforceable emissions limits to ensure that selected sources comply with the requirements constituting *existing measures* Missouri determined as needed to make reasonable progress. Specifically, the included source agreements do not contain explicit enforceable emissions limits associated with existing operations and include problematic termination or other exemption provisions, rendering them unenforceable and not permanent. Therefore, the EPA is proposing to disapprove Missouri's Long-Term Strategy as required by 40 CFR 51.308(f)(2).

<sup>73</sup> See 80 FR 33840, June 12, 2015.

### 3. Additional Long-Term Strategy Requirements

The consultation requirements of § 51.308(f)(2)(ii) provides that states must consult with other states that are reasonably anticipated to contribute to visibility impairment in a Class I area to develop coordinated emission management strategies containing the emission reductions measures that are necessary to make reasonable progress. Section 51.308(f)(2)(ii)(A) and (B) require states to consider the emission reduction measures identified by other states as necessary for reasonable progress and to include agreed upon measures in their SIPs, respectively. Section 51.308(f)(2)(ii)(C) speaks to what happens if states cannot agree on what measures are necessary to make reasonable progress.

In Appendix G–3, Missouri included documentation of its consultation with other states and responses to requests from other states as it relates to the state's development of its long-term strategy. However, because these elements are not separable from the overall requirement at 40 CFR 51.308(f)(2) to develop an enforceable long-term strategy, the EPA accordingly proposes to disapprove all elements of Missouri's regional haze SIP submission as it relates to the 40 CFR 51.308(f)(2) rule requirements.

The documentation requirement of § 51.308(f)(2)(iii) provides that states may meet their obligations to document the technical bases on which they are relying to determine the emission reductions measures that are necessary to make reasonable progress through an RPO, as long as the process has been "approved by all State participants."

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

Missouri included emissions information from the most recent national emissions inventory (NEI) reporting year in its submittal. Section 4.1.1 of Missouri's submittal details how the state meets the emissions inventory requirement. Missouri also includes additional information on the inventory development in Appendix A to the state's submittal. However, because these elements are not separable from the overall requirement of 40 CFR 51.308(f)(2) to develop an enforceable

long-term strategy, the EPA accordingly proposes to disapprove all elements of Missouri's regional haze SIP submission as it relates to the 40 CFR 51.308(f)(2) rule requirements.

#### F. Reasonable Progress Goals

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

In Chapters 5 and 6 of Missouri's SIP submission, the state describes the process followed to determine the RPGs for each of the state's Class I areas. Missouri relied on the EPA's modeling of projected 2028 visibility conditions as the basis for establishing the RPGs.<sup>74</sup> Specifically, Missouri established an RPG of 17.44 dv for Hercules-Glades

and 18.88 dv for Mingo. Each of these RPGs is slightly below the 2028 point on the uniform rate of progress line or glidepath (18.82 dv for Hercules-Glades and 19.48 dv for Mingo), meaning the state did not trigger the provision to provide a robust demonstration as just described.

At the time Missouri submitted its SIP, the provision triggering a robust demonstration did not apply because the states with Class I areas that are affected by Missouri sources did not submit any RPGs above the URP. Because we are proposing to disapprove certain elements of Missouri's SIP, if Missouri chooses to submit a revised SIP to the EPA, the state should re-evaluate whether the requirement of 40 CFR 51.308(f)(3)(iii) applies to Missouri.

The RPGs should reflect the visibility conditions as a result of the enforceable emissions limitations and other measures in the state's long-term strategy as required under 40 CFR 51.308(f)(2). Because the EPA is proposing to disapprove Missouri's long-term strategy under 40 CFR 51.308(f)(2) through this proposed rulemaking, the EPA is also proposing to disapprove the RPGs under 40 CFR 51.308(f)(3). If Missouri elects to submit a new long-term strategy, the state will also need to provide new RPGs associated with the new long-term strategy.

