

# Proposed Rules

Federal Register

Vol. 89, No. 157

Wednesday, August 14, 2024

This section of the FEDERAL REGISTER contains notices to the public of the proposed issuance of rules and regulations. The purpose of these notices is to give interested persons an opportunity to participate in the rule making prior to the adoption of the final rules.

## ENVIRONMENTAL PROTECTION AGENCY

### 40 CFR Part 52

[EPA-R08-OAR-2023-0641; FRL-12157-01-R8]

#### Air Plan Approval; North Dakota; Approval of Air Quality Implementation Plans; Regional Haze State Implementation Plan; Regional Haze Five Year Progress Report and Nitrogen Oxides Best Available Retrofit Technology Determination for Coal Creek Station for the First Implementation Period

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

**ACTION:** Proposed rule.

**SUMMARY:** The Environmental Protection Agency (EPA) is proposing to approve certain portions of State Implementation Plan (SIP) revisions submitted by the State of North Dakota (North Dakota) on January 12, 2015, and August 11, 2022, to address regional haze. Specifically, the EPA is proposing to approve North Dakota's nitrogen oxides (NO<sub>x</sub>) Best Available Retrofit Technology (BART) determination for Coal Creek Station power plant (Coal Creek) for the first implementation period of the regional haze program and North Dakota's five-year regional haze progress report. This action addresses the United States Court of Appeals for the Eighth Circuit's September 23, 2012 vacatur and remand of the portion of the EPA's 2012 Regional Haze Federal Implementation Plan (FIP) that promulgated a BART emission limit of 0.13 lb/MMBtu NO<sub>x</sub> (30-day rolling average) for Coal Creek. The EPA is taking this action pursuant to the Clean Air Act (CAA).

**DATES:** Written comments must be received on or before September 13, 2024.

**ADDRESSES:** Submit your comments, identified by Docket ID No. EPA-R08-OAR-2023-0641, to the Federal Rulemaking Portal: <https://www.regulations.gov>. Follow the online

instructions for submitting comments. Once submitted, comments cannot be edited or removed from <https://www.regulations.gov>. The EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (*i.e.*, on the web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit <https://www2.epa.gov/dockets/commenting-epa-dockets>.

**Docket:** All documents in the docket are listed in the <https://www.regulations.gov> index. Although listed in the index, some information is not publicly available, *e.g.*, CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, will be publicly available only in hard copy. Publicly available docket materials are available electronically in <https://www.regulations.gov>. Please email or call the person listed in the **FOR FURTHER INFORMATION CONTACT** section if you need to make alternative arrangements for access to the docket.

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**SUPPLEMENTARY INFORMATION:** Throughout this document wherever "we," "us," or "our" is used, we mean the EPA.

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### I. What action is the EPA proposing?

On January 12, 2015, North Dakota submitted a SIP revision to address the regional haze program requirements to submit periodic progress reports under 40 CFR 51.308(g) and 40 CFR 51.308(h)

(2015 progress report). On August 11, 2022, as part of a SIP revision North Dakota submitted to address regional haze for the second implementation period, the State also included a revised first implementation period NO<sub>x</sub> BART determination for Coal Creek, pursuant to CAA section 169A, CAA section 169B, 40 CFR 51.308(f), and 40 CFR part 51, appendix Y (2022 SIP submittal). The EPA is proposing to approve North Dakota's 2015 progress report, and the portion of North Dakota's 2022 SIP submittal relating to the first implementation period NO<sub>x</sub> BART determination for Coal Creek. The EPA will act on the portion of North Dakota's 2022 SIP submittal relating to the second implementation period requirements in a separate action.

## II. Legal Background

### A. Requirements of the Clean Air Act and the EPA's Regional Haze Rule

In section 169A of the CAA, Congress created a program for protecting visibility in national parks and wilderness areas. This section of 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.”<sup>1</sup>

The EPA promulgated a rule to address regional haze on July 1, 1999.<sup>2</sup> The Regional Haze Rule revised the existing visibility regulations<sup>3</sup> to integrate provisions addressing regional haze and established a comprehensive visibility protection program for Class I Federal areas (Class I areas). The

<sup>1</sup> 42 U.S.C. 7491(a). Areas designated as mandatory Class I Federal areas consist of national parks exceeding 6,000 acres, wilderness areas and national memorial parks exceeding 5,000 acres, and all international parks that were in existence on August 7, 1977. 42 U.S.C. 7472(a). In accordance with section 169A of the CAA, the EPA, in consultation with the Department of Interior, promulgated a list of 156 areas where visibility is identified as an important value. 44 FR 69122 (November 30, 1979). The extent of a mandatory Class I area includes subsequent changes in boundaries, such as park expansions. 42 U.S.C. 7472(a). Although States and tribes may designate as Class I additional areas whose visibility they consider to be an important value, the requirements of the visibility program set forth in section 169A of the CAA apply only to “mandatory Class I Federal areas.” Each mandatory Class I Federal area is the responsibility of a “Federal Land Manager.” 42 U.S.C. 7602(i). When we use the term “Class I area” in this action, we mean a “mandatory Class I Federal area.”

<sup>2</sup> 64 FR 35714, 35714 (July 1, 1999) (codified at 40 CFR part 51, subpart P).

<sup>3</sup> The EPA had previously promulgated regulations to address visibility impairment in Class I areas that is “reasonably attributable” to a single source or small group of sources, *i.e.*, reasonably attributable visibility impairment (RAVI). 45 FR 80084, 80084 (December 2, 1980).

requirements for regional haze, found at 40 CFR 51.308 and 40 CFR 51.309, are included in the EPA's visibility protection regulations at 40 CFR 51.300 through 40 CFR 51.309.<sup>4</sup>

The CAA requires each State to develop a SIP to meet various air quality requirements, including protection of visibility.<sup>5</sup> Regional haze SIPs must assure reasonable progress toward the national goal of preventing future and remedying existing manmade visibility impairment in Class I areas. A State must submit its SIP and SIP revisions to the EPA for approval.<sup>6</sup> Once approved, a SIP is enforceable by the EPA and citizens under the CAA; that is, the SIP is federally enforceable.

### B. Best Available Retrofit Technology

Section 169A(b)(2) of the CAA requires SIPs to contain such measures as may be necessary to make reasonable progress toward meeting the national visibility goal. Section 169(b)(2)(A) specifies that one such requirement is for certain categories of existing major stationary sources built between 1962 and 1977 to procure, install, and operate BART as determined by the States through their SIPs. Under the Regional Haze Rule, States (or the EPA, in the case of a FIP) are directed to make BART determinations for such “BART-eligible” sources—typically larger, often uncontrolled, and older stationary sources—that may reasonably be anticipated to cause or contribute to any visibility impairment in a Class I area.<sup>7</sup>

On July 6, 2005, the EPA published the *Guidelines for BART Determinations Under the Regional Haze Rule* (the “BART Guidelines”) to assist States in determining which sources should be subject to the BART requirements and the appropriate emission limits for each covered source.<sup>8</sup> The process of

<sup>4</sup> The EPA revised the Regional Haze Rule on January 10, 2017. 82 FR 3078 (January 10, 2017). Under the revised Regional Haze Rule, the requirements in 40 CFR 51.308(d) and (e) apply to first implementation period SIP submissions and 51.308(f) applies to submissions for the second and subsequent implementation periods. 82 FR 3087; see also 81 FR 26942, 26952 (May 4, 2016).

<sup>5</sup> 42 U.S.C. 7410(a), 7491, and 7492; CAA sections 110(a), 169A, and 169B.

<sup>6</sup> 42 U.S.C. 7491(b)(2); 7410.

<sup>7</sup> 40 CFR 51.308(e). The EPA designed the *Guidelines for BART Determinations Under the Regional Haze Rule* (Guidelines) “to help States and others (1) identify those sources that must comply with the BART requirement, and (2) determine the level of control technology that represents BART for each source.” 40 CFR part 51, appendix Y, I.A. Section II. of the Guidelines describes the four steps to identify BART sources, and section III. explains how to identify BART sources (*i.e.*, sources that are “subject to BART”).

<sup>8</sup> “Regional Haze Regulations and Guidelines for Best Available Retrofit Technology (BART) Determinations” (BART Guidelines) at 70 FR 39104

establishing BART emission limitations follows three steps: first, identify the sources that meet the definition of “BART-eligible source” set forth in 40 CFR 51.301;<sup>9</sup> second, determine which of these sources “emits any air pollutant which may reasonably be anticipated to cause or contribute to any impairment of visibility in any such area” (a source that fits this description is “subject to BART”); and third, for each source subject to BART, identify the best available type and level of control for reducing emissions.

Pursuant to CAA section 169A(g)(2), CAA section 169A(b)(2)(A) and 40 CFR 51.308(e)(1)(ii)(A), in determining the measures necessary for BART, a State must take into account the following five factors and demonstrate how they were taken into consideration in making a BART determination:

- costs of compliance;
- energy and non-air quality impacts of compliance;
- pollution control equipment at the source;
- remaining useful life of any potentially affected sources;
- visibility improvement anticipated to result from controls.

States must address all visibility-impairing pollutants emitted by a source in the BART determination process. The most significant visibility impairing pollutants are sulfur dioxide (SO<sub>2</sub>), NO<sub>x</sub>, and particulate matter (PM).

### C. Long-Term Strategy and Reasonable Progress Requirements

In addition to the BART requirements, the CAA's visibility protection provisions also require that States' regional haze SIPs contain a “long-term (ten to fifteen years) strategy for making reasonable progress toward meeting the national goal.”<sup>10</sup> The long-term strategy must address regional haze visibility impairment for each mandatory Class I area within the State and each mandatory Class I area located outside the State that may be affected by emissions from the State. It must include the enforceable emission limitations, compliance schedules, and other measures necessary to achieve the reasonable progress goals.<sup>11</sup> The reasonable progress goals, in turn, are calculated for each Class I area based on

(July 6, 2005) codified in 40 CFR part 51, appendix Y.

<sup>9</sup> BART-eligible sources are those sources that have the potential to emit 250 tons or more of a visibility-impairing air pollutant, were not in operation prior to August 7, 1962, but were in existence on August 7, 1977, and whose operations fall within one or more of 26 specifically listed source categories. 40 CFR 51.301.

<sup>10</sup> 42 U.S.C. 7491(b)(2)(B).

<sup>11</sup> 42 U.S.C. 7491(b)(2); 40 CFR 51.308(d)(3).

the control measures States have selected for sources by applying the four statutory “reasonable progress” factors, which are “the costs of compliance, the time necessary for compliance, the energy and non-air quality environmental impacts of compliance, and the remaining useful life of any existing source subject to such requirement.”<sup>12</sup> That is, States consider the four reasonable progress factors, and certain other factors listed in § 51.308(d)(3) of the Regional Haze Rule, to determine what controls must be included in the long-term strategy. Those controls are represented in the long-term strategy, *i.e.*, the SIP, as emission limits, schedules of compliance, and other measures. The reasonable progress goals are the predicted visibility outcome of implementing the long-term strategy in addition to ongoing pollution control programs stemming from other CAA requirements.

Unlike the BART determinations, which were only required for the first implementation period regional haze planning period SIPs,<sup>13</sup> States are required to submit revisions to their regional haze SIP for each planning period, including new reasonable progress analyses and reasonable progress goals. The most recent regulatory deadline for States to submit their SIP revisions with long-term strategy updates to the EPA was on July 31, 2021.<sup>14</sup>

#### D. Progress Report Requirements

Under 40 CFR 51.308(g) States are required to periodically submit progress reports that evaluate progress towards the reasonable progress goals for each mandatory Class I area within the State and in each Class I area outside the State which may be affected by emissions from within the State. The first progress report is required to be in the form of a SIP revision and was due five years from submittal of the initial implementation plan for the first planning period. The progress reports must contain specific elements as listed in 40 CFR 51.308(g)(1)–(8). Additionally, the provisions of 40 CFR 51.308(h) require States to submit, at the same time as the 40 CFR 51.308(g)

progress report, a determination of adequacy of the State’s existing regional haze SIP.

#### E. Consultation With Federal Land Managers

The Regional Haze Rule requires that a State consult with Federal Land Managers (FLMs) before adopting and submitting a required SIP revision. Further, a State must include a summary of the FLMs’ conclusions and recommendations in its notice to the public,<sup>15</sup> as well as include in its submission to the EPA a description of how it addressed any comments provided by the FLMs.<sup>16</sup>

### III. North Dakota’s Regional Haze SIP Submittals

#### A. Background

Coal Creek, the largest power plant in North Dakota, is a two-unit, approximately 1,200 gross megawatt (MW) mine-mouth power plant consisting primarily of two steam generators and associated coal and ash handling systems.<sup>17</sup> Coal Creek is located near the Missouri River, five miles south of Underwood, North Dakota.<sup>18</sup> On May 2, 2022, Great River Energy sold Coal Creek and the high voltage direct current (HVDC) transmission system to Rainbow Energy Center, LLC.<sup>19</sup>

The Governor of North Dakota submitted North Dakota’s Regional Haze SIP for the first implementation period to the EPA on March 3, 2010, followed by supplements to the SIP titled “SIP Supplement No. 1” on July 27, 2010, and “SIP Amendment No. 1” on July 28, 2011 (collectively, “2010 SIP submittal”). North Dakota submitted the 2010 SIP submittal to meet the requirements of the regional haze program for the first planning period of 2008 through 2018. Among other things, the 2010 SIP submittal included a BART emission limit for NO<sub>x</sub> for Units 1 and 2 at Coal Creek of 0.17 lb/MMBtu averaged across the two units (on a 30-day rolling average),<sup>20</sup> represented by modified and additional separated overfire air, close-coupled overfire air, and low NO<sub>x</sub> burners (LNC3+). The next most stringent control option North Dakota considered was selective non-

catalytic reduction (SNCR) in addition to Coal Creek’s existing additional separated overfire air, close-coupled overfire air, and low NO<sub>x</sub> burners (LNC3). For this control option, North Dakota took into account the potential for ammonia from the SNCR to contaminate the fly ash.<sup>21</sup> Ultimately, the State concluded that “[b]ecause of the potential for lost sales of fly ash, the negative environmental effects of having to dispose of the fly ash instead of recycling it into concrete, and the very small amount of visibility improvement from the use of SNCR, this option is rejected as BART.”<sup>22</sup>

On April 6, 2012, the EPA promulgated a final rule that approved in part and disapproved in part North Dakota’s 2010 SIP submittal (2012 Final Rule).<sup>23</sup> During the EPA’s review of North Dakota’s NO<sub>x</sub> BART analysis for Coal Creek, the EPA identified an error in the costs associated with lost fly ash sales.<sup>24</sup> At the EPA’s request, after North Dakota submitted the 2010 Regional Haze SIP and prior to publication of the 2012 Final Rule, North Dakota obtained additional supporting information from Great River Energy for lost fly ash revenue and for the potential cost of fly ash ammonia mitigation. The supporting information included an updated cost analysis from Great River Energy noting that the correct sales price for fly ash was \$5/ton instead of \$36/ton. The updated analysis included corrected fly ash revenue data and ammonia mitigation costs. That analysis, dated June 16, 2011, indicated that the cost effectiveness for SNCR at Coal Creek Units 1 and 2 would be \$2,318/ton of NO<sub>x</sub> emissions reductions rather than the original estimate of \$8,551/ton. Because the State’s cost of compliance analysis was based upon flawed and inflated lost fly ash revenue cost estimates, the EPA concluded that the 2010 Regional Haze SIP failed to properly consider the cost of compliance as required by CAA 169A, 40 CFR 51.308(e)(1)(ii)(A), and 40 CFR part 51, appendix Y. Therefore, the EPA disapproved North Dakota’s NO<sub>x</sub> BART determination for Coal Creek.<sup>25</sup>

In the same action, the EPA promulgated a FIP that included a NO<sub>x</sub> BART emission limit for Units 1 and 2 at the Coal Creek of 0.13 lb/MMBtu averaged across the two units (30-day

<sup>12</sup> 42 U.S.C. 7491(g)(1); 40 CFR 51.308(d)(1)(i)(A).

<sup>13</sup> Under the Regional Haze Rule, SIPs are due for each regional haze planning period, or implementation period. The terms “planning period” and “implementation period” are used interchangeably in this document.

<sup>14</sup> 40 CFR 51.308(f). The 2021 deadline was originally in 2018; the EPA revised this deadline in 2017. 82 FR 3078 (January 10, 2017); see also 40 CFR 51.308(f). Following the 2021 SIP submittal deadline, the next SIP submittal is due in 2028. 40 CFR 51.308(f).

<sup>15</sup> 42 U.S.C. 7491(d).

<sup>16</sup> 40 CFR 51.308(i).

<sup>17</sup> North Dakota’s 2022 SIP submittal, section 8.

<sup>18</sup> Id.

<sup>19</sup> Coal Creek Sale to Rainbow Energy Center Final. *Minot Daily News* (2022, May 3). Available at <https://www.minotdailynews.com/news/local-news/2022/05/coal-creek-station-sale-to-rainbow-energy-center-final>.

<sup>20</sup> Throughout, 30-day rolling average emission limits are based on boiler operating days.

<sup>21</sup> Fly ash is a marketable product sold by Great River Energy.

<sup>22</sup> 2010 Regional Haze SIP, appendix D.2, BART Determination for Coal Creek Units 1 and 2, 12/1/2009, p. 20.

<sup>23</sup> 77 FR 20894 (April 6, 2012).

<sup>24</sup> 76 FR 58603 (September 21, 2011); 77 FR 20921 (April 6, 2012).

<sup>25</sup> 77 FR 20894 (Apr. 6, 2012).

rolling average), which Great River Energy could meet by installing SNCR plus LNC3+.<sup>26</sup> This emission limit was based on the EPA's independent BART analysis, including the updated costs of compliance.

Subsequently, several petitioners challenged various aspects of the EPA's final rule in the U.S. Court of Appeals for the Eighth Circuit. Pertinent to this proposal, North Dakota and Great River Energy challenged the EPA's disapproval of North Dakota's determination that LNC3+ with an emission limit of 0.17lb/MMBtu averaged across the two units (30-day rolling average) is NO<sub>x</sub> BART for Coal Creek. The petitioners also challenged the EPA's determination that SNCR plus LNC3+ with an emission limit of 0.13lb/MMBtu averaged across the two units (30-day rolling average) is NO<sub>x</sub> BART for Coal Creek.

On January 2, 2013, North Dakota submitted a SIP revision<sup>27</sup> with a revised five-factor NO<sub>x</sub> BART evaluation for Coal Creek (2013 SIP submittal). North Dakota's 2013 SIP submittal affirmed North Dakota's earlier BART determination of 0.17 lb/MMBtu averaged across the two units (30-day rolling average) to be met with LNC3+.

On September 23, 2013, the Eighth Circuit concluded that the EPA properly disapproved portions of the 2010 Regional Haze SIP, including the EPA's disapproval of North Dakota's NO<sub>x</sub> BART determination for Coal Creek.<sup>28</sup> However, the court vacated the portion of the EPA's FIP promulgating a NO<sub>x</sub> BART emission limit of 0.13 lb/MMBtu (30-day rolling average) for Coal Creek, holding that the EPA had failed to consider existing pollution control technology<sup>29</sup> already in use at Coal

Creek. Specifically, the court found that the EPA's refusal to consider DryFining™ as an existing pollution control because it had been voluntarily installed after the regional haze baseline date was arbitrary and capricious.<sup>30</sup>

Several SIP submissions and EPA actions for the first implementation period followed the Eighth Circuit's decision. On January 12, 2015, North Dakota submitted a SIP revision for a regional haze five-year progress report, pursuant to 40 CFR 51.308(g). On April 26, 2018, the EPA proposed to approve the Coal Creek NO<sub>x</sub> BART determination in North Dakota's January 2013 SIP submittal.<sup>31</sup> The EPA did not finalize that action and North Dakota subsequently withdrew its 2013 SIP submittal of the NO<sub>x</sub> BART determination for Coal Creek.<sup>32 33</sup> On April 5, 2022, the EPA approved North Dakota's August 3, 2020 SIP submittal incorporating the 2012 FIP requirements for another source.<sup>34</sup> In the same action, the EPA withdrew from the Code of Federal Regulations the vacated Coal Creek FIP requirements.

#### B. August 11, 2022 SIP Submittal

As part of its 2022 SIP submittal to address Regional Haze for the second planning period, North Dakota submitted a revised NO<sub>x</sub> BART analysis and determination for Coal Creek Units 1 and 2. Specifically, the submittal provides a source-specific NO<sub>x</sub> BART five-factor analysis for Coal Creek Units 1 and 2 to demonstrate that the existing LNC3+ NO<sub>x</sub> controls with emission limits of 0.15 lb/MMBtu NO<sub>x</sub> on a 30-day rolling average satisfy the NO<sub>x</sub> BART requirements for those units for the first planning period. North Dakota submitted Coal Creek Permit to Construct # PTC21001 as part of its 2022 SIP submittal.<sup>35</sup> The final permit was issued on July 27, 2022.<sup>36</sup> North Dakota's 2022 SIP submittal also included an analysis to address the

State's second planning period long-term strategy requirements; that portion of North Dakota's 2022 SIP submittal will be addressed in separate action.

#### C. North Dakota's NO<sub>x</sub> BART Determination

For its NO<sub>x</sub> BART assessment for Coal Creek Units 1 and 2, North Dakota considered the following control technologies: LNC3+, LNC3+ w/ selective catalytic reduction (SCR), LNC3+ w/SNCR, Ultracat, catalytic filter bags, and "mid-temperature" SCR catalyst. Ultimately, North Dakota deemed Ultracat, catalytic filter bags, and "mid-temperature" SCR catalyst to be technologically infeasible at Coal Creek Units 1 and 2. For LNC3+, LNC3+ w/SCR and LNC3+ w/SNCR, North Dakota relied on information provided by Great River Energy to conduct a source-specific NO<sub>x</sub> BART assessment though application of the five BART factors.<sup>37</sup>

##### 1. Costs of Compliance

For the source-specific BART analysis associated with this action, North Dakota provided costs of compliance associated with the controls it deemed technologically feasible at Coal Creek Units 1 and 2 (LNC3+, LNC3+ w/SCR, and LNC3+ w/SNCR). North Dakota did not analyze Ultracat, catalytic filter bags, and "mid-temperature" SCR catalyst at Coal Creek Units 1 and 2 because they were deemed technologically infeasible. North Dakota's 2022 SIP submittal includes an updated analysis and evaluation for NO<sub>x</sub> BART at Coal Creek Units 1 and 2 that was provided by Great River Energy.<sup>38 39</sup> North Dakota relied on cost information from Great River Energy's analysis,<sup>40</sup> but conducted its own cost analysis in appendix F. North Dakota's initial BART evaluation in its 2010 SIP submittal used actual emission rates from a 3-year period of emission inventory data from 2000 to 2002, the same time period that was used to determine the visibility baseline.<sup>41</sup> North Dakota's updated BART analysis in the 2022 SIP submittal updates these emissions rates to reflect the operation of LNC3 with DryFining™. It also provides updates to the operating conditions and emissions performance

<sup>26</sup> The FIP also included: a reasonable progress determination and NO<sub>x</sub> emission limit for Antelope Valley Station (Antelope Valley) Units 1 and 2 of 0.17 lb/MMBtu that applies singly to each of these units on a 30-day rolling average, and a requirement that the owner/operator meet the limit as expeditiously as practicable, but no later than July 31, 2018; monitoring, record-keeping, and reporting requirements for the Coal Creek and Antelope Valley units to ensure compliance with the emission limitations; reasonable progress goals consistent with the approved SIP emission limits approved and the final FIP limits; and long-term strategy elements that reflect the other aspects of the finalized FIP. Please refer to the EPA's final FIP rule for further information on the FIP requirements. 77 FR 20894 (Apr. 6, 2012).

<sup>27</sup> North Dakota referred to the January 2, 2013 SIP submittal as "Supplement No. 2". The EPA herein refers to North Dakota's January 2, 2013 submission as a SIP submittal.

<sup>28</sup> *North Dakota v. EPA*, 730 F.3d 750 (8th Cir. 2013), cert. denied, 134 S. Ct. 2662 (2014).

<sup>29</sup> Pursuant to section 169A(g)(1) of the CAA, "any existing pollution control technology in use at the source" is one of the five factors that must be considered when making a BART determination.

<sup>30</sup> DryFining™ is a technology developed by Great River Energy that reduces moisture and refines lignite coal, increasing the efficiency and performance of the fuel while reducing emissions.

<sup>31</sup> 83 FR 18248 (April 26, 2018).

<sup>32</sup> North Dakota 2022 SIP submittal, Letter from North Dakota Governor Doug Burgum to EPA Administrator Michael Regan.

<sup>33</sup> As explained in this document in Section III.B., August 11, 2022 SIP Submittal, North Dakota subsequently withdrew the Coal Creek Station NO<sub>x</sub> BART portion of this 2013 SIP submittal in a 2022 SIP submittal to the EPA that included a revised NO<sub>x</sub> BART determination for Coal Creek. The EPA is acting on the Coal Creek Station NO<sub>x</sub> BART portion of the 2013 SIP submittal in a separate action.

<sup>34</sup> Antelope Valley Station.

<sup>35</sup> North Dakota's 2022 SIP submittal, appendix F.2.

<sup>36</sup> Id.

<sup>37</sup> North Dakota's 2022 SIP submittal, section 8 and appendix B.4.b.

<sup>38</sup> Id.

<sup>39</sup> Great River Energy retained Barr Engineering Co. (Barr) to complete an updated analysis and evaluation for NO<sub>x</sub> BART at Coal Creek Units 1 and 2.

<sup>40</sup> North Dakota's 2022 SIP submittal, appendix B.4.b.

<sup>41</sup> 76 FR 58582 (September 21, 2011).

at Coal Creek Units 1 and 2.<sup>42</sup> In the 2022 SIP submittal for NO<sub>x</sub> BART, North Dakota used Great River Energy’s calculations of the 30-day average NO<sub>x</sub> emissions levels at Unit 2 from January 1, 2018 to July 31, 2019. The actual NO<sub>x</sub> emissions during this time frame averaged 0.127 lb/MMBtu (rounded to 0.13 lb/MMBtu) with daily variability in NO<sub>x</sub> emissions between 0.10 and 0.19 lb/MMBtu. Great River Energy used this 0.13 lb/MMBtu NO<sub>x</sub> rate as its performance emissions rate for the first option of BART controls (LNC3+), in the average cost-effectiveness analysis.

The cost of an emissions control measure is derived using capital and annual operation and maintenance costs. Cost effectiveness is analyzed in terms of control cost per ton of pollutant

removed by the control. Cost/ton for a particular control technology is the difference in anticipated annual emissions using baseline emissions and expected annual emissions performance through installation of the additional retrofit control measure. In addition to the average cost effectiveness threshold for the BART evaluations, North Dakota also calculated an incremental cost effectiveness (cost effectiveness between two control measures) threshold.<sup>43</sup>

North Dakota analyzed LNC3+, SNCR, and SCR for average cost-effectiveness and incremental cost-effectiveness in its updated BART analysis.<sup>44</sup> The 2016–2018 three-year annual average data from LNC3 (with DryFining™) on Unit 1 was used as the baseline performance rate in pounds of NO<sub>x</sub> per MMBtu for

both units. In its incremental cost analysis, North Dakota considered the existing LNC3+ (installed on Unit 2 in 2010 and Unit 1 in 2020)<sup>45</sup> by performing an incremental cost analysis looking at the standalone cost of implementing SNCR, the next most stringent control, relative to the existing LNC3+. North Dakota also performed an incremental cost analysis looking at the standalone cost of SCR relative to LNC3+. Per the EPA’s BART guidelines, which advise that incremental costs should be calculated relative to the next most stringent control option,<sup>46</sup> North Dakota also performed incremental cost analyses looking at the standalone cost of SCR relative to SNCR. The results of the average and incremental cost analyses can be seen in table 1:

TABLE 1—2022 SIP SUBMITTAL COST OF COMPLIANCE AND INCREMENTAL COST OF COMPLIANCE

Control technology	Performance level (lb/MMBtu)	Annualized emission reduction (tpy)	Annualized total cost (\$)	Cost of compliance (\$/ton)	Incremental cost of compliance (\$/ton)	Incremental cost of SCR over SNCR (\$/ton)
Baseline, LNC3 with DryFining™	0.18	.....	.....	.....	.....	.....
LNC3+	0.13	1,162	793,418	683	.....	.....
LNC3+ w/SNCR	0.10	1,850	6,194,244	3,348	7,850	.....
LNC3+ w/SCR	0.08	2,309	16,122,491	6,983	13,368	21,645
LNC3+ w/SCR	0.06	2,767	17,391,169	6,284	10,339	12,206

2. Energy and Non-Air Quality Environmental Impacts of Compliance

North Dakota identified the production of sulfuric acid as a side reaction with the SCR process chemistry. Sulfuric acid, which is not captured within the boiler or associated downstream emission control, is released to the atmosphere as sulfuric acid mist (SAM). North Dakota noted that SAM is emitted as aerosol particles that contribute to visibility impairment.<sup>47</sup> Because these emissions contribute to impairment, North Dakota considered the visibility impacts of SAM emissions in the analysis of visibility improvements from SCR and the costs of controlling SAM emissions in the SCR control cost analysis. Using the calculation procedures in a 2018 publication from Electric Power Research Institute, North Dakota estimated SAM emissions of

approximately 415 tons per year per unit as a result of the SCR catalyst with a 5% oxidation rate at Coal Creek Station.<sup>48</sup> North Dakota also noted that a low-dust SCR system would require a fuel-fired reheat burner system, which could result in additional energy usage and additional emissions of NO<sub>x</sub> and other pollutants.<sup>49</sup> North Dakota estimated water demands for SNCR to be 70–80 million gallons per year.<sup>50</sup> North Dakota noted the potential for ammonia slip as a result of these technologies, which could result in increased nitrogen in the scrubber, which would eventually be routed to evaporation ponds.<sup>51</sup> Additionally, the Great River Energy BART analysis included an evaluation of potential adverse impacts of ammoniated fly ash.<sup>52</sup> The report estimated that an additional 92,000 tons of fly ash would need to be disposed of in a landfill

annually, which represents an additional 81 percent increase in fly ash disposal.<sup>53</sup>

3. Pollution Control Equipment at the Source

North Dakota’s Updated BART analysis takes into account existing controls, including DryFining™ and other combustion controls. At the time of the initial BART modeling, LNC3 was operational on both Units 1 and 2. DryFining™ became operational at Units 1 and 2 in 2010. LNC3+ became operational at Unit 2 in 2010, and was installed on Unit 1 in the second quarter of 2020.<sup>54</sup> Though North Dakota did not incorporate LNC3+ into the baseline, the State did consider the existing LNC3+ by performing an incremental cost analysis looking at the standalone cost of implementing SNCR, the next most stringent control, relative to the existing

<sup>42</sup> North Dakota’s 2022 SIP submittal, appendix B.4.b.

<sup>43</sup> North Dakota’s 2022 SIP submittal, appendix B.4.b., section 3.2.

<sup>44</sup> North Dakota’s 2022 SIP submittal, appendix F.

<sup>45</sup> North Dakota’s 2022 SIP submittal, section 8.3.

<sup>46</sup> 40 CFR part 51, appendix Y section IV.D.4.e.1.: “The incremental cost effectiveness calculation compares the costs and performance level of a control option to those of the next most stringent option, as shown in the following formula (with

respect to cost per emissions reduction): Incremental Cost Effectiveness (dollars per incremental ton removed) = (Total annualized costs of control option) – (Total annualized costs of next control option) ÷ (Control option annual emissions) – (Next control option annual emissions).”

<sup>47</sup> North Dakota’s 2022 SIP submittal, appendix B.4.b., section 3.3.

<sup>48</sup> Id.

<sup>49</sup> Id.

<sup>50</sup> Id.

<sup>51</sup> Id.

<sup>52</sup> Great River Energy commissioned Golder Associates and Boral Resources to evaluate the potential for adverse impacts of ammoniated fly ash. North Dakota’s 2022 SIP submittal, appendix B.4.b.

<sup>53</sup> North Dakota’s 2022 SIP submittal, appendix B.4.b.

<sup>54</sup> North Dakota’s 2022 SIP submittal, appendix F.1–2.

LNC3+. North Dakota also performed incremental analyses looking at the standalone cost of SCR relative to LNC3+. Per the EPA’s BART guidelines, which advise that incremental costs should be calculated relative to the next most stringent control option,<sup>55</sup> North Dakota also performed incremental cost analyses looking at the standalone cost of SCR relative to SNCR.

4. Remaining Useful Life

Remaining useful life was not considered by North Dakota because Coal Creek is expected to operate beyond the life of the control equipment. Therefore, North Dakota

evaluated the controls according to the remaining useful life timeframes listed in the EPA’s Control Cost Manual: 30 years for SCR and 20 years for SNCR.<sup>56</sup>

5. Visibility Improvement

North Dakota considered California Puff (CALPUFF) dispersion modeling conducted by Coal Creek to assess the potential visibility improvement from the use of additional NO<sub>x</sub> BART controls at the Lostwood and Theodore Roosevelt National Park Class I areas.<sup>57</sup> Table 2 shows the baseline visibility impairment values associated with Modeling Scenario 1 (North Dakota’s baseline scenario). Modeling Scenario 1

reflects emissions rates associated with the post-SO<sub>2</sub> BART approved controls (including DryFining™) and LNC3 controls for NO<sub>x</sub>. Table 3 shows the projected incremental visibility impact of potential NO<sub>x</sub> BART controls on Units 1 and 2 in addition to the assumed baseline (Modeling Scenario 1). Modeling Scenario 2 considers the addition of LNC3+ to the baseline, Scenario 3 considers LNC3+ with the addition of SNCR, and Scenarios 4–6 consider LNC3+ with the addition of SCR at three different oxidation rates (5%, 2.5%, and 0%).

TABLE 2—MODEL SCENARIO 1 BASELINE VISIBILITY IMPAIRMENT IN DECIVIEWS

Year	Theodore Roosevelt South Unit <sup>58</sup>	Theodore Roosevelt north unit	Theodore Roosevelt Elkhorn Ranch unit	Lostwood
2000	0.66	0.65	0.60	0.92
2001	0.47	0.57	0.53	0.87
2002	1.28	1.15	0.99	0.69

TABLE 3—COAL CREEK STATION INCREMENTAL VISIBILITY IMPACT OF MODELING SCENARIOS 2–6 IN DECIVIEWS<sup>59</sup>

[Negative numbers indicate decreases in visibility impairment, positive numbers indicate increases in visibility impairment]

Modeling scenario	NO <sub>x</sub> control technology		Lostwood	Theodore Roosevelt	
2	Addition of LNC3+		-0.15	South Unit	-0.13
				North Unit	-0.12
				Elkhorn Ranch Unit	-0.12
3	LNC3+ with addition of SNCR		-0.06	South Unit	-0.07
				North Unit	-0.09
				Elkhorn Ranch Unit	-0.07
4	LNC3+ with addition of SCR. <sup>60</sup>	5% Oxidation Rate	0.17	South Unit	0.04
				North Unit	-0.02
				Elkhorn Ranch Unit	0.00
5	LNC3+ with addition of SCR	2.5% Oxidation Rate	0.01	South Unit	-0.07
				North Unit	-0.11
				Elkhorn Ranch Unit	-0.08
6	LNC3+ with addition of SCR	0% Oxidation Rate	-0.14	South Unit	-0.17
				North Unit	-0.21
				Elkhorn Ranch Unit	-0.16

The modeling results in table 3 show the visibility benefits of adding LNC3+ to the baseline (Scenario 2), and then the incremental, not total, visibility benefit of adding SNCR to the LNC3+ control scenario (Scenario 3) and SCR to the LNC3+ control scenario (Scenarios 4–6). The “total” visibility benefit of LNC3+ plus SNCR can be derived by

adding the deciview improvement values for Scenarios 2 plus 3. And the “total” visibility benefit of LNC3+ plus SCR can be derived by adding the deciview improvement values for Scenarios 2 plus 4, 2 plus 5, or 2 plus 6 respectively. Note that due to the assumption of 5% and 2.5% SO<sub>2</sub> to SO<sub>3</sub> oxidation rates in Scenarios 4 and 5,

there are several instances of net increases in visibility impairment. Those are represented as positive values. North Dakota ultimately concluded that none of the NO<sub>x</sub> BART controls modeled were shown to have a “significant” impact on improving visibility in North Dakota’s Class I areas.

<sup>55</sup> 40 CFR part 51, appendix Y section IV.D.4.e.1.: “The incremental cost effectiveness calculation compares the costs and performance level of a control option to those of the next most stringent option, as shown in the following formula (with respect to cost per emissions reduction): Incremental Cost Effectiveness (dollars per incremental ton removed) = (Total annualized costs of control option) – (Total annualized costs of next control option) ÷ (Control option annual emissions) – (Next control option annual emissions).”

<sup>56</sup> EPA Air Pollution Control Cost Manual, section 4—NO<sub>x</sub> Controls, available at <https://www.epa.gov/economic-and-cost-analysis-air-pollution-regulations/cost-reports-and-guidance-air-pollution> (last visited December 2023).

<sup>57</sup> Theodore Roosevelt National Park Class I area is comprised of three units: South Unit, North Unit, and Elkhorn Ranch Unit.

<sup>58</sup> The Theodore Roosevelt National Park Class I area is composed of three separate units: South

Unit, North Unit, and Elkhorn Ranch Unit. Projected visibility improvements in deciviews are shown for each unit.

<sup>59</sup> The EPA calculated these numbers from North Dakota’s SIP Submission, appendix F.1–13, table 15.

<sup>60</sup> North Dakota also evaluated the incremental cost of LNC3+ w/SCR compared to LNC3+ w/SNCR (maximum incremental visibility improvement of 0.12 dv).

## 6. BART Demonstration

After considering each of the five BART factors, States must demonstrate how those factors were taken into consideration in making a BART determination.<sup>61</sup> After consideration of the five factors, North Dakota identified LNC3+ as BART for Coal Creek Units 1 and 2.<sup>62</sup> Due to the inherent variability with shorter-term operations due to unit load swings and variable sodium concentrations in North Dakota lignite coal, North Dakota proposed a limit of 0.15 lb/MMBtu NO<sub>x</sub> 30-day rolling average in lieu of the 0.13 lb/MMBtu NO<sub>x</sub> annual rate to account for this variability. North Dakota found that the other potential controls evaluated, SNCR and SCR, were not reasonable to select for BART due to high cost and the potentially significant non-air quality impacts described in sections III.C.1. and III.C.2. above.<sup>63</sup>

In summary, North Dakota concluded that the BART analysis demonstrates that the currently installed NO<sub>x</sub> emissions controls (LNC3+) on Units 1 and 2 constitute NO<sub>x</sub> BART for Coal Creek Units 1 and 2. North Dakota rejected additional controls that were considered, citing cost, feasibility concerns, potential non-air quality impacts, and low visibility improvements as the most influential factors in its rejection of additional controls.<sup>64</sup> Therefore, North Dakota's 2022 SIP submittal requires emissions limits of 0.15 lb/MMBtu (30-day rolling average) associated with the operation of LNC3+ on Units 1 and 2 as the State's BART determination for Coal Creek.

### D. January 12, 2015 Progress Report SIP Submittal

On January 12, 2015, North Dakota submitted its 2015 progress report to the EPA as a SIP revision. Two Class I areas are located in North Dakota: Lostwood Wilderness Area and Theodore Roosevelt National Park. The Theodore Roosevelt National Park Class I area is composed of three separate units: North Unit, Elkhorn Ranch Unit, and South Unit. In the first planning period, emissions from North Dakota sources were also found to be contributing to visibility impairment at nearby Boundary Waters Canoe Area Wilderness Area and Voyageurs National Park in Minnesota, Isle Royale National Park and Seney National Wildlife Refuge Wilderness Area in

Michigan, Medicine Lake National Wildlife Refuge Wilderness Area and U.L. Bend National Wildlife Refuge Wilderness Area in Montana, and Badlands National Park and Wind Cave National Park in South Dakota.<sup>65</sup>

North Dakota consulted with other States through regular participation in the Western Regional Air Partnership (WRAP).<sup>66</sup> In developing the 2015 progress report, North Dakota relied on the technical tools, policy documents, and other products that other WRAP States used to develop their regional haze plans. The WRAP Implementation Work Group was one of the primary collaboration mechanisms. Additionally, North Dakota consulted directly with the State of Minnesota through the Minnesota Pollution Control Agency. Discussions with neighboring States included the review of major contributing sources of air pollution.<sup>67</sup>

In the first planning period, the EPA required the following for BART: SO<sub>2</sub> emissions limits for Coal Creek Units 1 and 2 and Heskett Station Units 1 and 2<sup>68</sup> as well as NO<sub>x</sub> emissions limits for Coyote Station Unit 1,<sup>69</sup> Milton R. Young Units 1 and 2,<sup>70</sup> Leland Olds Station Unit 2,<sup>71</sup> Stanton Station,<sup>72</sup> and Antelope Valley Station Units 1 and 2,<sup>73</sup> while the NO<sub>x</sub> BART requirements at Coal Creek Units 1 and 2 remained outstanding.

North Dakota's 2015 progress report details the progress made in the first planning period toward implementation of the long-term strategy outlined in its 2010 SIP submittal, the visibility improvement measured at the Class I areas affected by emissions from North Dakota, and a determination of the adequacy of the State's existing regional haze SIP.

<sup>65</sup> 76 FR 58570, 58579 (September 21, 2011).

<sup>66</sup> The Western Regional Air Partnership (WRAP) is a collaborative effort of State governments, local air agencies, tribal governments, and various federal agencies established to initiate and coordinate activities associated with the management of regional haze, visibility, and other air quality issues in the Western United States. Members include the States of Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, Wyoming, and 28 tribal governments. The federal partner members of WRAP are the EPA, U.S. National Parks Service (NPS), U.S. Fish and Wildlife Service (USFWS), U.S. Forest Service (USFS), and the U.S. Bureau of Land Management (BLM).

<sup>67</sup> 76 FR 58629 (September 21, 2011).

<sup>68</sup> 77 FR 20894 (April 26, 2018).

<sup>69</sup> Id.

<sup>70</sup> Id.

<sup>71</sup> Id.

<sup>72</sup> Id.

<sup>73</sup> 87 FR 19635 (April 5, 2022).

### E. North Dakota's Five-Year Progress Report Determination

In its 2015 Progress Report, North Dakota included a description of the status of implementation of the measures included in the first planning period implementation plan, including current emissions rates, BART and reasonable progress limits, and implementation dates.<sup>74</sup> North Dakota also included a breakdown of its species contribution to impairment in both in-state and out-of-state Class I areas.<sup>75</sup> