



## ENVIRONMENTAL PROTECTION AGENCY

### 40 CFR Part 52

[EPA-R06-OAR-2022-0736; FRL-9406-01-R6]

### Approval and Promulgation of Air Quality Implementation Plans; Oklahoma; Regional Haze State Implementation Plan for the Second Implementation Period

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

**ACTION:** Proposed rule.

**SUMMARY:** The Environmental Protection Agency (EPA) is proposing to approve the regional haze state implementation plan (SIP) revision submitted by the State of Oklahoma on August 9, 2022 (Oklahoma's 2022 SIP submission), to satisfy applicable requirements under the Clean Air Act (CAA) and the EPA's Regional Haze Rule (RHR) for the program's second implementation (planning) period. Oklahoma's SIP submission addresses the requirement that states must periodically revise their long-term strategies for making reasonable progress towards the national goal of preventing any future, and remedying any existing, anthropogenic impairment of visibility, including regional haze, in mandatory Class I Federal areas. The SIP submission also addresses other applicable requirements for the second implementation period of the regional haze program. The EPA is taking this action pursuant to the CAA.

**DATES:** Written comments must be received on or before **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

**ADDRESSES:** Submit your comments, identified by Docket ID No. EPA-R06-OAR-2022-0736 at <https://www.regulations.gov>. For comments submitted at *Regulations.gov*, follow the online instructions for submitting comments. Once submitted, comments cannot be edited or removed from *Regulations.gov*. The EPA may publish any comment received to its public docket. Do not submit electronically any information you consider

to be confidential business information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (*i.e.*, on the web, cloud, or other file sharing system). For additional submission methods, please contact the person identified in the “**FOR FURTHER INFORMATION CONTACT**” section. For the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit <https://www.epa.gov/dockets/commenting-epa-dockets>.

*Docket:* The index to the docket for this action is available electronically at [www.regulations.gov](http://www.regulations.gov). While all documents in the docket are listed in the index, some information may not be publicly available due to docket file size restrictions or content (e.g., CBI).

**FOR FURTHER INFORMATION CONTACT:** Karolina Ruan Lei, EPA Region 6 Office, Air and Radiation Division, Regional Haze and SO<sub>2</sub> Section, 214-665-7346, [ruan-lei.karolina@epa.gov](mailto:ruan-lei.karolina@epa.gov). We encourage the public to submit comments via <https://www.regulations.gov>. Please call or e-mail the contact listed above if you need alternative access to material indexed but not provided in the docket.

## **SUPPLEMENTARY INFORMATION:**

### **Table of Contents**

- I. What Action is the EPA Proposing?
- II. Background and Requirements for Regional Haze Plans
  - A. Regional Haze
  - B. Roles of Agencies in Addressing Regional Haze
  - C. Status of Oklahoma’s Regional Haze Plan for the First Implementation Period
  - D. Oklahoma’s Regional Haze Plan for the Second Implementation Period
- III. Requirements for Regional Haze Plans for the Second Implementation Period
  - A. Reasonable Progress Goals
  - B. Monitoring Strategy and Other State Implementation Plan Requirements
  - C. Requirements for Periodic Reports Describing Progress Towards the

- Reasonable Progress Goals
- D. Requirements for State and Federal Land Manager Coordination
- IV. The EPA's Evaluation of Oklahoma's Regional Haze Plan for the Second Implementation Period
  - A. Identification of Class I Areas
  - B. Calculations of Baseline, Current, and Natural Visibility Conditions; Progress to Date; and Uniform Rate of Progress for Class I Areas Within the State
  - C. Long-Term Strategy
  - D. Reasonable Progress Goals
  - E. Reasonably Attributable Visibility Impairment
  - F. Monitoring Strategy and Other State Implementation Plan Requirements
  - G. Requirements for Periodic Reports Describing Progress Towards the Reasonable Progress Goals
  - H. Requirements for State and Federal Land Manager Coordination
- V. Proposed Action
- VI. Incorporation by Reference
- VII. Impact on Areas of Indian Country
- VIII. Statutory and Executive Order Reviews

### **I. What Action is the EPA Proposing?**

On August 9, 2022, the Oklahoma Secretary of Energy and Environment, the State of Oklahoma designee for submitting documents to the EPA for approval and incorporation into the SIP, submitted a revision to the Oklahoma SIP to address regional haze for the second implementation period. Oklahoma made this SIP submission to satisfy the requirements of the CAA's regional haze program pursuant to CAA sections 169A and 169B and 40 CFR 51.308. The EPA is proposing to find that the Oklahoma regional haze SIP submission for the second implementation period meets the applicable statutory and regulatory requirements and thus proposes to approve Oklahoma's submission into its SIP. Specifically, the EPA is proposing to approve Oklahoma's 2022 SIP submission as satisfying the requirements of:

- (1) 40 CFR 51.308(f)(1): calculations of baseline, current, and natural visibility conditions, progress to date, and the uniform rate of progress (URP);
- (2) 40 CFR 51.308(f)(2): long-term strategy;
- (3) 40 CFR 51.308(f)(3): reasonable progress goals (RPGs);
- (4) 40 CFR 51.308(f)(4): reasonably attributable visibility impairment (RAVI);
- (5) 40 CFR 51.308(f)(5) and 40 CFR 51.308(g): progress report requirements;

- (6) 40 CFR 51.308(f)(6): monitoring strategy and other implementation plan requirements; and
- (7) 40 CFR 51.308(i): Federal Land Manager (FLM) consultation.

## **II. Background and Requirements for Regional Haze Plans**

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

### *A. Regional Haze*

In the 1977 CAA amendments, Congress created a program for protecting visibility in the nation’s mandatory Class I Federal areas, which include certain national parks and wilderness areas. 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).

Regional haze is visibility impairment that is produced by a multitude of anthropogenic sources and activities that are located across a broad geographic area and that emit pollutants that impair visibility. Visibility impairing pollutants include fine and coarse particulate matter (PM) (*e.g.*, sulfates, nitrates, organic carbon, elemental carbon, and soil dust) and their precursors (*e.g.*, sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), and,

---

<sup>1</sup> See 90 FR 13516 (March 24, 2025).

<sup>2</sup> See 82 FR 3078 (January 10, 2017, located at <https://www.federalregister.gov/documents/2017/01/10/2017-00268/protection-of-visibility-amendments-to-requirements-for-State-plans#h-16>).

in some cases, volatile organic compounds (VOC) and ammonia (NH<sub>3</sub>). Fine particle precursors react in the atmosphere to form fine particulate matter (PM<sub>2.5</sub>), which impairs visibility by scattering and absorbing light. Visibility impairment reduces the perception of clarity and color, as well as visible distance.<sup>3</sup>

To address regional haze visibility impairment, the 1999 RHR established an iterative planning process that requires 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); see also 40 CFR 51.308(b), (f) (establishing submission dates for iterative regional haze SIP revisions); (64 FR at 35768, July 1, 1999).

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 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).

### *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. 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

---

<sup>3</sup> There are several ways to measure the amount of visibility impairment, *i.e.*, haze. One such measurement is the deciview, which is the principal metric used by the RHR. Under many circumstances, a change in one deciview will be perceived by the human eye to be the same on both clear and hazy days. The deciview is unitless. It is proportional to the logarithm of the atmospheric extinction of light, which is the perceived dimming of light due to its being scattered and absorbed as it passes through the atmosphere. Atmospheric light extinction ( $b^{ext}$ ) is a metric used for expressing visibility and is measured in inverse megameters (Mm<sup>-1</sup>). The formula for the deciview is  $10 \ln (b^{ext}/10 \text{ Mm}^{-1})$ . 40 CFR 51.301.

another. Five regional planning organizations (RPOs), which include representation from state and Tribal governments, the EPA, and FLMs, were developed in the lead-up to the first implementation period to address regional haze. RPOs evaluate technical information to better understand how emissions from State and Tribal land impact Class I areas across the country, pursue the development of regional strategies to reduce emissions of particulate matter and other pollutants leading to regional haze, and help states meet the consultation requirements of the RHR.

The Central Regional Air Planning Association (CenRAP), one of the five RPOs described above, that Oklahoma 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 planning was shifted to the Central State 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, Kansas, Louisiana, Missouri, Nebraska, Oklahoma, and Texas. Unlike CenRAP, CenSARA has solely state members. However, CenSARA does reach out to Tribal and Federal partners. The Federal partners of CenSARA are the EPA, the U.S. National Parks Service (NPS), the U.S. Fish and Wildlife Service (FWS), and the U.S. Forest Service (USFS).

### *C. Status of Oklahoma's Regional Haze Plan for the First Implementation Period*

Oklahoma submitted its regional haze SIP for the first implementation period to the EPA on February 19, 2010. The EPA partially approved and partially disapproved

Oklahoma's first implementation period regional haze SIP submission on December 28, 2011 (76 FR 81728, December 28, 2011). In that final rule, we disapproved Oklahoma's SO<sub>2</sub> best available retrofit technology (BART) determinations for the Oklahoma Gas and Electric (OG&E) Sooner Units 1 and 2, the OG&E Muskogee Units 4 and 5, and the American Electric Power/Public Service Company of Oklahoma (AEP/PSO) Northeastern Units 3 and 4 and we disapproved the state's long-term strategy. To address these deficiencies, the EPA promulgated a Federal Implementation Plan (FIP) that imposed SO<sub>2</sub> BART emission limits for these six units in the same final action. The EPA approved the remaining portions of the 2010 Oklahoma regional haze SIP submission with the exception of the reasonable progress requirements found at 40 CFR 51.308(d)(1), on which we took no action in that final rule. We deferred consideration of the reasonable progress requirements at the time, because in order to properly assess whether Oklahoma had satisfied these requirements, we first needed to evaluate and act upon the first planning period regional haze SIP revision submitted by the State of Texas.

On June 20, 2013, Oklahoma submitted a regional haze SIP revision to replace the FIP's SO<sub>2</sub> BART requirements for the AEP/PSO Northeastern Units 3 and 4 and to make revisions to the NO<sub>x</sub> BART compliance dates for the two units. On March 7, 2014 (79 FR 12944, 12954, March 7, 2014), we approved this SIP revision and concurrently withdrew the FIP's applicability to these two units. The FIP provisions applicable to the OG&E Muskogee and Sooner plants remain in place.

On January 5, 2016 (81 FR 296, January 5, 2016), we addressed the outstanding portion of Oklahoma's first planning period SIP related to the reasonable progress requirements under 40 CFR 51.308(d)(1).<sup>4</sup> Specifically, we disapproved the portion of Oklahoma's 2010 Oklahoma regional haze SIP submission that addressed 40 CFR

---

<sup>4</sup> The January 5, 2016 (81 FR 296), final rule also addressed the first planning period regional haze requirements in Texas except for BART requirements for electric generating units (EGUs) and partially approved and partially disapproved Texas's March 31, 2009, SIP.

51.308(d)(1), with the exception of the minimum progress requirement under 40 CFR 51.308(d)(1)(vi), which we approved.<sup>5</sup> The disapproval stemmed from consideration of impacts from Texas sources in establishing the reasonable progress goals for Oklahoma's Class I area, Wichita Mountains Wilderness Area (Wichita Mountains). In that same action, we promulgated a FIP for both Texas and Oklahoma to address the identified deficiencies in the Texas and Oklahoma regional haze SIP for the first planning period.<sup>6</sup>

The January 5, 2016, final rule was challenged in the U.S. Court of Appeals for the Fifth Circuit (Fifth Circuit) and was stayed by the court on July 15, 2016.<sup>7</sup>

Considering the stay, the EPA requested a partial voluntary remand of the January 5, 2016, final rule, which was granted by the Fifth Circuit on March 22, 2017.<sup>8</sup> On July 26, 2023 (88 FR 48152, July 26, 2023), the EPA proposed a rule to address the remanded January 5, 2016, final rule, and proposed to disapprove the same portions of the Texas and Oklahoma SIPs which had been previously disapproved in the January 5, 2016, final rule and amend the FIP portion of the rule.<sup>9</sup>

On September 3, 2024, the EPA filed a motion for voluntary vacatur,<sup>10</sup> and the Fifth Circuit granted the EPA's motion on December 17, 2024, vacating the SIP

---

<sup>5</sup> The disapproved portions included disapproving Oklahoma's 2018 RPGs for Wichita Mountains and other elements related to reasonable progress, including the requirement to adequately consult with other states that may reasonably be anticipated to cause or contribute to visibility impairment at the Wichita Mountains and the requirement to adequately justify RPGs that are less stringent than the URP.

<sup>6</sup> Specific to Oklahoma, the FIP reset Oklahoma's RPGs based on our finding that the controls we finalized for the Texas FIP also served to cure the defects in these sections of Oklahoma's regional haze SIP as well, thus satisfying the FIP obligation stemming from our disapproval of portions of the Oklahoma SIP.

<sup>7</sup> *Texas v. EPA*, 829 F.3d 405, 411 (5th Cir. 2016).

<sup>8</sup> *Texas v. EPA*, Case No. 16-60118, Order (March 22, 2017).

<sup>9</sup> In certain instances, supplementing and clarifying our rationale for disapproval and, in others, incorporating our original bases for disapproval. The proposed amendments to the FIP portions of the final rule included rescinding the control measures previously promulgated for 15 EGUs in Texas. EPA also proposed to find that no further federal action was needed to remedy those deficiencies.

<sup>10</sup> During remand proceedings, notably while working to respond to the public comments received on the July 26, 2023, proposed rule, the EPA became aware that key documents in the administrative record of the January 5, 2016, final rule were no longer in the EPA's possession. EPA filed motion for voluntary vacatur, acknowledging that the administrative record no longer contained information required by the Federal Rules of Appellate Procedure and the Clean Air Act for judicial review of the EPA's partial SIP disapprovals and FIPs. Respondents' Motion for Voluntary Vacatur, *Texas v. EPA*, Case No. 16-60118 (September 3, 2024).

disapproval and FIP portions of the January 5, 2016, final rule.<sup>11</sup>

On December 12, 2025 (90 FR 56001), the EPA finalized approval of portions of the Oklahoma regional haze SIP revision submitted on February 19, 2010, that relate to reasonable progress requirements for the first planning period from 2007 through 2018. Specifically, the EPA approved the portion of the 2010 Oklahoma Regional Haze SIP that addressed the requirements of 40 CFR 51.308(d)(1)(i) through (v).<sup>12</sup>

Pursuant to 40 CFR 51.308(g), Oklahoma was also responsible for submitting a five-year progress report as a SIP revision for the first implementation period, which it did on September 28, 2016. The EPA approved the progress report into the Oklahoma SIP on June 28, 2019 (84 FR 30918, June 28, 2019).

#### *D. Oklahoma's Regional Haze Plan for the Second Implementation Period*

On August 9, 2022, the Oklahoma Department of Environmental Quality (ODEQ)<sup>13</sup> submitted a revision to the Oklahoma SIP to address regional haze for the second planning period (2018-2028).<sup>14</sup> Oklahoma made this SIP submission to satisfy the requirements of the CAA's regional haze program pursuant to CAA sections 169A and 169B and 40 CFR 51.308. Oklahoma's 2022 SIP submission contains the State's evaluation of which measures to include in its long-term strategy to address regional haze visibility impairment for each Class I area within the State and each Class I area outside the State that may be affected by emissions from the State. The State examined the need

---

<sup>11</sup> *Texas v. EPA*, Case No. 16-60118, Order (December 17, 2024). Because the EPA's motion for vacatur was specific to the SIP disapprovals and the FIPs and the Fifth Circuit granted this motion, the court vacated the disapproval and FIP portions of the January 5, 2016, final rule, leaving the approvals intact.

<sup>12</sup> In that same final rule (90 FR 56001, December 12, 2025), EPA also approved SIP submittals from Texas dated March 20, 2014, and July 20, 2021, as satisfying applicable requirements under the CAA and RHR, as well as approved portions of the 2009 Texas Regional Haze SIP that relate to reasonable progress requirements for the first planning period. In the related May 23, 2025, proposal (90 FR 22166) for that final rule, EPA formally withdrew the proposed disapprovals for portions of Texas and Oklahoma SIPs included as part of the proposed rule published on July 26, 2023 (88 FR 48152).

<sup>13</sup> In this document, ODEQ and Oklahoma are used interchangeably.

<sup>14</sup> On January 20, 2026, Oklahoma provided a signed agreement to EPA for one of the facilities as a clarification to the requirements in the SIP.

to implement additional enforceable emission limitations, compliance schedules, and other measures that may be necessary to make reasonable progress since the first implementation period. Specifically, Oklahoma's 2022 SIP submission contains an assessment of visibility progress made at Class I areas since the first implementation period and the State's determinations regarding a long-term strategy to address regional haze visibility impairment at the Class I areas the State identified, including: Oklahoma's selection of sources that may affect visibility in impacted Class I areas; its evaluation of the selected sources to determine what emission reduction measures may be necessary to achieve reasonable progress for the long-term strategy, through consideration of the four statutory factors; and ultimately, Oklahoma's determinations on what measures are necessary for the long-term strategy to address regional haze visibility impairment in Class I areas.

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

Under the CAA and the EPA's regulations, all 50 states, the District of Columbia, and the U.S. Virgin Islands 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, 40 CFR 51.308(f) lays out the process by which states determine what constitutes their long-term strategies, with the order of the requirements in 40 CFR 51.308(f)(1) through (3) generally mirroring the order of the steps in the reasonable progress analysis<sup>15</sup> and (f)(4) through (6) containing additional, related

---

<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 51.308(d), "tracked the actual planning sequence." (82 FR 3078, at 3091, January 10, 2017).

requirements. Broadly speaking, a state first must identify the Class I areas within the state and determine the Class I areas outside the state in which visibility may be affected by emissions from the state. These are the Class I areas that must be addressed in the state's long-term strategy. See 40 CFR 51.308(f), (f)(2). For each Class I area within its borders, a state must then calculate the baseline (five-year average period of 2000-2004), current, and natural visibility conditions (*i.e.*, visibility conditions without anthropogenic visibility impairment) for that area, as well as the visibility improvement made to date and the URP. The URP is the linear rate of progress needed to attain natural visibility conditions, assuming a starting point of baseline visibility conditions in 2004 and ending with natural conditions in 2064. This linear interpolation is used as a tracking metric to help states assess the amount of progress they are making towards the national visibility goal over time in each Class I area. See 40 CFR 51.308(f)(1). Each state having a Class I area and/or emissions that may affect visibility in a Class I area must then develop a long-term strategy that includes the enforceable emission limitations, compliance schedules, and other measures that are necessary to make reasonable progress in such areas. A reasonable progress determination is based on applying the four factors in CAA section 169A(g)(1) to sources of visibility impairing pollutants that the state has selected to assess for controls for the second implementation period. Additionally, as further explained below, the RHR at 40 CFR 51.3108(f)(2)(iv) separately provides five "additional factors"<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. 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

---

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

borders by modeling the visibility impacts of all reasonable progress controls at the end of the second implementation period, *i.e.*, in 2028, as well as the impacts of other requirements of the CAA. The RPGs include reasonable progress controls not only for sources in the state in which the Class I area is located, but also for sources in other states that contribute to visibility impairment in that area. The RPGs are then compared to the baseline visibility conditions and the URP to ensure that progress is being made towards the statutory goal of preventing any future and remedying any existing anthropogenic visibility impairment in Class I areas. 40 CFR 51.308(f)(2) through (3). There are additional requirements in the rule, including FLM consultation, that apply to all visibility protection SIPs and SIP revisions. *See e.g.*, 40 CFR 51.308(i).

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

Once a state has selected the set of sources, the next step is to determine the emissions reduction measures for those sources that are necessary to make reasonable progress for the second implementation period.<sup>17</sup> This is accomplished by considering the four factors—"the costs of compliance, the time necessary for compliance, and the energy and non-air quality environmental impacts of compliance, and the remaining

---

<sup>17</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 implementation period.

useful life of any existing source subject to such requirements.” CAA section 169A(g)(1). The EPA has explained that the four-factor analysis is an assessment of potential emission reduction measures (*i.e.*, control options) for sources; “use of the terms ‘compliance’ and ‘subject to such requirements’ in section 169A(g)(1) strongly indicates that Congress intended the relevant determination to be the requirements with which sources would have to comply to satisfy the CAA’s reasonable progress mandate.” 82 FR at 3091. Thus, for each source it has selected for four-factor analysis,<sup>18</sup> a state must consider a “meaningful set” of technically feasible control options for reducing emissions of visibility impairing pollutants. *Id.* at 3088.

The EPA has also explained that, in addition to the four statutory factors, states have flexibility under the CAA and RHR to reasonably consider visibility benefits as an additional factor alongside the four statutory factors.<sup>19</sup> Ultimately, while states have discretion to reasonably weigh the factors and to determine what level of control is needed, 40 CFR 51.308(f)(2)(i) provides that a state “must include in its implementation plan a description of . . . how the four factors were taken into consideration in selecting the measure for inclusion in its long-term strategy.”

As explained above, 40 CFR 51.308(f)(2)(i) requires states to determine the emission reduction measures for sources that are necessary to make reasonable progress by considering the four factors. Pursuant to 40 CFR 51.308(f)(2), measures that are necessary to make reasonable progress towards the national visibility goal must be included in a state’s long-term strategy and in its SIP. If the outcome of a four-factor analysis is that an emissions reduction measure is necessary to make reasonable progress

---

<sup>18</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 at 3088.

<sup>19</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 ID No. EPA-HQ-OAR-2015-0531, U.S. Environmental Protection Agency at 186.

towards remedying existing or preventing future anthropogenic visibility impairment, that measure must be included in the SIP.

The characterization of information on each of the factors is also subject to the documentation requirement in section 51.308(f)(2)(iii). The reasonable progress analysis is a technically complex exercise, and also a flexible one that provides states with bounded discretion to design and implement approaches appropriate to their circumstances. Given this flexibility, 40 CFR 51.308(f)(2)(iii) plays an important function in requiring a state to document the technical basis for its decision making so that the public and the EPA can comprehend and evaluate the information and analysis the state relied upon to determine what emission reduction measures must be in place to make reasonable progress. The technical documentation must include the modeling, monitoring, cost, engineering, and emissions information on which the state relied to determine the measures necessary to make reasonable progress. Additionally, the RHR at 40 CFR 51.3108(f)(2)(iv) separately provides five “additional factors”<sup>20</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.

Because the air pollution that causes regional haze crosses state boundaries, 40 CFR 51.308(f)(2)(ii) requires a state to consult with other states that also have emissions

---

<sup>20</sup> The five “additional factors” for consideration in 40 CFR 51.308(f)(2)(iv) are distinct from the four factors listed in CAA section 169A(g)(1) and 40 CFR 51.308(f)(2)(i) that states must consider and apply to sources in determining reasonable progress.

that are reasonably anticipated to contribute to visibility impairment in a given Class I area. If a state, pursuant to consultation, agrees that certain measures (*e.g.*, a certain emission limitation) are necessary to make reasonable progress at a Class I area, it must include those measures in its SIP. 40 CFR 51.308(f)(2)(ii)(A). Additionally, the RHR requires that states that contribute to visibility impairment at the same Class I area consider the emission reduction measures the other contributing states have identified as being necessary to make reasonable progress for their own sources. 40 CFR 51.308(f)(2)(ii)(B). If a state has been asked to consider or adopt certain emission reduction measures, but ultimately determines those measures are not necessary to make reasonable progress, that state must document in its SIP the actions taken to resolve the disagreement. 40 CFR 51.308(f)(2)(ii)(C). Under all circumstances, a state must document in its SIP submission all substantive consultations with other contributing states. 40 CFR 51.308(f)(2)(ii)(C).

#### *A. Reasonable Progress Goals*

Reasonable progress goals “measure the progress that is projected to be achieved by the control measures states have determined are necessary to make reasonable progress based on a four-factor analysis.” 82 FR at 3091.

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). While states are not legally obligated to achieve the visibility conditions described in their RPGs, 40 CFR 51.308(f)(3)(i) requires that “[t]he long-term strategy and the reasonable progress goals must provide for an improvement in visibility for the most impaired days since the baseline period and ensure no degradation in visibility for the clearest days since the baseline period.”

RPGs may also serve as a metric for assessing the amount of progress a state is

making towards the national visibility goal. To support this approach, the RHR requires states with Class I areas to compare the 2028 RPG for the most impaired days to the corresponding point on the URP line (representing visibility conditions in 2028 if visibility were to improve at a linear rate from conditions in the baseline period of 2000-2004 to natural visibility conditions in 2064). If the most impaired days RPG in 2028 is above the URP (*i.e.*, if visibility conditions are improving more slowly than the rate described by the URP), each state that contributes to visibility impairment in the Class I area must demonstrate, based on the four-factor analysis required under 40 CFR 51.308(f)(2)(i), that no additional emission reduction measures would be reasonable to include in its long-term strategy. 40 CFR 51.308(f)(3)(ii). To this end, 40 CFR 51.308(f)(3)(ii) requires that each state contributing to visibility impairment in a Class I area that is projected to improve more slowly than the URP provide “a robust demonstration, including documenting the criteria used to determine which sources or groups [of] sources were evaluated and how the four factors required by paragraph (f)(2)(i) were taken into consideration in selecting the measures for inclusion in its long-term strategy.”

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

Section 51.308(f)(6) requires states to have certain strategies and elements in place for assessing and reporting on visibility. Individual requirements under this section apply either to states with Class I areas within their borders, states with no Class I areas but that are reasonably anticipated to cause or contribute to visibility impairment in any Class I area, or both. Compliance with the monitoring strategy requirement may be met through a state’s participation in the Interagency Monitoring of Protected Visual Environments (IMPROVE) monitoring network, which is used to measure visibility impairment caused by air pollution at the 156 Class I areas covered by the visibility

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

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

Section 51.308(f)(5) requires a state's regional haze SIP revision to address the requirements of paragraphs 40 CFR 51.308(g)(1) through (5) so that the plan revision due in 2021 will serve also as a progress report addressing the period since submission of the progress report for the first implementation period. The regional haze progress report requirement is designed to inform the public and the EPA about a state's implementation of its existing long-term strategy and whether such implementation is in fact resulting in the expected visibility improvement. See 81 FR 26942, 26950 (May 4, 2016), (82 FR at 3119, January 10, 2017). To this end, every state's SIP revision for the second implementation period is required to assess changes in visibility conditions and 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).

*D. Requirements for State and Federal Land Manager Coordination*

CAA section 169A(d) requires that before a state holds a public hearing on a

proposed regional haze SIP revision, it must consult with the appropriate FLM or FLMs; pursuant to that consultation, the state must include a summary of the FLMs' conclusions and recommendations in the notice to the public. Consistent with this statutory requirement, the RHR also requires that states "provide the [FLM] with an opportunity for consultation, in person and at a point early enough in the State's policy analyses of its long-term strategy emission reduction obligation so that information and recommendations provided by the [FLM] can meaningfully inform the State's decisions on the long-term strategy." 40 CFR 51.308(i)(2). For the EPA to evaluate whether FLM consultation meeting the requirements of the RHR has occurred, the SIP submission should include documentation of the timing and content of such consultation. The SIP revision submitted to the EPA must also describe how the state addressed any comments provided by the FLMs. 40 CFR 51.308(i)(3). Finally, a SIP revision must provide procedures for continuing consultation between the state and FLMs regarding the state's visibility protection program, including development and review of SIP revisions, five-year progress reports, and the implementation of other programs having the potential to contribute to impairment of visibility in Class I areas. 40 CFR 51.308(i)(4).

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

In section IV of this document, we describe Oklahoma's 2022 SIP submission and evaluate it against the requirements of the CAA and RHR for the second implementation period of the regional haze program.

##### *A. 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 long-term strategy for

making reasonable progress toward the national visibility goal. The RHR implements this statutory requirement in 40 CFR 51.308(f) for the second and subsequent planning periods for regional haze. Section 51.308(f)(2) requires states to submit a long-term strategy that addresses regional haze visibility impairment for each mandatory Class I area within the state and for each mandatory Class I area located outside the state that may be affected by emissions from the state.

To address 40 CFR 51.308(f), Oklahoma identified the one mandatory Class I Federal area within its borders, the Wichita Mountains Wilderness, located in the Wichita Mountains National Wildlife Refuge in Comanche County, in the southeast part of Oklahoma. Wichita Mountains Wilderness is managed by the US Fish and Wildlife Service (FWS).

To work collectively on regional haze SIP development for the second planning period, CenSARA contracted Ramboll-Environ to produce an area of influence (AOI) study for the region (CenSARA 2018 AOI analysis).<sup>21</sup> The CenSARA 2018 AOI analysis was developed to estimate impacts from individual stationary sources on visibility conditions at Class I areas of interest. Oklahoma relied on this AOI analysis to identify sources within Oklahoma with the potential for impairing visibility at the Wichita Mountains and Class I areas in neighboring states. Oklahoma initially assessed five Class I areas outside the state for potential visibility impacts by Oklahoma sources. Through consultation with neighboring states and Oklahoma's own analysis using the results of the CenSARA 2018 AOI analysis, Oklahoma identified three of those Class I areas outside the state as having potential visibility impacts from Oklahoma emission sources: Caney Creek Wilderness Area and Upper Buffalo Wilderness Area in Arkansas and

---

<sup>21</sup> See Oklahoma's 2022 SIP submission, appendices B and C, for the complete AOI outputs and the corresponding report on the CenSARA 2018 AOI analysis.

Hercules-Glades Wilderness Area in Missouri.<sup>22</sup>

More information on how Oklahoma used the CenSARA 2018 AOI analysis to identify sources that could potentially impact visibility in Class I areas within and outside Oklahoma and to conduct its four-factor analysis is discussed in section IV.C.1 of this document.

EPA agrees with Oklahoma's conclusions that they properly identified Class I areas within and outside of Oklahoma that may be affected by emissions from within the State due to the following: (1) the State analyzed its statewide sulfate and nitrate contributions to total visibility impairment at out-of-state Class I areas; (2) none of the Class I areas that Oklahoma sources contribute to have 2028 RPGs on the 20 percent most impaired days above the URP;<sup>23</sup> (3) Oklahoma analyzed its in-state and out-of-state impacts through the AOI analysis; and (4) the State completed consultation with CenSARA States via the RPO processes.

*B. Calculations of Baseline, Current, and Natural Visibility Conditions; Progress to Date; and Uniform Rate of Progress for Class I Areas Within the State*

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

---

<sup>22</sup> See Oklahoma's 2022 SIP submission, p. 46-47. Although table 2-1 of Oklahoma's 2022 SIP submission also initially identified Guadalupe Mountains National Park and Big Bend National Park in Texas "for potential visibility impacts from the transport of pollutants from Oklahoma emission sources," Oklahoma did not identify any sources in Oklahoma as potentially impacting the Texas Class I areas based on Oklahoma's source selection methodology as described in this subsection nor did the Texas Commission on Environmental Quality (TCEQ) communicate to ODEQ that any sources in Oklahoma were reasonably anticipated to impair visibility at Texas Class I areas.

<sup>23</sup> For more information on the RPGs of these three Class I areas outside of Oklahoma, see section IV.D of this document.

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 sections 3, 6.1, and 7 of Oklahoma’s 2022 SIP submission, Oklahoma determines and presents the baseline, natural, and current visibility conditions for both the 20 percent most anthropogenically impaired days and the 20 percent clearest days for the State's Class I area, Wichita Mountains Wilderness, consistent with the EPA's RHR and guidance, and through the use of IMPROVE monitoring data. Oklahoma calculated baseline visibility based on data from 2002-2004, as the IMPROVE monitoring site at Wichita Mountains Wilderness was not established until 2001. Oklahoma determined that Wichita Mountains Wilderness has, respectively, on the 20 percent clearest days and 20 percent most impaired days: (1) 2000-2004 baseline visibility conditions of 9.92 deciviews and 22.18 deciviews; (2) 2015-2019 current visibility conditions of 8.33 deciviews and 17.56 deciviews; and (3) natural visibility conditions of 4.20 deciviews and 10.19 deciviews. This information is also provided in table 1 of this document.

**Table 1—Baseline, Current, and Natural Visibility Index at Wichita Mountains<sup>24</sup>**

	<b>Average Deciview Index for 2000-2004 (Baseline)</b>	<b>Average Deciview Index for 2015-2019 (Current)</b>	<b>Deciview Index for Natural Conditions (2064)</b>
<b>Clearest Days</b>	9.92	8.65	4.20
<b>Most Impaired Days</b>	22.18	17.58	10.19

In sections 3 and 5.4 of Oklahoma’s 2022 SIP submission, Oklahoma discusses the visibility progress in Wichita Mountains Wilderness. The 2015-2019 current visibility conditions for the most impaired days show a 21 percent improvement over the 2000-

<sup>24</sup> EPA notes that table 6-1 of Oklahoma’s 2022 SIP submission provides 2015-2019 current visibility values that are inconsistent with other parts of the SIP. The most representative 2015-2019 visibility value from the SIP is used in this document.

2004 baseline visibility conditions, with a 1.27 and 4.6 deciviews improvement from 2000-2004 baseline to 2015-2019 current visibility conditions for the 20 percent clearest and most impaired days respectively. From information provided in Oklahoma’s 2022 SIP submission, EPA calculated the difference between 2015-2019 current visibility and natural conditions, which show a 4.13 and 7.37 deciviews difference for the 20 percent clearest and most impaired days respectively. This information is provided in table 2 of this document.

**Table 2—Visibility Progress to Date and Future Progress for Wichita Mountains**

	<b>Progress Since Baseline (2000-2004) – (2014-2018), in Deciviews</b>	<b>Progress During Last Implementation Period (2008-2012) – (2014-2018), in Deciviews</b>	<b>Difference Between Current (2014-2018) and Natural (2064), in Deciviews</b>
<b>Clearest Days</b>	1.27	1.02	4.13
<b>Most Impaired Days</b>	4.6	3.11	7.37

The RHR allows states the option to adjust the 2064 glidepath endpoint to account for both international anthropogenic and certain prescribed fire impacts at Class I areas. EPA’s 2018 Visibility Tracking Guidance<sup>25</sup> provides recommendations to assist states in satisfying their obligations under 40 CFR 51.308(f)(1); specifically, in developing information on baseline, current, and natural visibility conditions, and in making optional adjustments to the URP to account for the impacts of international anthropogenic emissions and prescribed fires.<sup>26</sup>

Under 40 CFR 51.308(f)(1)(vi)(B), Oklahoma chose to adjust the URP glidepath for the State’s Class I area, Wichita Mountains Wilderness, to account for impacts from anthropogenic sources outside the United States and impacts from wildland prescribed

<sup>25</sup> The 2018 Visibility Tracking Guidance references and relies on parts of the 2003 Tracking Guidance: “Guidance for Tracking Progress Under the Regional Haze Rule,” which can be found at <https://www.epa.gov/visibility/guidance-tracking-progress-under-regional-haze-rule>.

<sup>26</sup> See 82 FR 3078, p. 3103-3105 (January 10, 2017).

fires.<sup>27,28</sup> Oklahoma used photochemical modeling conducted by EPA used to project visibility impairment at Class I areas in 2028 as part of its URP determination.<sup>29</sup> At Wichita Mountains, the unadjusted URP for 2028 is 16.06 deciviews. EPA's 2028 modeling provided for adjusted URP values that accounts for contributions of international emissions. Based on baseline, 2064 natural conditions, and EPA's default adjustment, Oklahoma determined the 2028 URP for Wichita Mountains to be 17.36 deciviews for the 20 percent most impaired days.<sup>30</sup>

The EPA is proposing to find that Oklahoma's regional haze plan meets the requirements of 40 CFR 51.308(f)(1) related to the calculations of baseline, current, and natural visibility conditions; progress to date; and the uniform rate of progress for the second implementation period.

### *C. Long-Term Strategy*

Each state having a Class I area within its borders or emissions that may affect visibility in any Class I area must develop a long-term strategy for making reasonable progress towards the national visibility goal for each impacted Class I area. CAA section 169A(b)(2)(B). After considering the four statutory factors, all measures that are determined to be necessary to make reasonable progress must be in the long-term strategy. In developing its long-term strategy, a state must also consider the five additional factors in 40 CFR 51.308(f)(2)(iv). As part of its reasonable progress

---

<sup>27</sup> Wildland prescribed fires are those conducted with the objective to establish, restore, and/or maintain sustainable and resilient wildland ecosystems, to reduce the risk of catastrophic wildfires, and/or to preserve endangered or threatened species during which appropriate basic smoke management practices were applied. 40 CFR 51.308(f)(1)(vi)(B).

<sup>28</sup> See Oklahoma's 2022 SIP submission, p. 50-51.

<sup>29</sup> See EPA memorandum, "Availability of Modeling Data and Associated Technical Support Document for the EPA's Updated 2028 Visibility Air Quality Modeling" ("EPA's 2028 modeling" in this document), dated September 19, 2019, available at <https://www.epa.gov/visibility/technical-support-document-epas-updated-2028-regional-haze-modeling> and the docket for this document.

<sup>30</sup> In EPA's 2028 modeling, at Wichita Mountains, 17.36 deciviews is provided as the default adjusted 2028 URP/glidepath, with the minimum and maximum alternate glidepath values being 16.62 and 17.79 deciviews, respectively.

determinations, the state must describe the criteria used to determine which sources or group of sources were evaluated (*i.e.*, subjected to four-factor analysis) for the second implementation period and how the four factors were taken into consideration in selecting the emission reduction measures for inclusion in the long-term strategy. 40 CFR 51.308(f)(2)(iii).

## 1. Summary of Oklahoma's Long-Term Strategy

### a. Source Selection Methodology

Sections 6.2 and 6.3 in Oklahoma's 2022 SIP submission discuss Oklahoma's long-term strategy development as well as source selection methodology. As mentioned in section IV.A of this document, Oklahoma relied on the CenSARA 2018 AOI analysis to identify sources within Oklahoma with the potential for impairing visibility at the Wichita Mountains and Class I areas in neighboring states. This section of this document further discusses Oklahoma's source selection methodology, including how Oklahoma used the CenSARA 2018 AOI analysis in developing its long-term strategy.

In the report documenting the CenSARA 2018 AOI analysis (CenSARA AOI report), it states that "EPA's previous analysis of contributions of individual PM components to total extinction on the 20 percent most anthropogenically impaired days during 2010-2014 showed that sulfate and nitrate are two major PM components that account for a large fraction of the anthropogenic visibility impairment at these Class I areas."<sup>31</sup> The CenSARA AOI report also states that industrial sources, including electric generating unit (EGU) and other industrial point (non-EGU) sources, are major contributors to both SO<sub>2</sub> and NO<sub>x</sub> emissions (precursors of sulfate and nitrate, respectively).<sup>32</sup> CenSARA chose to focus the AOI analysis on EGU and non-EGU point sources since these sources comprise major fractions of the SO<sub>2</sub> and NO<sub>x</sub> emissions

---

<sup>31</sup> See Oklahoma's 2022 SIP submission, appendix B: *Ramboll-Environ Area-of-Influence Report*, p. 5. In this proposal, we refer to this document as the CenSARA AOI report.

<sup>32</sup> See CenSARA AOI report, p. 3, in Oklahoma's 2022 SIP submission, appendix B.

inventory.<sup>33</sup>

The Hybrid-Single Particle Lagrangian Integrated Trajectory (HYSPLIT) back-trajectory model was used to generate 72-hour back trajectories for each IMPROVE site (*i.e.*, Class I area) of interest on the 20 percent most impaired days for the five-year period from 2012 to 2016. Based on the five years of individual back trajectories on the most 20 percent most impaired days, trajectory paths were mapped into 36-kilometer (km) by 36-km horizontal grid cells and residence time data were generated for each IMPROVE site. The residence time is the cumulative time that trajectories reside in a specific geographical area (*e.g.*, a grid cell of a modeling domain) and are usually normalized to display percentage of total trajectory time. To define geographical areas with a high probability of influencing visibility (*i.e.*, the area of influence) at each IMPROVE site that has impairment due to sulfate and nitrate, extinction weighted residence time (EWRT) plots were generated separately for sulfate and nitrate. To determine the potential impact from individual point sources, the EWRT values for sulfate and nitrate were combined with facility-level emissions ( $Q$ ) of SO<sub>2</sub> and NO<sub>x</sub> (respectively) using emissions data from the 2016 EPA modeling platform and 2028 emissions projections.<sup>34</sup> 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. This resulted in EWRT\* $Q/d$  values for SO<sub>2</sub> and NO<sub>x</sub> (separately) for each stationary source for each IMPROVE site. Oklahoma's methodology for identifying Oklahoma sources that may impact visibility at Wichita Mountains and Class I areas in other states using the results of the CenSARA 2018 AOI

---

<sup>33</sup> *Id* at 5.

<sup>34</sup> For more information, see the EPA memorandum, "Availability of Modeling Data and Associated Technical Support Document for the EPA's Updated 2028 Visibility Air Quality Modeling" ("EPA's 2028 modeling" in this document), dated September 19, 2019, available at <https://www.epa.gov/visibility/technical-support-document-epas-updated-2028-regional-haze-modeling> and the docket for this document.

analysis is discussed in the paragraphs that follow.

Oklahoma's 2022 SIP submission noted that implementation of BART determinations for the first planning period continued beyond 2016, which was used as the baseline emissions year for conducting the AOI study. This means that some BART emission reductions that took place after 2016 are not reflected in the emissions inventory used in the AOI study. In identifying sources for analysis, Oklahoma chose to use emissions from the same year for every source to avoid potential misrepresentation of effects of emission controls. Oklahoma also noted that due to the substantial variation in weather conditions among years, the use of an inventory for a different, more recent year than the year of the meteorological analysis in the CenSARA 2018 AOI analysis would introduce uncertainty and indefensible inconsistencies. However, based on suggestions from EPA during early SIP development, Oklahoma decided to remove some sources and their corresponding emissions from the source selection calculations. These eliminations were done in an effort to not skew the source selection criteria towards sources that had already achieved significant, known reductions that were not reflected in the 2016 emissions data.<sup>35</sup>

In evaluating individual source contribution to visibility impairment, Oklahoma considered NO<sub>x</sub> and SO<sub>2</sub> emissions separately instead of aggregating contributions from each pollutant for a total source contribution. Visibility impairment at the Wichita Mountains is dominated by NO<sub>x</sub> in winter conditions and SO<sub>2</sub> in the majority of the remainder of the year. To justify considering source contribution to visibility impairment due to NO<sub>x</sub> and SO<sub>2</sub> emissions separately, the SIP submittal stated that there is the possibility that controlling one, but not both pollutants, is cost effective and also noted

---

<sup>35</sup> The sources whose emissions contributions were removed are documented in appendix D of Oklahoma's 2022 SIP submission. The sources include Big Brown Steam Electric Station, Sandow Steam Electric Station and the Monticello Steam Electric Station located in Texas; and OG&E Muskogee Generating Station and OG&E Sooner Generating Station in Oklahoma.

that conducting four-factor analyses is resource intensive.

After analyzing the results of the CenSARA 2018 AOI analysis and removing emissions from sources with known large reductions from its source selection calculations, Oklahoma applied a “Q/d” threshold of 5.0 tons per km (tons/km) or greater (for SO<sub>2</sub> and NO<sub>x</sub> separately) to screen out small sources in Oklahoma from further analysis.<sup>36</sup> Oklahoma’s 2022 SIP submission stated that while using EWRT’s is useful for identifying large geographic areas likely to contain sources of visibility impairing emissions, photochemical modeling has suggested that EWRT tends to over-emphasize small sources of emissions located close to Class I areas. Because the AOI analysis goes back only 72 hours, it does not analyze long-range transport or emissions in more distant areas. Visibility-degrading fine particulate matter commonly travels in the atmosphere for two weeks or longer after emission. The SIP submittal stated that in order to help alleviate this over-emphasis on small sources, Oklahoma opted to consider a “Q/d,” or emissions mass divided by distance, threshold of 5.0 tons/km for eliminating small sources from further analysis. Oklahoma then applied an individual source contribution threshold (*i.e.*, percent EWRT\*Q/d) of 0.5 percent or greater for sulfate and nitrate separately. Oklahoma stated in its SIP submittal that given the successful reduction in visibility impairment over the last decade, 0.5 percent is an appropriate threshold for identifying sources of the greatest importance for further analysis.

Additionally, some point sources identified as having the potential to impact a Class I area based on Oklahoma’s source selection methodology described in the preceding paragraphs were eliminated from further consideration if their emissions are impacted by participation in the Cross State Air Pollution Rule (CSAPR) or upon

---

<sup>36</sup> Oklahoma selected and applied a “Q/d” threshold of 5.0 tons per km (tons/km) to its dataset to screen out small sources in Oklahoma from consideration in a four-factor analysis, where “Q” is the facility-level 2016 annual tons of emissions of NO<sub>x</sub> or SO<sub>2</sub> and “d” is the distance of the facility from the Class I area of interest in km.

consideration of the impact of emission reductions due to BART requirements not fully implemented during the first planning period. Oklahoma chose to defer focus on those sources until a later regional haze planning period to allow the full benefits and implementation of BART and CSAPR to mature.

Using the methodology described in the previous paragraphs, Oklahoma identified twelve sources for further analysis.<sup>37</sup> Tables 6-2 and 6-3 of Oklahoma’s 2022 SIP submission contain the sources that Oklahoma evaluated for possible four-factor analysis, and the final sources selected for evaluation are listed in sections 6.4.1 and 6.4.2 of its SIP. These twelve sources are also listed in table 3.

**Table 3—Oklahoma Sources Subject to Four-Factor Analysis in Oklahoma’s 2022 SIP Submission**

<b>Oklahoma Source Subject to Four-Factor Analysis</b>	<b>Location</b>	<b>Type of Source</b>
1. Oxbow Calcining LLC - Kremlin Calcined Coke Plant	Garfield County	SO <sub>2</sub>
2. Western Farmers Electric Cooperative (Western Farmers) - Hugo Electric Generating Plant	Choctaw County	SO <sub>2</sub>
3. Grand River Dam Authority (GRDA) - Grand River Energy Center (GREC)	Mayer County	SO <sub>2</sub>
4. Holcim US Inc. - Ada Portland Cement Production Plant	Pontotoc County	SO <sub>2</sub>
5. Continental Carbon Co. - Carbon Black Production Facility	Kay County	SO <sub>2</sub>
6. Oklahoma Gas and Electric Company (OG&E) - Horseshoe Lake Generating Station	Oklahoma County	NO <sub>x</sub>
7. OG&E - Mustang Generating Station	Canadian County	NO <sub>x</sub>
8. Mustang Gas Products - Binger Gas Plant	Caddo County	NO <sub>x</sub>
9. ONEOK Field Services - Lindsay Booster Station	Garvin County	NO <sub>x</sub>
10. ONEOK Field Services - Maysville Gas Plant	Garvin County	NO <sub>x</sub>
11. Panhandle Eastern Pipeline Co. - Cashion Compressor Station	Kingfisher County	NO <sub>x</sub>
12. DCP Operating Co. - Chitwood Gas Plant	Grady County	NO <sub>x</sub>

b. Four-Factor Analysis

<sup>37</sup> See Oklahoma’s 2022 SIP submission, p. 37-44.

Sections 6.4.1 and 6.4.2. of Oklahoma's 2022 SIP submission discuss the State's four-factor analysis of the selected Oklahoma sources in more detail. Oklahoma requested and received information from the owners or operators of the twelve sources (seven sources of NO<sub>x</sub> emissions and five sources of SO<sub>2</sub> emissions) listed in table 3. Sources were instructed by Oklahoma to provide additional information regarding the status of their units and to perform a four-factor analysis for their selected pollutant. Information and four-factor analyses submitted by the Oklahoma sources are found in appendix E of Oklahoma's 2022 SIP submission. To address comments received on Oklahoma's draft 2022 SIP revision, Oklahoma requested and received additional information from sources prior to submission of the final package to EPA. When developing its long-term strategy, Oklahoma considered the four factors (i.e., 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 the source), taking into account the information and analyses received from the sources. A summary of Oklahoma's four-factor analysis results is provided in table 6-4 of Oklahoma's 2022 SIP submission. EPA further discusses and evaluates Oklahoma's four-factor analysis results and determination of controls of its selected sources in sections IV.C.2.b.i through xii of this document.

More discussion on Oklahoma's cost threshold selections as part of the control scenarios in its four-factor analyses are found in section 6.8 of Oklahoma's 2022 SIP. Oklahoma determined the cost-of-control thresholds in dollars per ton of emissions saved to be \$1,400 to \$2,000 per ton and \$5,000 per ton for NO<sub>x</sub> and SO<sub>2</sub> respectively. Oklahoma looked to the Cross-State Air Pollution Rule (CSAPR) to inform the selection of an appropriate cost threshold for NO<sub>x</sub> controls. For SO<sub>2</sub> controls, Oklahoma also notes that during discussions with CenSARA, other RPOs, and states, \$5,000 per ton has been widely used as a reasonable cost threshold. Control options were determined by

Oklahoma to be cost prohibitive in most instances.

For NO<sub>x</sub>, Oklahoma found that only the Mustang Gas Binger Gas Plant's two units were within Oklahoma's NO<sub>x</sub> cost threshold. Mustang Gas Binger Gas Plant has already installed appropriate controls on one of its units, and Mustang Gas committed to installing and operating additional controls at the remaining unit to meet updated NO<sub>x</sub> emission limits (9.00 grams NO<sub>x</sub> per horsepower-hour and 104.29 tons NO<sub>x</sub> per year). Mustang Gas agreed to a Regional Haze Agreement with Oklahoma as the enforceable mechanism for installing and operating controls at the remaining unit upon EPA's approval of Oklahoma's 2022 SIP submission.<sup>38</sup> Oklahoma also discusses the already completed removal and replacement of eight engines at the ONEOK Lindsay Booster Station and removal of seven engines at the ONEOK Maysville Gas Plant, with a commitment from ONEOK to remove the remaining six Maysville Gas Plant engines. ONEOK agreed to a Regional Haze Agreement with Oklahoma as the enforceable mechanism for removing the remaining natural gas-fueled engines by December 31, 2028.<sup>39</sup> These measures at the ONEOK facilities precluded the need for further analysis or selection of further controls at these sites.<sup>40</sup>

For SO<sub>2</sub>, Oklahoma found that estimated SO<sub>2</sub> control costs calculated varied greatly but were all found to be in excess of Oklahoma's SO<sub>2</sub> cost threshold. Oklahoma provides in its 2022 SIP submission that, given technical and cost considerations, the analyses conducted were reasonable, and its plan does not impose a requirement to install further SO<sub>2</sub> controls on its selected sources or on any other sources during this planning period. Oklahoma also concluded that even without additional control measures, EPA's 2028 modeling projects further visibility improvement at Wichita Mountains.

---

<sup>38</sup> See Oklahoma's 2022 SIP submission, section 6.4.2.3, section 6.9, and the Mustang Gas Regional Haze Agreement, Case No. 26-008, effective 1/15/2026.

<sup>39</sup> See Oklahoma's 2022 SIP submission, appendix F: *ONEOK Regional Haze Agreement*, Case No. 22-085, effective 5/6/2022.

<sup>40</sup> See Oklahoma's 2022 SIP submission, sections 6.4.2.4 and 6.4.2.5.

Additional discussion and summary of Oklahoma’s long-term strategy is provided in section 6.9 of Oklahoma’s 2022 SIP submission. Oklahoma states that due to the exceptional visibility progress from the first planning period, and the cost prohibitive control options in the current, second planning period, Oklahoma’s 2022 SIP submission only relies on existing air program rules and regulations in addition to controls as part of its long-term strategy for the second planning period. As provided in section IV.C.3 of this document and sections 6.9.1, 6.9.2, and 6.9.3 of Oklahoma’s 2022 SIP submission, Oklahoma also relies on other factors as part of its long-term strategy, including ongoing air pollution control programs, measures for smoke management and reducing impacts from construction activities. Ongoing air pollution control programs include Oklahoma’s major source and minor facility permitting program and enforcement program, Federal new source performance standards (NSPS), programs approved in Oklahoma’s SIP designed to address National Ambient Air Quality Standards (NAAQS) requirements, and other Federal rules.

## 2. The EPA’s Rationale and Evaluation of Oklahoma’s Long-Term Strategy

In this section of this document, we evaluate Oklahoma’s determinations of the measures necessary to make reasonable progress (i.e., its long-term strategy) against the requirements of the CAA and RHR for the second implementation period of the regional haze program and describe our rationale for proposing approval. Considering the four statutory factors and the projected 2028 visibility conditions for Class I areas in Oklahoma and those influenced by emissions from Oklahoma sources, which are below the URP, the EPA finds that Oklahoma reasonably determined the emission reduction measures that are necessary to make reasonable progress for the second planning period. As detailed further in this section, the EPA proposes to approve Oklahoma’s long-term strategy under 40 CFR 51.308(f)(2).

a. The EPA's Rationale for Proposing Approval

In this proposed action, we note that it is the Agency's policy, as announced in our recent approval of the West Virginia Regional Haze SIP,<sup>41</sup> that where visibility conditions for a Class I area impacted by a State are below the 2028 URP and the State has also evaluated potential control measures by considering the four statutory factors, the State will have presumptively demonstrated reasonable progress for the second planning period for that area. We acknowledge that this reflects a change in policy as to how the URP should be used in the evaluation of regional haze second planning period SIPs. However, we find that this policy better aligns with the purpose of the statute and RHR, which is achieving “reasonable” progress, not maximal progress, toward Congress's natural visibility goal. We explain the background and our rationale on this change in policy further in this section.

In developing the regulations required by CAA section 169A(b), the EPA established the concept of the uniform rate of progress (URP) for each Class I area. The URP is determined by drawing a straight line from the measured 2000-2004 baseline conditions (in deciviews) for the 20% most impaired days at each Class I area to the estimated natural conditions (in deciviews) for the 20% most impaired days in 2064. From this calculation, a URP value can be calculated for each year between 2004 and 2064. The EPA developed the URP to address the diverse concerns of Eastern and Western states and account for the varying levels of visibility impairment in Class I areas around the country while ensuring an equitable approach nationwide. For each Class I area, states must calculate the URP for the end of each planning period (*e.g.*, in 2028 for the second planning period).<sup>42</sup> 40 CFR 51.308(f)(1)(vi)(A). States may also adjust the

---

<sup>41</sup> See EPA's final action for West Virginia's regional haze SIP at 90 FR 29737 (July 7, 2025), and our notice of proposed rulemaking at 90 FR 16478, 16483 (April 18, 2025) which describes the policy. See also EPA's notice of proposed rulemaking for South Dakota at 90 FR 20425 (May 14, 2025).

<sup>42</sup> We note that RPGs are a regulatory construct that we developed to address the statutory mandate in CAA section 169B(e)(1), which required our regulations to include “criteria for measuring ‘reasonable progress’

URP to account for impacts from anthropogenic sources outside the United States and/or impacts from certain wildland prescribed fires. 40 CFR 51.308(f)(1)(vi). Then, for each Class I area, states must compare the reasonable progress goal (RPG) for the 20% most impaired days to the URP for the end of the planning period. If the RPG is above the URP, then an additional “robust demonstration” requirement is triggered for each state that contributes to that Class I area. 40 CFR 51.308(f)(3)(ii).

The EPA has the discretion and authority to change policy. In *FCC v. Fox Television Stations, Inc.*, the U.S. Supreme Court plainly stated that an agency is free to change a prior policy and “need not demonstrate . . . that the reasons for the new policy are better than the reasons for the old one; it suffices that the new policy is permissible under the statute, that there are good reasons for it, and that the agency believes it to be better.” 566 U.S. 502, 515 (2009) (referencing *Motor Vehicle Mfrs. Ass'n of United States, Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29 (1983)). See also *Perez v. Mortgage Bankers Assn.*, 135 S. Ct. 1199 (2015). The EPA believes that its recently adopted policy aligns with the purpose of the statute and RHR, which is achieving “reasonable” progress, not maximal progress, toward Congress' natural visibility goal.

In the 2017 RHR Revisions, the EPA addressed the role of the URP as it relates to a state's development of its second planning period SIP. 82 FR 3078 (January 10, 2017). Specifically, in response to comments suggesting that the URP should be considered a “safe harbor” that relieve states of any obligation to consider the four statutory factors, the EPA explained that the URP was not intended to be such a safe harbor. *Id.* at 3099. “Some commenters stated a desire for corresponding rule text dealing with situations where RPGs are equal to (“on”) or better than (“below”) the URP or glidepath. Several

---

toward the national goal.” Under 40 CFR 51.308(f)(3)(ii), RPGs measure the progress that is projected to be achieved by the control measures a state has determined are necessary to make reasonable progress. Consistent with the 1999 RHR, the RPGs are unenforceable, though they create a benchmark that allows for analytical comparisons to the URP and mid-implementation-period course corrections if necessary. 82 FR 3091-3092 (January 10, 2017).

commenters stated that the URP or glidepath should be a ‘safe harbor,’ opining that states should be permitted to analyze whether projected visibility conditions for the end of the implementation period will be on or below the glidepath based on on-the-books or on-the-way control measures, and that in such cases a four-factor analysis should not be required.” *Id.*

Other 2017 RHR comments indicated a similar approach, such as “a somewhat narrower entrance to a ‘safe harbor,’” by suggesting that if current visibility conditions are already below the end-of-planning-period point on the URP line, a four-factor analysis should not be required.” *Id.* The EPA stated in its response that we did not agree with either of these recommendations. “The CAA requires that each SIP revision contain long-term strategies for making reasonable progress, and that in determining reasonable progress states must consider the four statutory factors. Treating the URP as a safe harbor would be inconsistent with the statutory requirement that states assess the potential to make further reasonable progress towards natural visibility goal in every implementation period.” *Id.*

However, so long as a state considers the four factors, the presumption that a Class I area below the URP is achieving reasonable progress is consistent with the CAA and RHR. Indeed, we believe this policy also recognizes the considerable improvements in visibility impairment that have been made by a wide variety of State and Federal programs in recent decades. In sum, Oklahoma selected a number of sources, evaluated emissions control measures, and considered the four statutory factors. In addition, visibility conditions at all Class I areas to which Oklahoma contributes are below the URP. In light of these facts, the EPA agrees with Oklahoma’s conclusion that no additional measures are necessary to make reasonable progress during the second planning period and is proposing to approve the state’s SIP submittal. The EPA’s determinations are described in more detail in the following section.

b. The EPA's Evaluation of Oklahoma's Long-Term Strategy

Applying the new policy as described in the previous section in our evaluation of Oklahoma's SIP and as further detailed in the paragraphs that follow, the EPA proposes to agree that the long-term strategy outlined in Oklahoma's 2022 SIP submission is adequate to achieve reasonable progress towards natural visibility at Class I areas impacted by emissions from Oklahoma sources. The following paragraphs contain a summary of the four factor analysis and EPA's evaluation of each source evaluated by Oklahoma for further controls as part of Oklahoma's long-term strategy.

i. Oxbow Calcining - Kremlin Calcined Coke Plant (SO<sub>2</sub>)

Oxbow Calcining's Kremlin Calcined Coke Plant, a petroleum coke calcining plant located in Garfield County, was identified for further analysis by Oklahoma for the evaluation of controls for SO<sub>2</sub> emissions. The Oxbow Kremlin Plant utilizes three kilns in the calcining process and reported emissions of 12,663 tons of SO<sub>2</sub> in 2016. Oxbow considered three emissions reduction options for each of the kilns at the plant: wet flue gas desulfurization (WFGD), dry flue gas desulfurization (DFGD), and dry sorbent injection (DSI). As provided in Oxbow's response to Oklahoma's information collection request, WFGD, DFGD, and DSI would have a potential control efficiency of 94%, 92%, and 40% SO<sub>2</sub> removal, respectively. Oklahoma stated in its SIP that Oxbow was unable to verify whether these particular control systems have been used successfully on petroleum coke calcining kilns at other locations but still evaluated each kiln for these controls. Oxbow also stated that there was a high-level of uncertainty about the availability of water that would be required to operate any of the controls, which added to the potential technical infeasibility of the control options.<sup>43</sup>

In Oxbow's response to Oklahoma, Oxbow provided two different cost calculations on potential controls depending on the two water supply scenarios: the

---

<sup>43</sup> See Oklahoma's 2022 SIP submission, section 6.4.1.1, p. 39-40, and appendix E.

construction of a separate pipeline to the Kremlin Plant from the City of Enid and obtaining water via trucks. For the time necessary for compliance, Oxbow proposed a minimum of five years for implementing either the WFGD option or the DFGD option and two years for the DSI option and included an implementation schedule for equipment design, procurement, fabrication, construction, and commissioning. For the remaining useful life, Oxbow stated that, for the purposes of the control cost assessment, an industry standard 20-year remaining useful life is used, which is consistent with the EPA Air Pollution Control Cost Manual (EPA Control Cost Manual).<sup>44</sup> Oxbow stated that it has no plans to shut down any of the kilns, and there are no enforceable limitations on the remaining useful life of the kilns. In consideration of the energy and non-air quality environmental impacts of compliance, Oxbow also stated that all of the control options provided would require additional energy for operation and would result in various non-air quality environmental impacts primarily related to additional water usage, wastewater management, and solid waste management.<sup>45</sup>

Oxbow used a 10% interest rate to calculate the annualized capital costs of each control scenario for each kiln based on confidential company-specific capital market information. Oxbow's calculated cost effectiveness of controls, in dollars per ton of SO<sub>2</sub> removed, ranged from \$6,574 to \$25,049 for the City of Enid water supply scenario, and \$12,707 to \$42,258 for the trucked-in water supply scenario. Oxbow's cost estimates of its trucked-in water supply scenario were almost twice as much as the City of Enid water supply scenario. All cost estimates at Oxbow's Kremlin Plant were higher than Oklahoma's cost threshold of \$5,000 per ton of SO<sub>2</sub> removed, with the lowest cost control estimate at the Oxbow Kremlin Plant being WFGD for Kiln 1, at \$6,574, using the City of Enid water supply scenario. Oxbow concluded and Oklahoma concurred that

---

<sup>44</sup> See <https://www.epa.gov/economic-and-cost-analysis-air-pollution-regulations/cost-reports-and-guidance-air-pollution#cost%20manual>.

<sup>45</sup> See Oklahoma's 2022 SIP submission, section 6.4.1.1, p. 39-40, and appendix E.

none of the control options were economically viable due to the cost and the technical uncertainty of the control technologies and determined that no additional controls are reasonable during the second planning period.<sup>46</sup>

EPA is proposing to find that the State's determination that no measures for the Oxbow Kremlin Plant are necessary for reasonable progress is reasonable and meets regional haze requirements for the second planning period. In Oklahoma's 2022 SIP submission, Oklahoma adequately considered the four statutory factors on the selected control technologies for the three kilns at the Oxbow Kremlin Plant and concluded that no measures are necessary to make reasonable progress for the second planning period at the plant. In addition, the projected 2028 visibility conditions at Wichita Mountains to which the Oxbow Kremlin Plant contributes is below its 2028 URP values. The EPA is proposing to find that Oklahoma demonstrated that it is making reasonable progress for the second planning period without requiring any control measures for Oxbow Calcining's Kremlin Calcined Coke Plant.

ii. Western Farmers - Hugo Electric Generating Plant (SO<sub>2</sub>)

Western Farmers Electric Cooperative's Hugo Electric Generating Plant is located in Choctaw County and was also identified for analysis for potential SO<sub>2</sub> controls. The Western Farmers Hugo Plant has one coal-fired boiler used to generate electricity and reported 7,275 tons of SO<sub>2</sub> emissions in 2016. As provided in Western Farmer's response to Oklahoma's information collection request, Western Farmers stated that 2018-2019 data for the facility was more representative of future operations at the facility and provided updated data with a baseline emission rate of 3,211 tons SO<sub>2</sub> per year. Three emissions reduction options were considered for the boiler at the plant: WFGD, DFGD, and DSI. Based on the data provided by Western Farmers in its response to Oklahoma, WFGD, DFGD, and DSI would have an estimated control efficiency of 91%, 87%, and

---

<sup>46</sup> *Id.*

13% SO<sub>2</sub> removal, respectively.<sup>47</sup>

Western Farmers considered the four factors in its response to Oklahoma. For time necessary for compliance, Western Farmers estimated five years for implementing either WFGD or DFGD, citing consistency with EPA's March 2011 Technical Support Document for the Oklahoma Regional Haze SIP and FIP ("2011 EPA Oklahoma Regional Haze SIP TSD")<sup>48</sup>, and 3.5 years for DSI, citing consistency with the October 2012 Northeastern Regional Haze Settlement Agreement<sup>49</sup>. Western Farmers stated that it has no plans to shut down or cease burning coal at its boiler, and therefore, a remaining useful life of 30 years is assumed based on information presented in the 2011 EPA Oklahoma Regional Haze SIP TSD. For energy and non-air quality impacts, Western Farmers stated that the control options would require increased power usage, generate solid waste that would need to be managed, require increased freshwater usage, and/or generate large volumes of wastewater that would need to be managed. Western Farmers used a 7% interest rate to calculate the annualized capital costs of each control scenario for the boiler. According to Western Farmers, estimated cost effectiveness in dollars per ton of SO<sub>2</sub> removed for WFGD, DFGD, and DSI for the boiler are \$8,462, \$8,203, and \$41,003, respectively. Based on the results, Western Farmers concluded that there is no economically viable control option for the unit. In response to EPA and FLM comments received on Oklahoma's draft 2022 SIP submission, Oklahoma recalculated Western Farmer's estimated cost effectiveness for DFGD using a lower interest rate (3.25% versus the original 7% that Western Farmers used) and higher control efficiencies (87% to 99% versus 87%) and determined the lowest estimate to be \$6,002 per ton of SO<sub>2</sub> removed. The Hugo Generating Plant's cost estimates from Western Farmers and Oklahoma are

---

<sup>47</sup> See Oklahoma's 2022 SIP submission, section 6.4.1.2, p. 40-41, and appendix E.

<sup>48</sup> EPA Technical Support Document for the Oklahoma Regional Haze State Implementation Plan and Federal Implementation Plan ("2011 EPA Oklahoma Regional Haze SIP TSD"), March 2011.

<sup>49</sup> Settlement Agreement between PSO, the Oklahoma Secretary of Environment, the ODEQ, the EPA, and the Sierra Club, executed on or about October 17, 2012, available in the docket for this action.

higher than Oklahoma's determined cost threshold for SO<sub>2</sub>. Based on these estimates, Oklahoma concurred with Western Farmer's determination that no additional controls are required during the second planning period for the Hugo Generating Plant as controls would not be cost-effective.<sup>50</sup>

EPA is proposing to find that the State's determination that no measures for the Western Farmers Hugo Generating Plant are necessary for reasonable progress is reasonable and meets regional haze requirements for the second planning period. In Oklahoma's 2022 SIP submission, Oklahoma adequately considered the four statutory factors on the selected control technologies for the boiler at the Western Farmers Hugo Generating Plant and concluded that no measures are necessary to make reasonable progress for the second planning period at the plant. In addition, the projected 2028 visibility conditions at all Class I areas to which the Western Farmers Hugo Generating Plant contributes (Wichita Mountains in Oklahoma, Caney Creek and Upper Buffalo in Arkansas, and Hercules-Glades in Missouri) are below their respective 2028 URP values. The EPA is proposing to find that Oklahoma demonstrated that it is making reasonable progress for the second planning period without requiring any control measures for Western Farmers Electric Cooperative's Hugo Electric Generating Plant.

iii. Grand River Dam Authority (GRDA) - Grand River Energy Center (SO<sub>2</sub>)

GRDA's Grand River Energy Center is located in Mayes County and was identified for analysis for potential SO<sub>2</sub> controls. The GRDA Grand River Energy Center has one coal-fired boiler (Unit 2) that reported 629 tons of SO<sub>2</sub> emissions in 2016 and is equipped with a spray dryer absorber (SDA) designed for a removal efficiency of 85%. Unit 1, which previously emitted 8,358 tons of SO<sub>2</sub> emissions in 2016, was converted to operate on natural gas and was not considered for further analysis by Oklahoma. As provided in GRDA's response to Oklahoma's information collection request, GRDA

---

<sup>50</sup> See Oklahoma's 2022 SIP submission, section 6.4.1.2, p. 40-41, and appendix E.

considered the following five options for Unit 2: coal washing, circulating dry scrubbing (CDS), DSI, a new SDA, and WFGD. Coal washing and DSI were evaluated with the current SDA online, while CDS, new SDA and WFGD were evaluated with the existing SDA decommissioned. Based on the data provided by GRDA in its response to Oklahoma, coal washing, and DSI were estimated to be capable of removing an additional 10% and 50%, respectively, of SO<sub>2</sub> emissions with the current SDA online. CDS, new SDA, and WFGD control options would have an estimated control efficiency of 94%, 94%, and 96% SO<sub>2</sub> removal, respectively.<sup>51</sup>

GRDA considered the four factors in its response to Oklahoma. For time necessary for compliance, GRDA estimated implementation times of 1.2 years, 2.5 years, 5.3 years, 5.6 years, and 5.5 years for the coal washing, CDS, DSI, new SDA, and WFGD control options, respectively, applying timeframes for conceptual engineering, permitting, detailed engineering/procurement, construction, outage time, and startup and testing. GRDA utilized a different remaining useful life value from the EPA Control Cost Manual as it anticipates Unit 2 operating through 2029, stating that while any new system may be able to operate for 30 years, its operating lifetime will be limited by the facility's operations. GRDA considered several different energy and non-air quality impacts for all control options, which included increased energy demand, increases in some of the monitored parameters, impacts from mining and transporting the reagent required, increased water consumption, and increased waste generation. According to GRDA, estimated cost effectiveness in dollars per ton of SO<sub>2</sub> removed for coal washing, CDS, DSI, SDA, and WFGD for the boiler are \$126,796, \$21,187, \$143,321, \$176,851 and \$140,109, respectively. Based on the results, GRDA concluded that the control options that are technically feasible for reducing SO<sub>2</sub> emissions at Unit 2 range in estimated costs from \$21,000 to \$177,000 per ton of SO<sub>2</sub> removed, with the estimated total amount of

---

<sup>51</sup> See Oklahoma's 2022 SIP submission, section 6.4.1.3, p. 41-42, and appendix E.

SO<sub>2</sub> removed ranging from 37 to 294 tons per year. GRDA therefore concluded and Oklahoma concurred that there are no economically viable control options for the unit as the cost estimates are higher than Oklahoma's determined cost threshold for SO<sub>2</sub>.<sup>52</sup> Oklahoma also performed some additional cost calculation for DSI, the lowest cost control option identified by GRDA, utilizing a remaining useful life of the equipment of 30 years. The state found that the installation of DSI would still not be considered cost-effective at a cost of approximately \$12,000/ton.

EPA is proposing to find that the State's determination that no measures for the GRDA Grand River Energy Center are necessary for reasonable progress is reasonable and meets regional haze requirements for the second planning period. In Oklahoma's 2022 SIP submission, Oklahoma adequately considered the four statutory factors on the selected control technologies for the Unit 2 boiler at the GRDA Grand River Energy Center and concluded that no measures are necessary to make reasonable progress for the second planning period at the facility. In addition, the projected 2028 visibility conditions at all Class I areas to which the GRDA Grand River Energy Center contributes (Wichita Mountains in Oklahoma, Caney Creek and Upper Buffalo in Arkansas, and Hercules-Glades in Missouri) are below their respective 2028 URP values. The EPA is proposing to find that Oklahoma demonstrated that it is making reasonable progress for the second planning period without requiring any control measures for GRDA's Grand River Energy Center.

iv. Holcim - Ada Portland Cement Production Plant (SO<sub>2</sub>)

Holcim's Ada Portland Cement Production Plant is located in Pontotoc County and was selected by Oklahoma for further evaluation of SO<sub>2</sub> controls. The Holcim Ada Plant had two kilns used in the production process and reported 2,303 tons of SO<sub>2</sub> emissions in 2016. In Holcim's response to Oklahoma's information collection request,

---

<sup>52</sup> *Id.*

Holcim stated that the two kilns that were in operation in 2016 were dismantled and replaced with a new kiln in 2017, with the new kiln emitting far less SO<sub>2</sub> emissions. Holcim stated that if more recent emissions data was used, the Ada plant would have fallen below Oklahoma's selection criteria for the evaluation of SO<sub>2</sub> controls. According to Oklahoma, the new kiln at Holcim's Ada Plant emits an estimated 154 tons of SO<sub>2</sub> per year. Using the data provided by Oklahoma, EPA calculated that the Holcim Ada Plant's SO<sub>2</sub> emissions have reduced by approximately 93% since the installation of the new kiln. Due to the kiln replacement and a significant decrease of SO<sub>2</sub> emissions at the Holcim Ada Plant, Oklahoma did not analyze the Ada Plant further for SO<sub>2</sub> emission reductions.<sup>53,54</sup>

EPA is proposing to find that the State's determination for the Holcim Ada Plant that no measures are necessary for reasonable progress is reasonable and meets regional haze requirements for the second planning period. In Oklahoma's 2022 SIP submission, Oklahoma reviewed more recent facility information at the Holcim Ada Plant and concluded that no measures are necessary to make reasonable progress for the second planning period at the plant due to the replacement of the two kilns with a new kiln. Additionally, the projected 2028 visibility conditions at Wichita Mountains to which the Holcim Ada Plant contributes is below its 2028 URP values. The EPA is proposing to find that Oklahoma demonstrated that it is making reasonable progress for the second planning period without requiring any control measures for Holcim's Ada Portland Cement Production Plant.

v. Continental Carbon - Carbon Black Production Facility (SO<sub>2</sub>)

Continental Carbon's Carbon Black Production Facility is located in Ponca City,

---

<sup>53</sup> See Oklahoma's 2022 SIP submission, section 6.4.1.4, p. 42, and appendix E.

<sup>54</sup> More recent emissions data at the Holcim Ada Plant showed that the facility emitted 81 tons of SO<sub>2</sub> in 2020 and 94 tons of SO<sub>2</sub> in 2023. See the EPA 2020 National Emission Inventory data at: <https://www.epa.gov/air-emissions-inventories/2020-national-emissions-inventory-nei-data>, and ODEQ's 2023 Oklahoma Annual Point Source Emission Summary at <https://oklahoma.gov/deq/divisions/air-quality/emissions-inventory/state-emissions-totals-infographics.html>.

Kay County and was selected by Oklahoma for further evaluation of SO<sub>2</sub> controls. The Continental Carbon Facility reported 2,712 tons of SO<sub>2</sub> in 2016, which were primarily emitted from four carbon black production units controlled by three thermal oxidizers. Continental Carbon is subject to a federally enforceable consent decree with EPA, entered on May 7, 2015, and amended on May 25, 2018, which require the installation of controls for NO<sub>x</sub> and SO<sub>2</sub> emissions and meet the consent decree-specified emission limits by April 1, 2021, at the Ponca City facility.<sup>55</sup> According to Continental Carbon in its responses to Oklahoma's information collection requests, the previous SO<sub>2</sub> control system utilizing the thermal oxidizers for the carbon black production units was replaced with a dry scrubber system utilizing scrubbers on two waste gas boilers. Continental Carbon performed an analysis based on the consent decree requirements to install the dry scrubber system. Using the original thermal oxidizer control system as the baseline, which were permitted to emit 5,257 pounds per hour (lb/hr) of SO<sub>2</sub>, Continental Carbon anticipated an approximate SO<sub>2</sub> emission reduction of 95% from the installation of the dry scrubber system, which will have an approximate emission rate of 272 lb/hr, with an approximate reduction of 15,800 tons of SO<sub>2</sub> emission per year at the facility. Continental Carbon stated that it expected the dry scrubbers to be operational by the first quarter of 2021, which coincides with its consent decree deadline of April 1, 2021, and for the new SO<sub>2</sub> control system to have a life expectancy of 20 to 25 years. Continental Carbon submitted details of cost of energy, waste disposal, regulatory requirement, etc., incurred with implementation of the control measure, as well as the costs of implementing the measure separately as confidential business information. Recent emissions data show an approximate 92% reduction of reported SO<sub>2</sub> emissions at the facility from 2016 to 2023,

---

<sup>55</sup> Consent Decree between Continental Carbon Company and EPA, entered May 7, 2015, and amended May 25, 2018, Case No. 5:15-cv-00290-F, available in the docket for this action.

reflecting the operation of the scrubber system.<sup>56</sup> Oklahoma stated in its SIP that it concurs with Continental Carbon's determination that no further reductions in SO<sub>2</sub> emission, apart from the dry scrubber system installed at the facility, can be cost-effectively achieved.<sup>57</sup>

EPA is proposing to find that the State's determination for the Continental Carbon Facility that no measures are necessary for reasonable progress is reasonable and meets regional haze requirements for the second planning period. In Oklahoma's 2022 SIP submission, Oklahoma reviewed recent facility information, consent decree requirements, and the analysis from the Continental Carbon Facility, considering potential cost of controls, remaining useful life, time necessary for compliance, and energy and non-air quality impacts, and concluded that no measures are necessary to make reasonable progress for the second planning period at the facility. Additionally, the projected 2028 visibility conditions at Wichita Mountains to which the Continental Carbon Facility contributes is below its 2028 URP values. The EPA is proposing to find that Oklahoma demonstrated that it is making reasonable progress for the second planning period without requiring any control measures for Continental Carbon's Carbon Black Production Facility.

vi. OG&E - Horseshoe Lake Generating Station (NO<sub>x</sub>)

OG&E's Horseshoe Lake Generating Station, an electric generating station located in Oklahoma County, was selected by Oklahoma for further evaluation of NO<sub>x</sub> controls. The OG&E Horseshoe Lake Station utilizes five electric generating units consisting of three boilers and two turbines and reported 852 tons of NO<sub>x</sub> emissions in 2016. Three emissions reduction options were considered for the boilers at the station:

---

<sup>56</sup> Recent emissions data at the Continental Carbon Plant showed that the facility emitted 214 tons of SO<sub>2</sub> in 2023. See ODEQ's 2023 Oklahoma Annual Point Source Emission Summary at <https://oklahoma.gov/deq/divisions/air-quality/emissions-inventory/state-emissions-totals-infographics.html>.

<sup>57</sup> See Oklahoma's 2022 SIP submission, section 6.4.1.5, p. 42, and appendix E.

selective catalytic reduction (SCR), selective non-catalytic reduction (SNCR) (only feasible for two of the boilers), and a combination of combustion technologies, i.e., low-NO<sub>x</sub> Burners (LNB), overfire air (OFA), and flue gas recirculation (FGR), together referred to as “LNB-OFA-FGR”, while only SCR was considered for the turbines. As provided in OG&E’s response to Oklahoma’s information collection request, SCR, SNCR, and LNB-OFA-FGR would have potential control efficiencies, depending on the unit, of 90-92%, 30-41%, and 12-41% NO<sub>x</sub> removal, respectively.<sup>58</sup>

OG&E considered the four factors in its response to Oklahoma. For the time necessary for compliance, OG&E estimated a minimum of four years for implementing SCR and a minimum of two years for implementing either SNCR or LNB+OFA+FGR at the Horseshoe Lake Station, stating that implementing controls at multiple units would also increase time needed. OG&E stated that there are no enforceable limitations on the remaining useful life on any of the units but explained that due to the age of the boilers, which have been operating 52 to 62 years, that it expects those units to operate for 20 years at most. Due to this reasoning, OG&E utilized a remaining useful life of 20 years for the boilers and 30 years for the turbines. OG&E considered several different energy and non-air quality impacts for all control options, which included increased energy demand, a new waste stream that must be managed, and increased emissions from unreacted ammonia to the atmosphere, which may negate some of the calculated visibility improvements from the anticipated NO<sub>x</sub> reductions. OG&E used a 7% interest rate to calculate the annualized capital costs of each control scenario applicable for each unit. According to OG&E, estimated cost effectiveness in dollars per ton of NO<sub>x</sub> removed for SCR, SNCR, and LNB-OFA-FGR for the boilers range from \$21,537 - \$26,873, \$24,528 - \$36,107, and \$14,179 - \$129,391, respectively, while estimated cost effectiveness for the turbines for SCR are \$110,920. OG&E’s cost estimates for

---

<sup>58</sup> See Oklahoma’s 2022 SIP submission, section 6.4.2.1, p. 42, and appendix E.

Horseshoe Lake Station are higher than Oklahoma's determined cost threshold for NO<sub>x</sub>. Based on these estimates, Oklahoma concurred with OG&E's determination that no additional controls are required during the second planning period for the Horseshoe Lake Station as controls would not be cost-effective.<sup>59</sup> Oklahoma also noted in its 2022 SIP submission that the facility is likely to reduce overall emissions as the unit is subject to CSAPR NO<sub>x</sub> requirements.

EPA is proposing to find that the State's determination that no measures for the OG&E Horseshoe Lake Station are necessary for reasonable progress is reasonable and meets regional haze requirements for the second planning period. In Oklahoma's 2022 SIP submission, Oklahoma adequately considered the four statutory factors on the selected control technologies for the boilers and turbines at the OG&E Horseshoe Lake Station and concluded that no measures are necessary to make reasonable progress for the second planning period at the facility. In addition, the projected 2028 visibility conditions at Wichita Mountains to which the OG&E Horseshoe Lake Station contributes is below its 2028 URP values. The EPA is proposing to find that Oklahoma demonstrated that it is making reasonable progress for the second planning period without requiring any control measures for OG&E's Horseshoe Lake Generating Station.

vii. OG&E - Mustang Generating Station (NO<sub>x</sub>)

OG&E's Mustang Generating Station, an electric generating station located in Canadian County, was selected by Oklahoma for further evaluation of NO<sub>x</sub> controls. The OG&E Mustang Station utilized two natural gas fueled electric generating units and reported 747 tons of NO<sub>x</sub> emissions in 2016. These units at Mustang Station retired on December 31, 2017, as demonstrated in Oklahoma Operating Permit No. 2018-0555-TV3, issued August 15, 2018, and subsequent operating permit modifications and renewals. Recent emissions data at the facility showed that the OG&E Mustang Station,

---

<sup>59</sup> *Id.*

after replacing the older units with more modern natural gas fired turbines, reported 229 tons of NO<sub>x</sub> in 2023, a 69% reduction in NO<sub>x</sub> emissions compared to 2016 emissions.<sup>60</sup> Due to the unit retirements at the OG&E Mustang Station, Oklahoma did not analyze the facility further for NO<sub>x</sub> emission reductions.<sup>61</sup>

EPA is proposing to find that the State's determination for the OG&E Mustang Station that no measures are necessary for reasonable progress is reasonable and meets regional haze requirements for the second planning period. In Oklahoma's 2022 SIP submission, Oklahoma reviewed more recent facility information at the OG&E Mustang Station and concluded that no measures are necessary to make reasonable progress for the second planning period at the facility. Additionally, the projected 2028 visibility conditions at Wichita Mountains to which the OG&E Mustang Station contributes is below its 2028 URP values. The EPA is proposing to find that Oklahoma demonstrated that it is making reasonable progress for the second planning period without requiring any control measures for OG&E's Mustang Generating Station.

#### viii. Mustang Gas - Binger Gas Plant (NO<sub>x</sub>)

Mustang Gas's Binger Gas Plant, located in Caddo County, was selected by Oklahoma for further evaluation of NO<sub>x</sub> controls. The Mustang Gas Binger Plant utilizes four natural gas fueled engines, three of which emitted the majority of the 658 tons of NO<sub>x</sub> reported at the plant in 2016. As provided in Mustang Gas's response to Oklahoma's information collection request, three of the engines already operate with air fuel ratio controllers (AFRC) installed, and two of the engines operate with non-selective catalytic reduction (NSCR) installed, and therefore only NSCR was considered for the remaining two engines. Mustang Gas expects a potential NO<sub>x</sub> control efficiency of 90%,

---

<sup>60</sup> See EPA Clean Air Markets Program Data at <https://campd.epa.gov/> and ODEQ's 2023 Oklahoma Annual Point Source Emission Summary at <https://oklahoma.gov/deq/divisions/air-quality/emissions-inventory/state-emissions-totals-infographics.html>.

<sup>61</sup> See Oklahoma's 2022 SIP submission, section 6.4.2.2, p. 43, and appendix E.

as this has already been demonstrated based on recent testing in comparison to the uncontrolled manufactured specifications for these engines.<sup>62</sup>

Mustang Gas considered the four factors in its response to Oklahoma. Mustang Gas estimated two years for implementing NSCR at the units, accounting for the budget, design, procurement, authorization, and installation of the control systems. Mustang Gas also estimated a remaining useful life of 20 years for the NSCR equipment, based on default values from the EPA Control Cost Manual, but also noted the need to change the catalyst beds approximately every two years based on operational hours and best engineering practices. For energy and non-air quality impacts, Mustang Gas stated the use of NSCR on the engines would require increased energy consumption as well as periodic replacement and disposal of the catalyst. According to Mustang Gas, estimated cost effectiveness in dollars per ton of NO<sub>x</sub> removed for NSCR at the two engines would cost \$24.00 and \$24.67, which was considered cost effective. Mustang Gas and Oklahoma concurred that the use of NSCR with good combustion practices was the most efficient control application for the two engines at the plant that do not already have NSCR installed, and further controls beyond installation of NSCR are not necessary. Mustang Gas completed installation of NSCR at one of the engines and committed to installing NSCR at the other engine, planning to have it operational by a year after Oklahoma's 2022 SIP submission is approved by EPA. Consistent with this requirement in the SIP, Mustang Gas signed an agreement with ODEQ on January 15, 2026, ("Mustang Gas Regional Haze Agreement"), which stated that Mustang Gas will install NSCR at the remaining engine within one year after EPA's approval of Oklahoma's 2022 SIP submission.<sup>63</sup> As stated in the Mustang Gas Regional Haze Agreement and as

---

<sup>62</sup> See Oklahoma's 2022 SIP submission, section 6.4.2.3, p. 43, and appendix E.

<sup>63</sup> Regional Haze Agreement between Mustang Gas Products, L.L.C., Binger Gas Plant and Oklahoma Department of Environmental Quality Air Quality Division, Case No. 26-008, effective January 15, 2026, received by EPA on January 20, 2026, available in Oklahoma's 2022 SIP submission.

Oklahoma stated in its SIP, Mustang Gas Binger Plant engine's controls will be added to the facility's permit and include updated NO<sub>x</sub> emission limits (9.00 grams NO<sub>x</sub> per horsepower-hour and 104.29 tons NO<sub>x</sub> per year) as well as the provided testing, monitoring, reporting and recordkeeping requirements.<sup>64</sup>

EPA is proposing to find that the State's determination for the Mustang Gas Binger Plant is reasonable and meets regional haze requirements for the second planning period. In Oklahoma's 2022 SIP submission, Oklahoma adequately considered the four statutory factors on the selected control technologies for the engines at the Mustang Gas Binger Plant to come to its conclusion to require NSCR at the remaining engine that already does not have NSCR installed. EPA is proposing to find that Oklahoma's determination of requiring installation of NSCR at the remaining engine as part of Oklahoma's long-term strategy for the second planning period is reasonable and demonstrates reasonable progress for the second planning period. EPA is proposing to approve the Mustang Gas Regional Haze Agreement, Case No. 26-008, as a source-specific SIP requirement for the Binger Gas Plant.

ix. ONEOK - Lindsay Booster Station (NO<sub>x</sub>)

ONEOK's Lindsay Booster Station in Garvin County was selected by Oklahoma for further evaluation of NO<sub>x</sub> controls. The ONEOK Lindsay Station utilized eight natural gas fueled compression engines which emitted the majority of the 928 tons of NO<sub>x</sub> reported at the station in 2016. ONEOK removed and replaced the eight natural gas fueled engines with electric compression units, as demonstrated under General Permit for Oil and Gas General Facilities Authorization to Operate No. 2019-0758-O, issued on May 5, 2020, and Lindsay Station is no longer considered a title V source. Recent emissions data at the facility showed that the ONEOK Lindsay Station reported 8 tons of

---

<sup>64</sup> See Oklahoma's 2022 SIP submission, section 6.4.2.3, p. 43, section 6.9, p. 51, appendix E, and the Mustang Gas Regional Haze Agreement.

NO<sub>x</sub> in 2023, a 99% reduction in NO<sub>x</sub> emissions compared to 2016 emissions.<sup>65</sup> Due to the unit replacements at the ONEOK Lindsay Station, Oklahoma did not analyze the facility further for NO<sub>x</sub> emission reductions.<sup>66</sup>

EPA is proposing to find that the State's determination for the ONEOK Lindsay Station that no measures are necessary for reasonable progress is reasonable and meets regional haze requirements for the second planning period. In Oklahoma's 2022 SIP submission, Oklahoma reviewed more recent facility information at the ONEOK Lindsay Station and concluded that no measures are necessary to make reasonable progress for the second planning period at the facility. As the ONEOK Lindsay Station's previous natural gas fueled compression engines have been replaced with electric compression engines, the NO<sub>x</sub> emissions at the facility have significantly decreased. The EPA is proposing to find that Oklahoma demonstrated that it is making reasonable progress for the second planning period without requiring any control measures for ONEOK's Lindsay Booster Station.

x. ONEOK - Maysville Gas Plant (NO<sub>x</sub>)

ONEOK's Maysville Gas Plant in Garvin County was selected by Oklahoma for further evaluation of NO<sub>x</sub> controls. The ONEOK Maysville Plant utilized thirteen natural gas fueled compression engines which emitted the majority of the 1,093 tons of NO<sub>x</sub> reported at the plant in 2016. ONEOK retired seven of the thirteen natural gas fueled engines and plans to retire the remaining six engines before the end of the second planning period. These older engines have been used for natural gas compression and are planned to be or have already been replaced with electric compression in lieu of natural gas as part of the gas plant's operations. ONEOK signed an agreement with ODEQ on

---

<sup>65</sup> See ODEQ's 2023 Oklahoma Annual Point Source Emission Summary at <https://oklahoma.gov/deq/divisions/air-quality/emissions-inventory/state-emissions-totals-infographics.html>.

<sup>66</sup> See Oklahoma's 2022 SIP submission, section 6.4.2.4, p. 43.

May 6, 2022, (“ONEOK Regional Haze Agreement”), which stated that ONEOK will remove from service the remaining six engines and incorporate the removal into its permits for the Maysville Plant by December 31, 2028, in lieu of performing a four-factor analysis.<sup>67</sup> Due to the engines that have already been removed and engines planned to be removed as part of the ONEOK Regional Haze Agreement at the ONEOK Maysville Gas Plant, Oklahoma did not analyze the facility further for NO<sub>x</sub> emission reductions.<sup>68</sup>

EPA is proposing to find that the State’s determination for the ONEOK’s Maysville Gas Plant is reasonable and meets regional haze requirements for the second planning period. In Oklahoma’s 2022 SIP submission, Oklahoma submitted as part of the SIP submission, the enforceable mechanism the ONEOK Regional Haze Agreement, which requires the removal of the remaining six engines at the Maysville Plant by the end of the second planning period. EPA is proposing to find that removal of the remaining engines at the ONEOK’s Maysville Gas Plant as part of Oklahoma’s long-term strategy for the second planning period is reasonable and demonstrates reasonable progress for the second planning period. EPA is proposing to approve the ONEOK Regional Haze Agreement, Case No. 22-085, as a source-specific SIP requirement for the Maysville Gas Plant.

xi. Panhandle Eastern Pipeline - Cashion Compressor Station (NO<sub>x</sub>)

Panhandle Eastern Pipeline’s Cashion Compressor Station was selected by Oklahoma for further evaluation of NO<sub>x</sub> controls. The Panhandle Eastern Cashion Station utilized four natural gas fueled compression engines and reported 759 tons of NO<sub>x</sub> emissions in 2016. In Panhandle Eastern’s response to Oklahoma’s information collection request, Panhandle Eastern stated that emissions were previously reported

---

<sup>67</sup> Regional Haze Agreement between ONEOK Field Services, L.L.C., Maysville Gas Plant and Oklahoma Department of Environmental Quality Air Quality Division, Case No. 22-085 May 6, 2022, available in Oklahoma’s 2022 SIP submission, appendix F.

<sup>68</sup> See Oklahoma’s 2022 SIP submission, section 6.4.2.5, p. 43-44, and appendix F.

using the facility's potential to emit, which were overly conservative and not representative of actual emissions at the facility,<sup>69</sup> and provided updated facility data and calculations, including engine testing data that demonstrated more accurate actual emissions from the engines. According to Panhandle Eastern, based on the engine testing data conducted using its Federal Energy Regulatory Commission limited horsepower (instead of the permitted horsepower rating and permit factors which were previously used), NO<sub>x</sub> emissions from the two engines are 200 tons per year at maximum, and if these values had been used instead of its previously reported values, the Cashion Station would have fallen below Oklahoma's selection criteria for the evaluation of NO<sub>x</sub> controls.<sup>70</sup> In its submitted analysis, Panhandle Eastern evaluated potential control scenarios for its four engines but due to the potential for technical difficulties in applying and operating control devices and technology on these engines, the analysis concluded that adding controls was infeasible.<sup>71</sup>

EPA is proposing to find that the State's determination for the Panhandle Eastern Cashion Station that no measures are necessary for reasonable progress is reasonable and meets regional haze requirements for the second planning period. In Oklahoma's 2022 SIP submission, Oklahoma reviewed more recent facility information at the Panhandle Eastern Cashion Station, including consideration that had the actual emissions data been used when selecting sources for four-factor analysis the facility would not have been identified for additional analysis in the source-selection process, and concluded that no measures are necessary to make reasonable progress for the second planning period at the station. Additionally, the projected 2028 visibility conditions at Wichita Mountains to which the Panhandle Eastern Cashion Station could contribute to is below its 2028 URP

---

<sup>69</sup> Oklahoma and Panhandle Eastern state that the previous emissions reported were not based on the Federal Energy Regulatory Commission limited horsepower, the permitted maximum operating hours allowed, or on portable emission analyzer engine test data.

<sup>70</sup> The Q/d would have been calculated as 3.2 tons per year per km compared to the selection threshold of 5.

<sup>71</sup> See Oklahoma's 2022 SIP submission, section 6.4.2.6, p. 44, and appendix E.

values. The EPA is proposing to find that Oklahoma demonstrated that it is making reasonable progress for the second planning period without requiring any control measures for Panhandle Eastern Pipeline's Cashion Compressor Station.

xii. DCP Operating - Chitwood Gas Plant (NO<sub>x</sub>)

DCP Operating's Chitwood Gas Plant in Grady County was selected by Oklahoma for further evaluation of NO<sub>x</sub> controls. According to the Oklahoma's 2022 SIP submission, the DCP Chitwood Plant utilizes eight natural gas fueled engines that emitted the majority of the 766 tons of NO<sub>x</sub> reported at the plant in 2016. As provided in DCP's response to Oklahoma's information collection request, as the engines already operate with good combustion practices, DCP considered SCR and clean burn technology (CBT) as potential controls. DCP provided two separate CBT options, one that reduced emissions to 6 grams per horsepower-hour (CBT-6g) and one that reduced emissions to 1 gram per horsepower-hour (CBT-1g) and deemed SCR as only technically feasible in conjunction with CBT as it would help stabilize the outlet emissions and combustion. DCP anticipated that the addition of SCR to CBT-6g would have a similar emissions reduction as CBT-1g, although spacing limitations for the addition of SCR controls on these existing units may still make this option not technically feasible. The three control scenarios that DCP evaluated were CBT-6g, CBT-1g, and SCR in conjunction with CBT-1g (SCR-CBT) with estimated control efficiencies ranging from 46-57%, 91-93%, and 91-93% for each control scenario, respectively.<sup>72</sup>

DCP considered the four factors in its response to Oklahoma. DCP estimated a minimum of five years would be needed for implementing all of the controls, taking into account the need to stagger the implementation of controls for multiple engines so that only one engine is down at a time. DCP stated that it has no plans to retire the affected units aside from one at the Chitwood Plant and therefore a remaining useful life value of

---

<sup>72</sup> See Oklahoma's 2022 SIP submission, section 6.4.2.7, p. 44-45, and appendix E.

30 years is assumed for SCR and CBT based on guidance in the EPA Control Cost Manual. For energy and non-air quality impacts, DCP stated that SCR would lead to increased electricity demand, a new solid waste stream that must be managed, require storage of large amounts of ammonia or urea, and increased emissions from unreacted ammonia to the atmosphere, which may negate some of the calculated visibility improvements from the anticipated NO<sub>x</sub> reductions. DCP used a 7% interest rate to calculate the annualized capital costs of each control scenario for each engine. According to DCP, estimated cost effectiveness in dollars per ton of NO<sub>x</sub> removed for CBT-6g, CBT-1g, and SCR-CBT for the engines range from \$4,366 - \$20,186, \$3,250 - \$15,917, and \$3,293 - \$16,909. In response to comments received on Oklahoma's draft 2022 SIP submission, Oklahoma recalculated DCP's estimated cost effectiveness using a lower interest rate (3.25% versus the original 7% that DCP used) and determined the lowest estimate to be \$2,400 per ton of NO<sub>x</sub> removed. DCP's and Oklahoma's cost estimates for the Chitwood Plant are higher than Oklahoma's determined cost threshold for NO<sub>x</sub>. Oklahoma concurred with DCP's determination that no additional controls are required during the second planning period for the Chitwood Plant as controls would not be cost-effective.<sup>73</sup>

EPA is proposing to find that the State's determination that no measures for the DCP Chitwood Plant are necessary for reasonable progress is reasonable and meets regional haze requirements for the second planning period. In Oklahoma's 2022 SIP submission, Oklahoma considered the four statutory factors on the selected control technologies for the boiler at the DCP Chitwood Plant and concluded that no measures are necessary to make reasonable progress for the second planning period at the plant. In addition, the projected 2028 visibility conditions at Wichita Mountains to which the DCP Chitwood Plant contributes is below its 2028 URP values. The EPA is proposing to find

---

<sup>73</sup> *Id.*

that Oklahoma demonstrated that it is making reasonable progress for the second planning period without requiring any control measures for DCP Operating's Chitwood Gas Plant.

### xiii. Conclusion

Under 40 CFR 51.308(f)(2)(iii), the state must describe the criteria used to determine which sources were evaluated for the second implementation period and how the four factors were taken into consideration in selecting the emission reduction measures for inclusion in the long-term strategy as part of its reasonable progress determinations. As discussed in sections IV.C.1.a and b as well as sections IV.C.2.b.i through xii of this document, Oklahoma provided its source selection methodology in detail, selected twelve sources (five NO<sub>x</sub> sources and seven SO<sub>2</sub> sources) for evaluation based on its methodology, and performed a four-factor analysis on the selected sources. Oklahoma considered the four factors when evaluating emission reduction measures for inclusion in its long-term strategy. A summary of Oklahoma's four-factor analysis results is provided in table 6-4 of Oklahoma's 2022 SIP submission. The measures Oklahoma determined to be necessary for reasonable progress are part of its long-term strategy. As discussed in further detail in section IV.C.1.b and sections IV.C.2.b.vi through xii of this document, Oklahoma's long-term strategy includes source-specific NO<sub>x</sub> control measures, which include a commitment to remove the remaining engines at ONEOK Maysville Gas Plant and installation of additional controls at the Mustang Gas Binger Gas Plant. As required under 40 CFR 51.308(f)(2)(iv) and discussed in section IV.C.3 of this document, Oklahoma considered the five additional factors when developing Oklahoma's long-term strategy. Other parts of Oklahoma's long-term term strategy include ongoing air pollution control programs, measures for smoke management, and reducing impacts from construction activities.

See section IV.B of this document for a discussion of current visibility conditions

as well as URP for the second planning period in Oklahoma's Class I area, Wichita Mountains. See section IV.D of this document for Oklahoma's 2028 RPGs and comparison to visibility conditions and the URP at Wichita Mountains as well as the RPGs and URPs of Class I areas potentially affected by Oklahoma sources. EPA's 2028 modeling shows that the 2028 projections for the 20 percent most impaired days (16.93 deciviews) are less than the URP (17.36 deciviews)<sup>74</sup> at Wichita Mountains.

Because (1) Oklahoma considered the four statutory factors in the assessment of the potential for additional controls to make reasonable progress and (2) the projected 2028 visibility conditions for Class I areas influenced by emissions from Oklahoma sources are all below the URP, the EPA finds that Oklahoma has demonstrated that it has made reasonable progress towards the national visibility goal for the second planning period. Therefore, we are proposing to approve Oklahoma's 2022 SIP submission as meeting the CAA and regulatory requirement to make reasonable progress towards the national visibility goal, including requirements under CAA section 169A(g)(1) and 40 CFR 51.308(f)(2)(i).

### 3. Other Long-Term Strategy Requirements (40 CFR 51.308(f)(2)(ii) through (iv))

States must meet the additional requirements specified in 40 CFR 51.308(f)(2)(ii) through (iv) when developing their long-term strategies. 40 CFR 51.308(f)(2)(ii) requires states to consult with other states that have emissions that are reasonably anticipated to contribute to visibility impairment in Class I areas to develop coordinated emission management strategies. Section 8.1: *Direct State-to-State Consultation* of Oklahoma's 2022 SIP submission, which also refers back to section 6.5: *State consultation for sources identified with potential contribution* and 6.6: *Class I areas potentially impacted by Oklahoma sources* of the SIP, describes the State's consultation with other states

---

<sup>74</sup> After adjusting for wildland fires and international contributions.

throughout the development of its regional haze plan. Oklahoma is a member of CenSARA and participated in CenSARA led monthly conference calls with representatives of member states, FLMs, and other organizations from 2019 through 2022. Oklahoma participated in this process as part of ongoing consultation between states and federal partners, including FLMs. Oklahoma separately consulted directly with Texas, Arkansas, Missouri, Louisiana, and Nebraska regarding sources in those states identified with potential contributions to visibility impairment at Wichita Mountains, and any Oklahoma sources identified with potential contributions to visibility impairment to Class I areas in those states.<sup>75</sup> Using the same methodology described in Section IV.C.1.a, Oklahoma identified 19 sources outside Oklahoma that are reasonably anticipated to contribute to visibility impairment at Wichita Mountains. Table 6-5 of Oklahoma's 2022 SIP submission summarizes the sources that Oklahoma requested each state to consider for further analysis and the outcome of any analysis provided by the states. Table 6-6 of Oklahoma's 2022 SIP submission summarizes the Oklahoma sources identified for potential impacts in Class I areas in other states (Caney Creek Wilderness Area and Upper Buffalo Wilderness Area in Arkansas and Hercules-Glades Wilderness Area in Missouri) and the result of the Oklahoma's consideration of those sources. EPA is proposing to find that DEQ has satisfied the consultation requirement of 40 CFR 51.308(f)(2)(ii) in its 2022 Planning Period II SIP. No states disagreed with the Oklahoma proposed measures necessary for reasonable progress for the second implementation period and no other measures were identified or agreed upon by the other states for Oklahoma to include in its SIP.

40 CFR 51.308(f)(2)(iii) requires states to document the technical basis, including modeling, monitoring, costs, engineering, and emissions information, on which the state is relying to determine the emission reduction measures that are necessary to make

---

<sup>75</sup> See Oklahoma's 2022 SIP submission, appendix A for details of the consultation process.

reasonable progress in each mandatory Class I area it impacts. The State may meet this requirement by relying on technical analyses developed by an RPO, as long as the process has been approved by all State participants. Section 51.308(f)(2)(iii) also requires that the emission 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. Sections 3: *Visibility Monitoring*, 4: *Emission Trends*, and 6: *2018 – 2028: Planning Period 2* of Oklahoma’s 2022 SIP submission describe the technical information on which the State relied. The State relied on IMPROVE monitoring data, National Emissions Inventory data, as well as EPA and CenSARA technical information, modeling, and analysis to support development of its long-term strategy. All documentation that the State is relying on to determine the emission reduction measures necessary to make reasonable progress were included in the SIP submission in the various appendices. Oklahoma included an AOI analysis performed by Ramboll for the CenSARA states in its 2022 SIP submission to identify sources within Oklahoma with the potential for impairing visibility at the Wichita Mountains and Class I areas in neighboring states.<sup>76</sup> Oklahoma evaluated four-factor analysis reports from the sources brought forward for potential controls analysis which included cost and emission reduction calculations.<sup>77</sup> Under Sections 4: *Emission Trends*, Oklahoma included point, non-point, non-road, on-road, and biogenic statewide emissions for VOC, NO<sub>x</sub>, PM, NH<sub>3</sub> and SO<sub>2</sub> for the years 2002, 2011, and 2017. Oklahoma included 2017 emissions information as the 2020 National Emissions Inventory (NEI) data had not been released by EPA yet at the time the report was generated. The EPA is proposing to find that Oklahoma has satisfied the requirements of

---

<sup>76</sup> See Oklahoma’s 2022 SIP submission, appendices B through D, for the AOI analyses and source selection methodology.

<sup>77</sup> See Oklahoma’s 2022 SIP submission, appendix E for the four-factor analyses.

40 CFR 51.308(f)(2)(iii) in its 2022 SIP submission. Based on the documentation provided by the State, Oklahoma has demonstrated the technical bases and emission information on which it is relying to determine the emission reductions measures that are necessary to make reasonable progress for its long-term strategy for the second planning period.

40 CFR 51.308(f)(2)(iv) specifies five additional factors states must consider in developing their long-term strategies. As mentioned, 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. The five additional factors are: (1) emission reductions due to ongoing air pollution control programs, including measures to address reasonably attributable visibility impairment; (2) measures to mitigate the impacts of construction activities; (3) source retirement and replacement schedules; (4) 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 following sections from Oklahoma's 2022 SIP submission describes each of the five additional factors: section 6.9. *Long-term strategy*, section 6.9.1: *Ongoing air pollution control programs*, section 6.9.3: *Construction Activities*, section 6.7: *Facility Closures and Unit Shutdowns*, 6.9.2: *Smoke Management*, and section 4: *Emission Trends*.

40 CFR 51.308(f)(2)(iv)(A) requires states to consider emission reductions due to ongoing air pollution control programs, including measures to address reasonably attributable visibility impairment. Section 6.9.1 of Oklahoma's 2022 SIP submission discusses Oklahoma's ongoing air pollution control programs as part of its long-term strategy. These ongoing air pollution control programs include Oklahoma's major source

and minor facility permitting program and enforcement program, implementation of federal rules such as the NSPS containing emission and equipment standards, and programs approved in Oklahoma's SIP designed to address National Ambient Air Quality Standards (NAAQS) requirements. In addition, Oklahoma states that a number of Oklahoma emission sources are subject to the CSAPR and other federal rules that reduce emissions.

40 CFR 51.308(f)(2)(iv)(B) requires states to consider measures to mitigate the impacts of construction activities. Section 6.9.3 of Oklahoma's 2022 SIP submission discusses how Oklahoma addresses this requirement. Oklahoma states that it implements State regulations at Oklahoma Administrative Code (OAC) Title 252, Chapter 100, Subchapter 29 (OAC 252:100-29), *Control of fugitive dust*, to minimize air quality degradation from windblown dust from regulated activities such as construction activities that may stir fugitive dust that reasonably may impair visibility. The provisions of OAC 252:100-29 are approved into Oklahoma's SIP and are part of Oklahoma's long-term strategy.

40 CFR 51.308(f)(2)(iv)(C) requires states to consider source retirement and replacement schedules. Section 6.7 of Oklahoma's 2022 SIP submission discusses facility closures and unit shutdowns. Oklahoma states that multiple Oklahoma facilities have made major changes to their operations, resulting in considerable emission reductions. This information is provided in sections 6.4 and 6.9 in its SIP. In addition, Texas facilities such as Big Brown and Monticello coal-fired power plants, which previously reported emissions of 20,000 tons of SO<sub>2</sub> per year, have since closed and Sandow, another power plant, shut down two of its coal-fired units. These facilities were significant contributors to visibility impairment at the Wichita Mountains. As discussed in section 6.4 of its 2020 SIP submission, Oklahoma took into account as part of its four-factor analysis and long-term strategy considerations Oklahoma facilities that have

planned or have already retired or replaced older units. These facilities, also discussed in section IV.C.2.b of this document, include Holcim's Ada Portland Cement Production Plant, Continental Carbon's Carbon Black Production Facility, OG&E's Mustang Generating Station, ONEOK's Lindsay Booster Station, and ONEOK's Maysville Gas Plant. Oklahoma notes that these developments have resulted in visibility improvements.

40 CFR 51.308(f)(2)(iv)(D) requires states to consider basic smoke management practices for prescribed fire used for agricultural and wildland vegetation management purposes, and smoke management programs. Section 6.9.2 of Oklahoma's 2022 SIP submission discusses how Oklahoma addresses this requirement. Oklahoma states that in coordination with Oklahoma Department of Agriculture, Food, and Forestry it has adopted and updated in 2021 a smoke management plan to minimize air-quality effects of smoke from prescribed burning.<sup>78</sup>

40 CFR 51.308(f)(2)(iv)(E) requires states to consider 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. Oklahoma utilized photochemical modeling to project visibility in Wichita Mountains in 2028 which took into account estimated projected source sector contributions. Oklahoma compared photochemical modeling conducted by EPA, the Western Regional Air Partnership (WRAP) contracted with Ramboll-Environ, and the Visibility Improvement State and Tribal Association of the Southeast (VISTAS) contracted with the Eastern Research Group (ERG) for the 20 percent most impaired days at Wichita Mountains. Oklahoma took its URP for the second planning period from EPA's 2028 modeling projections. Oklahoma states in its SIP that the URP line illustrates the progress Oklahoma has made and continues to make. See sections IV.B and IV.D of this document for a discussion of Oklahoma's URP and

---

<sup>78</sup> See Oklahoma's 2022 SIP submission, appendix G, "Oklahoma Smoke Management Plan". See also <https://www.deq.ok.gov/air-quality-division/smoke-management/>.

RPG.

The EPA is proposing to find that Oklahoma has met the requirements of 40 CFR 51.308(f)(2)(iv) in its 2022 SIP submission by reasonably considering the five “additional factors” in developing its long-term strategy for the second implementation period. Oklahoma adequately considered emission reductions due to ongoing air pollution control programs; measures to mitigate impacts of construction activities; source retirements and replacement schedules; smoke management practices and programs; and anticipated visibility conditions in 2028 resulting from implementation of its long-term strategy.

After reviewing Oklahoma’s 2022 SIP chapters addressing 40 CFR 51.308(f)(2)(ii) through (iv), the EPA finds that Oklahoma has satisfied the long-term strategy requirements of 40 CFR 51.308(f)(2)(ii) through (iv).

#### *D. 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 40 CFR 51.308(f)(3)(ii)(A), if

the state in which a mandatory Class I area is located establishes an RPG for the most impaired days that provides for a slower rate of visibility improvement than the URP, the state must demonstrate that there are no additional emission reduction measures for anthropogenic sources or groups of sources in the state that would be reasonable to include in its 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 demonstration.

Oklahoma discusses how its SIP meets reasonable progress goal requirements in section 7 of its 2022 SIP submission. Oklahoma developed reasonable progress goals for Wichita Mountains for the 20 percent most impaired days and 20 percent clearest days based on EPA’s 2028 modeling for regional haze.<sup>79</sup> This information, taken from table 7-1 and other sections of Oklahoma’s 2022 SIP submission, is provided in table 4.

**Table 4—Visibility Conditions and Metrics for Wichita Mountains**

<b>Metric</b>	<b>20% Clearest Days (Deciviews)</b>	<b>20% Most Impaired Days (Deciviews)</b>
<b>Baseline (2000-2004)</b>	9.92	22.18
<b>Current (2015-2019)</b>	8.65	17.58
<b>2028 Reasonable Progress Goal (RPG)</b>	8.14	16.93
<b>2028 Uniform Rate of Progress (URP)</b>	-	17.36*
<b>Natural Conditions (2064)</b>	4.20	10.19*

\* Adjusted for wildland prescribed fires and international contributions.

As discussed in section IV.B of this document, Oklahoma determined the URP for Wichita Mountains for the 20 percent most impaired days in 2028 to be 17.36 deciviews after adjusting for contributions from international emissions and wildland prescribed fires. Oklahoma’s 2028 RPG for Wichita Mountains for the 20 percent most impaired days (16.93 deciviews) is 0.43 deciviews less than its URP for the 20 percent most impaired days (17.36 deciviews). Oklahoma’s RPG, taken from 2028 future projections

<sup>79</sup> See Oklahoma’s 2022 SIP submission, p. 50-53.

on EPA’s 2028 modeling, is based on ambient IMPROVE data from 2014-2017 and incorporates Oklahoma’s long-term strategy described in its 2022 SIP submission. In addition, Oklahoma’s RPGs provide for an improvement in visibility for the 20 percent most impaired days since the 2000-2004 baseline period and demonstrate that there is no degradation in visibility for the 20 percent clearest days since the baseline period.

As Oklahoma’s RPG is below the glidepath value (URP), the demonstration requirement under section 51.308(f)(3)(ii)(A) is not triggered. For the three Class I areas outside the State identified as having potential visibility impacts from Oklahoma emission sources, Caney Creek Wilderness Area and Upper Buffalo Wilderness Area in Arkansas and Hercules-Glades Wilderness Area in Missouri, all three of these Class I areas had 2028 RPGs below their respective URPs.<sup>80</sup> Therefore, the demonstration requirement under section 51.308(f)(3)(ii)(B) is also not triggered. We also note that EPA’s 2028 modeling projected 2028 visibility to be lower than the 2028 unadjusted glidepath for the 20 percent most impaired days for all three out-of-state Class I areas. This information is provided in table 5.

**Table 5—Visibility Projections for Class I Areas Outside of Oklahoma Potentially Impacted by Oklahoma Sources**

<b>Class I Area Name</b>	<b>State</b>	<b>State’s RPG for the 20% Most Impaired Days (Deciviews)</b>	<b>State’s 2028 Uniform Rate of Progress (URP) (Deciviews)</b>	<b>EPA’s 2028 Modeling - 2028 Projected 20% Most Impaired Days (Deciviews)</b>	<b>EPA’s 2028 Modeling - 2028 Unadjusted Glidepath 20% Most Impaired Days (Deciviews)</b>
Caney Creek Wilderness	Arkansas	16.31	18.90	16.97	18.18
Upper Buffalo Wilderness	Arkansas	16.49	19.26	16.92	18.32
Hercules-Glades	Missouri	17.44	18.82	17.44	18.82

<sup>80</sup> See Arkansas’s August 8, 2022, Regional Haze 2nd Planning Period submittal in docket EPA-R06-OAR-2022-0735 and Missouri’s August 26, 2022, Regional Haze 2nd Planning Period submittal in docket EPA-R07-OAR-2024-0286.

Wilderness					
------------	--	--	--	--	--

Based on the information in this section of this document, EPA proposes to find that Oklahoma has satisfied the applicable requirements of 40 CFR 51.308(f)(3) relating to RPGs.

*E. Reasonably Attributable Visibility Impairment*

The RHR contains a requirement at 40 CFR 51.308(f)(4) related to any additional monitoring that may be needed to address visibility impairment in Class I areas from a single source or a small group of sources. This is called “reasonably attributable visibility impairment,”<sup>81</sup> also known as RAVI. 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 RAVI, the state must include in its SIP revision for the second implementation period an appropriate strategy for evaluating such impairment. The EPA has not advised the State to that effect; nor did the State indicate that FLMs for Wichita Mountains identified any RAVI from Oklahoma sources. For this reason, the EPA proposes to approve the portions of Oklahoma’s 2022 SIP submission relating to 40 CFR 51.308(f)(4).

*F. Monitoring Strategy and Other State 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 section is for states with Class I areas to submit monitoring strategies for measuring, characterizing, and

---

<sup>81</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.

reporting on visibility impairment. Compliance with this requirement may be met through participation in the IMPROVE network.

Under 40 CFR 51.308(f)(6)(i), States must provide for the establishment of 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. For states with Class I areas (including Oklahoma), 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. Section 51.308(f)(6)(iii) does not apply to Oklahoma, as it has a Class I area. Section 51.308(f)(6)(iv) requires the SIP to provide for the reporting of all visibility monitoring data to the Administrator at least annually for each Class I area in the state. Section 51.308(f)(6)(v) requires SIPs to provide for a statewide inventory of emissions of pollutants that are reasonably anticipated to cause or contribute to visibility impairment, including emissions for the most recent year for which data are available. Section 51.308(f)(6)(v) also requires states to include estimates of future projected emissions. Finally, 40 CFR 51.308(f)(6)(vi) requires the SIP to provide for any other elements, including reporting, recordkeeping, and other measures, that are necessary for states to assess and report on visibility.

Oklahoma discusses its monitoring strategy and its participation in the IMPROVE network in section 3: *Visibility Monitoring* of its 2022 SIP submission. The IMPROVE monitor in Wichita Mountains was established in 2001 and addresses RHR monitoring requirements for Oklahoma. Oklahoma's monitoring strategy continues to rely upon participation in the IMPROVE network, and it relies on IMPROVE monitor data to assess visibility conditions and reasonable progress in Wichita Mountains, the Class I

area in Oklahoma.<sup>82</sup> The IMPROVE monitoring data, including data at Wichita Mountains, is provided directly to the EPA and is available at EPA's Air Quality System (AQS) database.

In section 6.2 of its 2022 SIP submission, Oklahoma describes the procedures used to determine the contribution of in-State emissions to Class I areas inside and outside Oklahoma using the IMPROVE monitoring data and other information.<sup>83</sup> In addition, while discussing emission trends in section 4 of its 2022 SIP submission, the State also provided 2002, 2011 and 2017 emission inventory summaries for the following pollutants: VOC, NO<sub>x</sub>, PM, NH<sub>3</sub> and SO<sub>2</sub>.<sup>84</sup> Oklahoma used projected emissions data (from EPA and RPOs' model projections) as part of its procedure in establishing RPGs for Wichita Mountains.<sup>85</sup>

The EPA finds that Oklahoma has met the requirements of 40 CFR 51.308(f)(6), including through its continued participation in the IMPROVE network and CenSARA RPO and its ongoing compliance with the Air Emissions Reporting Requirements (AERR). There is no indication that further SIP elements are necessary at this time for Oklahoma to assess and report on visibility. Therefore, the EPA proposes to approve the monitoring strategy and other state implementation plan elements of Oklahoma's 2022 SIP submission as meeting the requirements of 40 CFR 51.308(f)(6).

### *G. 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)

---

<sup>82</sup> See Oklahoma's 2022 SIP submission, p. 7-8.

<sup>83</sup> See Oklahoma's 2022 SIP submission, p. 29-35; appendix B.

<sup>84</sup> See Oklahoma's 2022 SIP submission, p. 17-22. According to the SIP, at the time ODEQ's report was generated, 2017 was still the most recent complete National Emissions Inventory (NEI) data year available as the 2020 NEI data had not been released by EPA yet.

<sup>85</sup> See Oklahoma's 2022 SIP submission, p. 50-51.

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, 40 CFR 51.308(g)(5), which also applies to all states, requires an assessment of any significant changes in anthropogenic emissions within or outside the state that have occurred since the period addressed by the first implementation period progress report, including whether such changes were anticipated and whether they have limited or impeded expected progress towards reducing emissions and improving visibility.

In its 2022 SIP submission, Oklahoma included the elements of the periodic progress report specified in 40 CFR 51.308(f)(5) and 40 CFR 51.308(g)(1)-(5). Oklahoma's 2022 SIP submission describes the status of measures of the long-term strategy from the first implementation period as well as a summary of the emission reductions achieved through implementation of those measures to address the requirements found in 40 CFR 51.308(g)(1) and (2). The status of control measure

implementation for the first planning period can be found in section 5.2: *Status of control measure implementation* and section 5.3: *BART-subject Units* of Oklahoma's 2022 SIP submission, with the status of each facility listed in section 5.3. Section 5.3.7: *Summary of Planning Period 1 Emission Reductions*, table 5-8: *SO<sub>2</sub> Emission reductions achieved from Planning Period 1 control measures*, and 5-9: *NO<sub>x</sub> Emission reductions achieved from Planning Period 1 control measures* in Oklahoma's 2022 SIP submission contain a summary of the emission reductions from implementation of control measures as of the end of the first implementation period.

Section 51.308(g)(3) requires that for each Class I area within the State, the State must assess the following visibility conditions and changes, with values for most impaired, least impaired and/or clearest days as applicable expressed in terms of five-year averages of these annual values. Oklahoma's 2022 SIP submission includes a summary of visibility conditions for Wichita Mountains in section 5.4: *Visibility conditions and progress*, with a full analysis of visibility conditions available in section 3: *Visibility Monitoring*.

Pursuant to 40 CFR 51.308(g)(4), Oklahoma evaluated emission trends for reasonable progress and presented that information in section 5.5: *Changes in impairment contribution* and Figure 5-1: *Changes in SO<sub>2</sub> and NO<sub>x</sub> emissions from 2002-2017* in its 2022 SIP submission. Oklahoma addresses 40 CFR 51.308(g)(5), in section 5.6: *Significant changes in anthropogenic emissions impeding progress* in its 2022 SIP submission. Oklahoma states in its 2022 SIP submission that emissions of all major contributors to visibility impairment at Wichita Mountains have decreased and notes that the reductions in anthropogenic emissions, especially for SO<sub>2</sub>, were greater than anticipated.

Because Oklahoma's 2022 SIP submission addresses the requirements of 40 CFR 51.308(g)(1) through (5), the EPA proposes to find that Oklahoma has met the progress

report requirements of 40 CFR 51.308(f)(5).

#### *H. 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. In addition, the 40 CFR 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 lists 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.

In section 8 of Oklahoma's 2022 SIP submission, Oklahoma described how it met FLM consultation requirements and provided a list of all the communications that were part of Oklahoma's state and FLM consultation process. As stated earlier in this notice, Oklahoma is a member of CenSARA. CenSARA hosted monthly conference calls with representatives of member states, FLMs, and other organizations from 2019 through 2022. Oklahoma participated in this process as part of ongoing consultation between states and federal partners, including FLMs, including consultation prior to the public

hearing for Oklahoma's 2022 SIP submission on July 1, 2022. In addition to the CenSARA conference calls, ODEQ invited FLMs from the Fish and Wildlife Service (FWS), National Park Service (NPS), and U.S. Department of Agriculture Forest Service (FS) to participate in conference calls specifically for outlining Oklahoma's planning and progress to address its regional haze requirements.<sup>86</sup>

On September 30, 2021, Oklahoma sent draft copies of the Oklahoma Regional Haze 2nd Planning Period SIP to FWS, NPS, and FS for the start of the official consultation period required by 40 CFR 51.308(i)(2), with comments requested by November 30, 2021. In addition, a virtual meeting was held between Oklahoma and the FLMs on November 22, 2021, to discuss the FLMs' comments on the draft SIP.

Oklahoma received comments from one FLM, FS, on the draft SIP, and in its response, Oklahoma made changes where appropriate that were incorporated into the final SIP. Both the FLM comments and Oklahoma response were included as part of the official submittal.<sup>87</sup>

In its comments, FS was generally supportive of Oklahoma's approach on its consideration of NO<sub>x</sub> and SO<sub>2</sub> sources, the selection threshold, and the assessment of the facilities' modeled impact on FS Class I areas. However, FS had concerns about the four-factor analysis for Hugo Generating Station and the implicit cost-effectiveness threshold used by Oklahoma for the second planning period, stating that using the same threshold used in the first planning period was inappropriate and a higher threshold should be utilized. FS additionally requested a more detailed assessment of the facility based on different factors that they felt could increase the feasibility of control adoption. FS also requested assurance that Oklahoma would continue to recognize the ecological role of

---

<sup>86</sup> See Oklahoma's 2022 SIP submission, section 8: *Consultation process during SIP development* and appendix A: *Consultation Process and Documentation*.

<sup>87</sup> See Oklahoma's 2022 SIP submission, section 8 and appendix H: *Federal Land Manager Comments and Responses*.

prescribed fires and adjust the glidepath for the inclusion of those emissions accordingly. In its response, Oklahoma stated that they disagreed that new sources identified in the second planning period should automatically have a higher cost-effectiveness threshold. In response to FS's comments, Oklahoma coordinated with the Hugo Generating Station to provide additional assessments of the factors that FS suggested. Oklahoma found that its original assessment of the Hugo Generating Station in the draft SIP remained a reasonable conclusion but updated the SIP to reflect the additional evaluation conducted. Oklahoma additionally added language that FS requested on the use of prescribed fires into the SIP.<sup>88</sup>

Oklahoma held the public comment period for its draft Oklahoma Regional Haze 2nd Planning Period SIP from June 1, 2022, through July 1, 2022, and held a public hearing for the SIP on July 1, 2022. Oklahoma published notice of the SIP proposal and details of the public hearing on its website and sent notifications to those that requested public notice opportunities. The published notice also contained a summary of the conclusions and recommendations of the FLMs and how Oklahoma addressed them. No additional comments were received by the FLMs during Oklahoma's public comment period. EPA proposes to find that the requirements of CAA section 169A(d) were met, as EPA determined that opportunity for FLM consultation was provided at least 60 days before the public notice or hearing date, with the public notice containing the FLM's conclusions and recommendations during the consultation process.<sup>89</sup>

To address 40 CFR 51.308(i)(4) requirements, Oklahoma provided assurance in the SIP that it would keep the FLMs aware of future updates to its regional haze SIP and progress reports through direct correspondence and through CenSARA.

Compliance with 40 CFR 51.308(i) is dependent on compliance with 40 CFR

---

<sup>88</sup> *Id.*

<sup>89</sup> See Oklahoma's 2022 SIP submission, section 8 and appendix L: *Public Notice and Hearing Documentation*.

51.308(f)(2)'s long-term strategy provisions and 40 CFR 51.308(f)(3)'s reasonable progress goals provisions. Because the EPA is proposing to approve Oklahoma's long-term strategy under section 51.308(f)(2) and the reasonable progress goals under section 51.308(f)(3), and based on its assessment of the Oklahoma's 2022 SIP submission provided in this section, the EPA proposes to find that Oklahoma has satisfied the requirements under 40 CFR 51.308(i) to consult with the FLMs on its regional haze SIP for the second implementation period.

## **V. Proposed Action**

The EPA is proposing approval of Oklahoma's 2022 SIP submission addressing the requirements of the second implementation period of the RHR. Specifically, the EPA is proposing approval of Oklahoma's 2022 SIP submission relating to:

- (1) 40 CFR 51.308(f)(1): calculations of baseline, current, and natural visibility conditions, progress to date, and the uniform rate of progress (URP);
- (2) 40 CFR 51.308(f)(2): long-term strategy;
- (3) 40 CFR 51.308(f)(3): reasonable progress goals (RPGs);
- (4) 40 CFR 51.308(f)(4): reasonably attributable visibility impairment (RAVI);
- (5) 40 CFR 51.308(f)(5) and 40 CFR 51.308(g): progress report requirements;
- (6) 40 CFR 51.308(f)(6): monitoring strategy and other implementation plan requirements; and
- (7) 40 CFR 51.308(i): FLM consultation.

The EPA is proposing to approve as part of Oklahoma's 2022 SIP submission source-specific requirements for (1) the ONEOK Maysville Gas Plant as described in the accompanying Regional Haze Agreement between ONEOK and ODEQ, Case No. 22-085, dated May 6, 2022, and (2) the Mustang Gas Binger Plant as described in the

accompanying Regional Haze Agreement between Mustang Gas and ODEQ, Case No. 26-008, dated January 16, 2026. The ONEOK Regional Haze Agreement is the enforceable mechanism for retiring ONEOK Maysville Gas Plant's remaining six older, inefficient natural gas-fueled engines by December 31, 2028. The Mustang Gas Regional Haze Agreement is the enforceable mechanism for the operation of NO<sub>x</sub> controls on its remaining natural gas engine within one year after EPA approval of Oklahoma's 2022 SIP submission. The EPA is proposing to approve all requirements set forth in the ONEOK Regional Haze Agreement and Mustang Gas Regional Haze Agreement as source-specific revisions to be incorporated into the Oklahoma SIP.

## **VI. Incorporation by Reference**

In this action, we are proposing to include in a final rule regulatory text that includes incorporation by reference. In accordance with the requirements of 1 CFR 51.5, we are proposing to incorporate by reference revisions to the Oklahoma source-specific requirements as described in section V of this preamble, Proposed Action. We have made, and will continue to make, these documents generally available electronically through [www.regulations.gov](http://www.regulations.gov) (please contact the person identified in the **FOR FURTHER INFORMATION CONTACT** section of this preamble for more information).

## **VII. Impact on Areas of Indian Country**

Following the U.S. Supreme Court decision in *McGirt v Oklahoma*, 140 S. Ct. 2452 (2020), the Governor of the State of Oklahoma requested approval under section 10211(a) of the Safe, Accountable, Flexible, Efficient Transportation Equity Act of 2005: A Legacy for Users, Pub. L. 109-59, 119 Stat. 1144, 1937 (August 10, 2005) ("SAFETEA"), to administer in certain areas of Indian country (as defined at 18 U.S.C. 1151) the State's environmental regulatory programs that were previously approved by the EPA outside of Indian country. The State's request excluded certain areas of Indian

country further described below. In addition, the State only sought approval to the extent that such approval was necessary for the State to administer a program in light of *Oklahoma Dept. of Environmental Quality v. EPA*, 740 F.3d 185 (D.C. Cir. 2014).<sup>90</sup>

The EPA has approved Oklahoma's SAFETEA request to administer all of the State's EPA-approved environmental regulatory programs in the requested areas of Indian country. As requested by Oklahoma, EPA's approval under SAFETEA does not include Indian country lands, including rights-of-way running through the same, that: (1) qualify as Indian allotments, the Indian titles to which have not been extinguished, under 18 U.S.C. 1151(c); (2) are held in trust by the United States on behalf of an individual Indian or Tribe; or (3) are owned in fee by a Tribe, if the Tribe (a) acquired that fee title to such land, or an area that included such land, in accordance with a treaty with the United States to which such Tribe was a party, and (b) never allotted the land to a member or citizen of the Tribe (collectively "excluded Indian country lands").

The EPA's approval under SAFETEA expressly provided that to the extent the EPA's prior approvals of Oklahoma's environmental programs excluded Indian country, any such exclusions are superseded for the geographic areas of Indian country covered by the EPA's approval of Oklahoma's SAFETEA request.<sup>91</sup> The approval also provided that future revisions or amendments to Oklahoma's approved environmental regulatory programs would extend to the covered areas of Indian country (without any further need for additional requests under SAFETEA).

As explained above, the EPA is proposing to approve the 2022 Oklahoma Regional Haze SIP for meeting requirements under 40 CFR 51.308(f)(1) through (6), (g),

---

<sup>90</sup> In *ODEQ v. EPA*, the D.C. Circuit held that under the CAA, states have the authority to implement a SIP in non-reservation areas of Indian country in the state, unless there has been a demonstration of tribal jurisdiction. Under the D.C. Circuit's decision, the CAA does not provide authority to states to implement SIPs in Indian reservations.

<sup>91</sup> The EPA's prior approvals relating to Oklahoma's SIP frequently noted that the SIP was not approved to apply in areas of Indian country (except as explained in the D.C. Circuit's decision in *ODEQ v. EPA*) located in the State. *See, e.g.*, 84 FR 30918, June 28, 2019. Such prior expressed limitations are superseded by the EPA's approval of Oklahoma's SAFETEA request.

and (i) and which will apply statewide. Consistent with the D.C. Circuit’s decision in *ODEQ v. EPA* and with the EPA’s SAFETEA approval, these SIP revisions will apply to areas of Indian country as follows: (1) pursuant to the SAFETEA approval, the SIP revisions will apply to all Indian country in the State of Oklahoma other than the excluded Indian country lands as described above; and (2) pursuant to the D.C. Circuit’s decision in *ODEQ v. EPA*, the SIP revisions will also apply to any Indian allotments or dependent Indian communities that are located outside of any Indian reservation and over which there has been no demonstration of tribal authority.

### **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, EPA’s role is to approve state choices, provided that they meet the criteria of the CAA. Accordingly, this action merely proposes to approve state law as meeting Federal requirements and does not impose additional requirements beyond those imposed by state law. For that reason, this proposed action:

- Is not a “significant regulatory action” subject to review by the Office of Management and Budget under Executive Order 12866 (58 FR 51735, October 4, 1993);
- Is not subject to Executive Order 14192 (90 FR 9065, February 6, 2025) because State Implementation Plan approvals under the CAA are exempt from review under Executive Order 12866;
- Does not impose an information collection burden under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*);
- Is certified as not having a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*);

- Does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Public Law 104-4);
- Does not have Federalism implications as specified in Executive Order 13132 (64 FR 43255, August 10, 1999);
- Is not an economically significant regulatory action based on health or safety risks subject to Executive Order 13045 (62 FR 19885, April 23, 1997);
- Is not a significant regulatory action subject to Executive Order 13211 (66 FR 28355, May 22, 2001);
- Is not subject to requirements of section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) because application of those requirements would be inconsistent with the CAA; and

This proposed approval of the 2022 Oklahoma Regional Haze SIP that addressed the requirements of 40 CFR 51.308(f)(1) through (6), (g), and (i), and will apply, if finalized as proposed, to certain areas of Indian country throughout Oklahoma as discussed in the preamble, and therefore has Tribal implications as specified in E.O. 13175 (65 FR 67249, November 9, 2000). However, this action will neither impose substantial direct compliance costs on federally recognized Tribal governments, nor preempt tribal law. This action will not impose substantial direct compliance costs on federally recognized Tribal governments because no actions will be required of Tribal governments. This action will also not preempt Tribal law as no Oklahoma tribe implements a regulatory program under the CAA, and thus does not have applicable or related Tribal laws. Consistent with the EPA Policy on Consultation with Indian Tribes (December 7, 2023), the EPA has offered consultation to Tribal governments that may be affected by this action and provided information about this action.

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

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

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

Dated: February 3, 2026.

**Walter Mason,**  
*Regional Administrator, Region 6.*

[FR Doc. 2026-02843 Filed: 2/11/2026 8:45 am; Publication Date: 2/12/2026]