#### G. Monitoring Strategy and Other Implementation Plan Requirements

Section 51.308(f)(6) specifies that each comprehensive revision of a state's Regional Haze SIP must contain or provide for certain elements, including monitoring strategies, emissions inventories, and any reporting, recordkeeping and other measures needed to assess and report on visibility. A main requirement of this subsection is for states with Class I areas to submit monitoring strategies for measuring, characterizing, and reporting on visibility impairment. Compliance with this requirement may be met through participation in the Interagency Monitoring of Protected Visual Environments (IMPROVE) network. As noted in Chapter 7 of Missouri's submittal, Missouri continues to rely on participation in the IMPROVE network for its two Class I areas monitoring strategies.

Section 51.308(f)(6)(i) requires SIPs to provide for the establishment of any additional monitoring sites or equipment needed to assess whether reasonable progress goals to address regional haze for all mandatory Class I Federal areas within the state are being achieved. In Chapter 7 of the state plan,

<sup>74</sup> See the EPA's September 2019 memorandum titled, "Availability of Modeling Data and Associated Technical Support Document for the EPA's Updated 2028 Visibility Air Quality Modeling." [https://www.epa.gov/sites/default/files/2019-10/documents/updated\\_2028\\_regional\\_haze\\_modeling-td-2019\\_0.pdf](https://www.epa.gov/sites/default/files/2019-10/documents/updated_2028_regional_haze_modeling-td-2019_0.pdf).

Missouri describes how the two IMPROVE program monitors in Missouri are sufficient for determining progress in reducing visibility in the Missouri Class I areas due to their locations.

Section 51.308(f)(6)(ii) requires SIPs to provide for procedures by which monitoring data and other information are used in determining the contribution of emissions from within the state to Regional Haze visibility impairment at mandatory Class I Federal areas both within and outside the state. In Chapter 7 of the state plan, Missouri explains that the assessments of visibility impairment and progress in reducing visibility impairment at Missouri's two Class I areas, and at Class I areas in other states that Missouri's emissions may affect, in the future will use the revised IMPROVE algorithm (Pitchford, 2007) and will use data as prescribed in the EPA's RHR (40 CFR part 51, subpart P—Visibility Protection). The assessment will follow, as appropriate, EPA guidance including *Guidance on Regional Haze State Implementation Plans for the Second Implementation Period* (EPA, 2019) and *Technical Guidance on Tracking Visibility Progress for the Second Implementation Period of the Regional Haze Program* (EPA, 2018).

Section 51.308(f)(6)(iii) does not apply to Missouri, as it has Class I areas.

Section 51.308(f)(6)(iv) requires the SIP to provide for the reporting of all visibility monitoring data to the Administrator at least annually for each Class I area in the state. The monitoring strategy for Missouri relies upon the continued availability of the IMPROVE network. The IMPROVE monitor for the Hercules-Glades Wilderness Area (indicated as HEGL in the IMPROVE monitoring network database) is operated and maintained by the FS and is contained within the Mark Twain National Forest. The IMPROVE monitor for the Mingo National Wildlife Refuge (indicated as MING in the IMPROVE monitoring network database) is operated and maintained by the FWS. Since the state does not collect or handle IMPROVE data directly, the state commits to continue to participate in the IMPROVE Visibility Information Exchange Web System (VIEWS). The state considers VIEWS to be a core part of the overall IMPROVE program and will report IMPROVE data from the two Class I areas in Missouri to the EPA using the VIEWS web system.

Section 51.308(f)(6)(v) requires SIPs to provide for a statewide inventory of emissions of pollutants that are reasonably anticipated to cause or contribute to visibility impairment,

including emissions for the most recent year for which data are available and estimates of future projected emissions. It also requires a commitment to update the inventory periodically. Section 51.308(f)(6)(v) also requires states to include estimates of future projected emissions and include a commitment to update the inventory periodically. In Chapter 4.1 of the state plan, Missouri notes that it complies with 40 CFR part 51, subpart A, Air Emissions Reporting Requirements (AERR) to develop and submit periodic emissions inventories to the EPA every three years. Per the AERR, the state submitted to the EPA's National Emissions Inventory (NEI) 2011, 2014, and 2017 periodic emissions inventories as a comprehensive and detailed estimate of statewide air emissions. The reported pollutants include NO<sub>x</sub>, VOC, carbon monoxide (CO), SO<sub>2</sub>, NH<sub>3</sub>, PM<sub>2.5</sub>, and PM<sub>10</sub>. The type of emissions sources, amount of each pollutant emitted, and the types of processes and control devices employed at each facility or source category are identified in the inventory. The AERR emissions inventories are derived from estimates developed for four general categories of anthropogenic emissions sources: point, area or nonpoint, nonroad mobile, and onroad mobile. Chapter 4.1 of the state plan discusses general emissions inventory development for each of the anthropogenic source categories. Appendix A to the state's plan describes how the state developed the most recent emissions inventory, 2017, including compilation and submission to the NEI through the EPA's Emissions Inventory System (EIS). The EPA proposes to find that Missouri satisfies the requirements of 40 CFR 51.308(f)(6)(v) through compliance with the AERR.

For the reasons described in this section, the EPA proposes to find Missouri's plan satisfies the requirements of 40 CFR 51.308(f)(6) and proposes to approve this element of the state plan.

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

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

of implementation of all measures included in a state's first implementation period Regional Haze plan and a summary of the emission reductions achieved through implementation of those measures. Section 51.308(g)(3) applies only to states with Class I areas within their borders and requires such states to assess current visibility conditions, changes in visibility relative to baseline (2000–2004) visibility conditions, and changes in visibility conditions relative to the period addressed in the first implementation period progress report. Section 51.308(g)(4) applies to all states and requires an analysis tracking changes in emissions of pollutants contributing to visibility impairment from all sources and sectors since the period addressed by the first implementation period progress report. This provision further specifies the year or years through which the analysis must extend depending on the type of source and the platform through which its emission information is reported. Finally, § 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.

Missouri addresses the requirements of 40 CFR 51.308(g)(1) through (5) in Chapter 8 of the state's submittal. To meet the requirement of 40 CFR 51.308(g)(1), the state points to Chapter 4 of the submittal which details the existing measures that control emissions in the state including Federal, state, stationary, and mobile source emissions measures. To address 40 CFR 51.308(g)(2), the state refers to the emissions inventory included in Chapter 4, section 4.1.1.4, Tables 13 and 14, which depict the NO<sub>x</sub> and SO<sub>2</sub> emissions trends by source type and emission category for 2011, 2014, and 2017. To meet the requirement of 40 CFR 51.308(g)(3), the state evaluated the haze index and annual light extinction values for each IMPROVE site in Missouri between 2000 and 2018 and concluded that visibility conditions for the two Class I areas in Missouri have improved and are below the uniform rate of progress line. For 40 CFR 51.308(g)(4), the state refers to the emissions inventory in Chapter 4 of the submittal to show the change in emissions of pollutants contributing to

visibility impairment over time. To satisfy 40 CFR 51.308(g)(5), Missouri notes that most visibility impairing pollutants have decreased since the last planning period submittal with the exception of ammonia (NH<sub>3</sub>). Missouri refers to Chapter 4 of which details the existing measures that have resulted in those emissions decreases such as Federal, state or mobile source emissions programs.

The EPA finds that Missouri satisfactorily refers to the included emissions inventory, describes the emissions trends or changes as well as the visibility trends for their two Class I Areas to meet the requirements contained in 40 CFR 51.308(g)(1) through (5). Therefore, the EPA proposes to approve Missouri's plan as meeting the requirements of 40 CFR 51.308(g)(1) through (5).

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

Section 169A(d) of the CAA requires states to consult with FLMs before holding the public hearing on a proposed Regional Haze SIP, and to include a summary of the FLMs' conclusions and recommendations in the notice to the public."

Section 51.308(i)(2)'s FLM consultation provision requires a state to provide FLMs with an opportunity for consultation that is early enough in the state's policy analyses of its emission reduction obligation so that information and recommendations provided by the FLMs' can meaningfully inform the state's decisions on its long-term strategy. If the consultation has taken place at least 120 days before a public hearing or public comment period, the opportunity for consultation will be deemed early enough. Regardless, the opportunity for consultation must be provided at least sixty days before a public hearing or public comment period at the state level. Section 51.308(i)(2) also provides two substantive topics on which FLMs must be provided an opportunity to discuss with states: assessment of visibility impairment in any Class I area and recommendations on the development and implementation of strategies to address visibility impairment. Section 51.308(i)(3) requires states, in developing their implementation plans, to include a description of how they addressed FLMs' comments. Section 51.308(i)(4) requires states to provide for ongoing consultation between the state and FLM's on the implementation of the given plan and on development of future plan revisions or progress reports.

Missouri included summaries of their consultation with various FLMs as well as responses to their comments in Appendix G–2 to their submittal. On July 30, 2021, Missouri shared the pre-proposal draft of its second planning period regional haze plan with the FS, the FWS, the NPS, and the EPA. On September 21, 2021, Missouri held a formal consultation call with the three FLM agencies as well as the EPA.

However, because the EPA is proposing to disapprove certain elements of Missouri's SIP, namely the long-term strategy under 40 CFR 51.308(f)(2) and the reasonable progress goals under 40 CFR 51.308(f)(3), the EPA is also proposing to disapprove the FLM consultation requirements under 40 CFR 51.308(i). The requirements contained in 40 CFR 51.308(i): (i)(2), (i)(3), and (i)(4) are not separable from one another. While Missouri did take administrative steps to provide the FLMs the requisite opportunity to review and provide feedback on the state's draft plan, the EPA cannot approve the requirements under 40 CFR 51.308(i) because Missouri's consultation was based on a SIP revision that did not meet the required statutory and regulatory requirements of the CAA and the RHR, respectively. In addition, if the EPA were to finalize the partial approval and partial disapproval of Missouri's SIP, in the process of correcting the deficiencies outlined above with respect to the RHR and statutory requirements, the state (or the EPA in the case of an eventual FIP) will be required to again satisfy the FLM consultation requirements under 40 CFR 51.308(i). Therefore, the EPA proposes to disapprove the respective elements of Missouri's plan as not meeting the requirements of 40 CFR 51.308(i).

#### **VI. What action is the EPA proposing to take?**

The EPA is proposing to partially approve and partially disapprove the Missouri SIP revision relating to Regional Haze for the second planning period received on August 26, 2022, pursuant to section 110(k)(3) of the CAA and 40 CFR (f)(3)(iv). The EPA is proposing to approve the elements of Missouri's plan related to requirements contained in 40 CFR 51.308(f)(1), (f)(5), (f)(6), and (g)(1) through (g)(5). The EPA is proposing to disapprove the elements of Missouri's plan related to requirements contained in 40 CFR 51.308(f)(2) and (f)(3), and (i). The EPA is not proposing a Federal Implementation Plan (FIP) at this time. If the EPA finalizes the disapproval, that will start a two-year clock for the EPA

to propose and finalize a FIP.<sup>75</sup> However, the EPA is already on a two-year FIP clock that began September 29, 2022, when the EPA published a finding that Missouri failed to submit the required regional haze plan for the second planning period by the regulatory deadline.<sup>76</sup> We are soliciting comments on this proposed action. Final rulemaking will occur after consideration of any comments.

#### **VII. Environmental Justice Considerations**

The EPA defines environmental justice (EJ) as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies." The EPA further defines the term fair treatment to mean that "no group of people should bear a disproportionate burden of environmental harms and risks, including those resulting from the negative environmental consequences of industrial, governmental, and commercial operations or programs and policies."<sup>77</sup> Recognizing the importance of these considerations to local communities, the EPA conducted an environmental justice screening analysis around the location of the facilities associated with this action to identify potential environmental stressors on these communities and the potential impacts of this action. However, the EPA is providing the information associated with this analysis for informational purposes only. The information provided herein is not a basis of the proposed action. The EPA conducted the screening analyses using EJScreen, an EJ mapping and screening tool that provides the EPA with a nationally consistent dataset and approach for combining various environmental and demographic indicators.<sup>78</sup> The EJScreen tool presents these indicators at a Census block group (CBG) level or a larger user specified "buffer" area that covers multiple CBGs.<sup>79</sup> An individual CBG is a cluster of contiguous blocks within the same census tract and generally contains

<sup>75</sup> The EPA is only stating this second FIP clock as a factual result that a disapproval leads to a FIP clock. The FIP clock from the finding of failure to submit is primary and the FIP clock from a future disapproval does not supersede or reset the FIP clock from the finding of failure to submit.

<sup>76</sup> See 87 FR 52856, August 30, 2022.

<sup>77</sup> See <https://www.epa.gov/environmentaljustice/learn-about-environmentaljustice>.

<sup>78</sup> The EJSCREEN tool is available at <https://www.epa.gov/ejscreen>.

<sup>79</sup> See <https://www.census.gov/programssurveys/geography/about/glossary.html>.

between 600 and 3,000 people. EJScreen is not a tool for performing in-depth risk analysis, but is instead a screening tool that provides an initial representation of indicators related to EJ and is subject to uncertainty in some underlying data (e.g., some environmental indicators are based on monitoring data which are not uniformly available; others are based on self-reported data).<sup>80</sup> For informational purposes, we have summarized EJScreen data within larger “buffer” areas covering multiple block groups and representing the average resident within the buffer areas surrounding the facilities selected by Missouri for further control analysis. EJScreen environmental indicators help screen for locations where residents may experience a higher overall pollution burden than would be expected for a block group with the same total population in the U.S. These indicators of overall pollution burden include estimates of ambient PM<sub>2.5</sub> and ozone concentration, a score for traffic proximity and volume, percentage of pre-1960 housing units (lead paint indicator), and scores for proximity to Superfund sites, risk management plan (RMP) sites, and hazardous waste facilities.<sup>81</sup> EJScreen also provides information on demographic indicators, including percent low-income, communities of color, linguistic isolation, and less than high school education. The EPA prepared EJScreen reports covering buffer areas of approximately 6-mile radii around the facilities selected by Missouri for further analysis. For each facility, the EPA indicates in the following statements whether there is an environmental or socioeconomic indicator for the selected source area above the 80th percentile nationally. These indicators are displayed in the table on page 3 of each report. The report for New Madrid Power Plant showed socioeconomic indicators greater than the 80th national percentile for low income.<sup>82</sup> The report

for Sikeston showed environmental and socioeconomic indicators greater than the 80th national percentiles for wastewater discharge and low life expectancy. The report for John Twitty showed environmental indicators greater than the 80th national percentiles for wastewater discharge and superfund proximity. The report for Thomas Hill showed environmental indicators greater than the 80th national percentiles for wastewater discharge. The report for Mississippi Lime showed environmental indicators greater than the 80th national percentiles for risk management plan facility proximity. Other facility reports not mentioned here do not include environmental or socioeconomic indicators greater than the 80th national percentiles. The full, detailed EJScreen reports for each facility selected by Missouri for further analysis are provided in the docket for this rulemaking. This action is proposing to disapprove certain elements of Missouri’s second planning period regional haze plan as not meeting the requirements of the CAA or the EPA’s RHR. Exposure to PM and SO<sub>2</sub> is associated with significant public health effects. Short-term exposures to SO<sub>2</sub> can harm the human respiratory system and make breathing difficult. People with asthma, particularly children, are sensitive to these effects of SO<sub>2</sub>.<sup>83</sup> Exposure to PM can affect both the lungs and heart and is associated with: premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms, such as irritation of the airways, coughing or difficulty breathing. People with heart or lung diseases or conditions, children, and older adults are the most likely to be affected by PM exposure.<sup>84</sup> This action which proposes to partially disapprove Missouri’s regional haze plan, if finalized, will not directly result in a change to emissions or air quality. There is nothing in the record which indicates that this proposed action, if finalized, would have disproportionately high or adverse human health or environmental effects on communities with environmental justice concerns.

value. The EPA identified the 80th percentile filter as an initial starting point for interpreting EJScreen results. The use of an initial filter promotes consistency for EPA programs and regions when interpreting screening results.

<sup>83</sup> See <https://www.epa.gov/so2-pollution/sulfurdioxide-basics#effects>.

<sup>84</sup> See <https://www.epa.gov/pm-pollution/healthand-environmental-effects-particulate-matter-pm>.

## VIII. Statutory and Executive Order Reviews

Under the CAA, the Administrator is required to approve a SIP submission that complies with the provisions of the CAA and applicable Federal regulations. 42 U.S.C. 7410(k); 40 CFR 52.02(a). Thus, in reviewing SIP submissions, the EPA’s role is to review state choices, and approve those choices if they meet the minimum criteria of the CAA. Accordingly, this proposed action partially approves and partially disapproves state law as meeting Federal requirements and does not impose additional requirements beyond those imposed by state law.

### A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review

This action is not a “significant regulatory action” under the terms of Executive Order 12866 (58 FR 51735, October 4, 1993) and is therefore not subject to review under Executive Orders 12866, 13563 (76 FR 3821, January 21, 2011) and 14094 (88 FR 21879, April 11, 2023).

### B. Paperwork Reduction Act (PRA)

This rule does not impose an information collection burden under the provisions of the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*).

### C. Regulatory Flexibility Act (RFA)

This action merely proposes to partially approve and partially disapprove state law as meeting or not meeting Federal requirements and imposes no additional requirements beyond those imposed by state law. Accordingly, the Administrator certifies that this rule will not have a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*).

### D. Unfunded Mandates Reform Act (UMRA)

This action does not contain any unfunded mandate as described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. This action does not impose additional requirements beyond those imposed by state law. Accordingly, no additional costs to State, local, or tribal governments, or to the private sector, will result from this action.

### E. Executive Order 13132: Federalism

This action does not have federalism implications. It will not have substantial direct effects on the states, on the

<sup>80</sup> In addition, EJSCREEN relies on the five-year block group estimates from the U.S. Census American Community Survey. The advantage of using five-year over single-year estimates is increased statistical reliability of the data (*i.e.*, lower sampling error), particularly for small geographic areas and population groups. For more information, see [https://www.census.gov/content/dam/Census/library/publications/2020/acs/acs\\_general\\_handbook\\_2020.pdf](https://www.census.gov/content/dam/Census/library/publications/2020/acs/acs_general_handbook_2020.pdf).

<sup>81</sup> For additional information on environmental indicators and proximity scores in EJSCREEN, see “EJSCREEN Environmental Justice Mapping and Screening Tool: EJSCREEN Technical Documentation,” Chapter 3 and Appendix C (September 2019) at [https://www.epa.gov/sites/default/files/2021-04/documents/ejscreen\\_technical\\_document.pdf](https://www.epa.gov/sites/default/files/2021-04/documents/ejscreen_technical_document.pdf).

<sup>82</sup> For a place at the 80th percentile nationwide, that means 20% of the U.S. population has a higher

relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

*F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments*

This action does not have tribal implications as specified in Executive Order 13175. This action does not apply on any Indian reservation land, any other area where the EPA or an Indian tribe has demonstrated that a tribe has jurisdiction, or non-reservation areas of Indian country. This rule does not have tribal implications and will not impose substantial direct costs on tribal governments or preempt tribal law as specified by Executive Order 13175 (65 FR 67249, November 9, 2000).

*G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks*

The EPA interprets Executive Order 13045 as applying only to those regulatory actions that concern environmental health or safety risks that the EPA has reason to believe may disproportionately affect children, per the definition of “covered regulatory action” in section 2–202 of the Executive Order. This action is not subject to Executive Order 13045 because it merely proposes to disapprove a SIP submission as not meeting the CAA.

*H. Executive Order 13211, Actions That Significantly Affect Energy Supply, Distribution or Use*

This action is not subject to Executive Order 13211, because it is not a significant regulatory action under Executive Order 12866.

*I. National Technology Transfer and Advancement Act*

This rulemaking does not involve technical standards. Therefore, the EPA is not considering the use of any voluntary consensus standards.

*J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations (59 FR 7629, February 16, 1994)*

Executive Order 12898 directs Federal agencies to identify and address “disproportionately high and adverse human health or environmental effects” of their actions on minority populations and low-income populations to the greatest extent practicable and permitted by law. The EPA defines environmental justice (EJ) as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.” The EPA further defines the term fair treatment to mean that “no group of people should bear a disproportionate burden of environmental harms and risks, including those resulting from the negative environmental consequences of industrial, governmental, and commercial operations or programs and policies.” The Missouri Department of Natural Resources did not evaluate environmental justice considerations as part of its SIP submittal; the CAA and applicable implementing regulations neither prohibit nor require such an evaluation. The EPA performed an environmental justice analysis, as is described above in the section titled, “Environmental Justice Considerations.” The analysis was done for the purpose of providing additional context and information about this rulemaking to the public, not as a basis

of the action. Due to the nature of the action being taken here, merely proposing to partially approve and partially disapprove the state’s plan as meeting requirements of the Act or EPA regulations, this action will not directly impact air quality or emissions in the affected areas. Consideration of EJ is not required as part of this action, and there is no information in the record inconsistent with the stated goal of E.O. 12898 of achieving environmental justice for people of color, low-income populations, and Indigenous peoples.

**List of Subjects in 40 CFR Part 52**

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

Dated: June 27, 2024.  
**Meghan A. McCollister,**  
*Regional Administrator, Region 7.*

For the reasons stated in the preamble, the EPA proposes to amend 40 CFR part 52 as set forth below:

**PART 52—APPROVAL AND PROMULGATION OF IMPLEMENTATION PLANS**

- 1. The authority citation for part 52 continues to read as follows:

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

**Subpart AA—Missouri**

- 2. In § 52.1320, the table in paragraph (e) is amended by adding the entry “(86)” in numerical order to read as follows:

**§ 52.1320 Identification of plan.**

\* \* \* \* \*  
 (e) \* \* \*

**EPA-APPROVED MISSOURI NONREGULATORY SIP PROVISIONS**

Name of nonregulatory SIP revision	Applicable geographic or nonattainment area	State submittal date	EPA approval date	Explanation
(86) Missouri Regional Haze Plan for the Second Implementation Period.	Statewide .....	8/26/22	[Date of publication of the final rule in the <b>Federal Register</b> , [Federal Register citation of the final rule].	This action approves the plan as only meeting the requirements of 40 CFR 51.308(f)(1), (f)(5), (f)(6), and (g)(1) through (g)(5). This action disapproves the plan as not meeting the requirements of 40 CFR 51.308(f)(2), (f)(3), and (i).

- 3. Amend § 52.1339 by adding paragraph (b) to read as follows:

**§ 52.1339 Visibility protection.**

\* \* \* \* \*

(b) The requirements of section 169A of the Clean Air Act are not fully met for the second implementation period

because the plan does not include approvable measures for meeting the requirements of 40 CFR 51.308(f)(2), (f)(3), and (i) for protection of visibility in mandatory Class I Federal areas. The plan does meet the requirements of 40 CFR 51.308(f)(1), (f)(5), (f)(6), and (g)(1) through (g)(5).

[FR Doc. 2024-14612 Filed 7-2-24; 8:45 am]

BILLING CODE 6560-50-P

## DEPARTMENT OF HEALTH AND HUMAN SERVICES

### Centers for Medicare & Medicaid Services

#### 42 CFR Part 425

[CMS-1799-P]

RIN 0938-AV20

#### Medicare Program: Mitigating the Impact of Significant, Anomalous, and Highly Suspect Billing Activity on Medicare Shared Savings Program Financial Calculations in Calendar Year 2023

**AGENCY:** Centers for Medicare & Medicaid Services (CMS), Department of Health and Human Services (HHS).

**ACTION:** Proposed rule.

**SUMMARY:** This proposed rule addresses policies for assessing performance year (PY) 2023 financial performance of Medicare Shared Savings Program (Shared Savings Program) Accountable Care Organizations (ACOs); establishing benchmarks for ACOs starting agreement periods in 2024, 2025, and 2026; and calculating factors used in the application cycle for ACOs applying to enter a new agreement period beginning on January 1, 2025, and the change request cycle for ACOs continuing their participation in the program for PY 2025, as a result of significant, anomalous, and highly suspect billing activity for selected intermittent urinary catheters on Medicare Durable Medical Equipment, Prosthetics, Orthotics & Supplies (DMEPOS) claims. Under the Shared Savings Program, providers of services and suppliers that participate in ACOs continue to receive traditional Medicare fee-for-service (FFS) payments under Medicare Parts A and B, but the ACO may be eligible to receive a shared savings payment if it meets specified quality and savings requirements. ACOs participating in two-sided models may also share in losses.

**DATES:** To be assured consideration, comments must be received at one of the addresses provided below, by July 29, 2024.

**ADDRESSES:** In commenting, please refer to file code CMS-1799-P.

Comments, including mass comment submissions, must be submitted in one of the following three ways (please choose only one of the ways listed):

1. *Electronically.* You may submit electronic comments on this regulation to <http://www.regulations.gov>. Follow the "Submit a comment" instructions.

2. *By regular mail.* You may mail written comments to the following address ONLY: Centers for Medicare & Medicaid Services, Department of Health and Human Services, Attention: CMS-1799-P, P.O. Box 8016, Baltimore, MD 21244-8016.

Please allow sufficient time for mailed comments to be received before the close of the comment period.

3. *By express or overnight mail.* You may send written comments to the following address ONLY: Centers for Medicare & Medicaid Services, Department of Health and Human Services, Attention: CMS-1799-P, Mail Stop C4-26-05, 7500 Security Boulevard, Baltimore, MD 21244-1850.

For information on viewing public comments, see the beginning of the **SUPPLEMENTARY INFORMATION** section.

**FOR FURTHER INFORMATION CONTACT:** Richard (Chase) Kendall, (410) 786-1000, or [SharedSavingsProgram@cms.hhs.gov](mailto:SharedSavingsProgram@cms.hhs.gov).

#### SUPPLEMENTARY INFORMATION:

*Inspection of Public Comments:* All comments received before the close of the comment period are available for viewing by the public, including any personally identifiable or confidential business information that is included in a comment. We post all comments received before the close of the comment period on the following website as soon as possible after they have been received: <http://www.regulations.gov>. Follow the search instructions on that website to view public comments. CMS will not post on [Regulations.gov](http://www.regulations.gov) public comments that make threats to individuals or institutions or suggest that the commenter will take actions to harm an individual. CMS continues to encourage individuals not to submit duplicative comments. We will post acceptable comments from multiple unique commenters even if the content is identical or nearly identical to other comments.

*Plain Language Summary:* In accordance with 5 U.S.C. 553(b)(4), a plain language summary of this rule may be found at <https://www.regulations.gov/>.

#### CPT (Current Procedural Terminology) Copyright Notice

Throughout this proposed rule, we use CPT codes and descriptions to refer to a variety of services. We note that CPT codes and descriptions are copyright 2019 American Medical Association. All Rights Reserved. CPT is a registered trademark of the American Medical Association (AMA). Applicable Federal Acquisition Regulations (FAR) and Defense Federal Acquisition Regulations (DFAR) apply.

#### I. Background

##### A. Statutory Background on Shared Savings Program Financial Calculations

Section 1899 of the Social Security Act (the Act) (42 U.S.C. 1395jj), as added by section 3022 of the Patient Protection and Affordable Care Act (Pub. L. 111-148, enacted March 23, 2010), establishes the general requirements for payments to participating Accountable Care Organizations (ACOs) in the Shared Savings Program. Specifically, section 1899(d)(1)(A) of the Act provides that providers of services and suppliers participating in an ACO will continue to receive payment under the original Medicare fee-for-service program under Parts A and B in the same manner as they would otherwise be made. However, section 1899(d)(1)(A) of the Act also provides for an ACO to receive payment for shared savings provided that the ACO meets both the quality performance standards established by the Secretary and demonstrates that it has achieved savings against a benchmark of expected average per capita Medicare FFS expenditures. Additionally, section 1899(i) of the Act authorizes the Secretary to use other payment models in place of the one-sided model described in section 1899(d) of the Act. This provision authorizes the Secretary to select a partial capitation model or any other payment model that the Secretary determines will improve the quality and efficiency of items and services furnished to Medicare beneficiaries without additional program expenditures. We have used our authority under section 1899(i)(3) of the Act to establish the Shared Savings Program's two-sided payment models (see for example, 80 FR 32771 and 32772, and 83 FR 67834 through 67841) and to mitigate shared losses owed by ACOs affected by extreme and uncontrollable circumstances during performance year (PY) 2017 and subsequent performance years (82 FR 60916 and 60917, 83 FR 59974 through 59977), among other uses of this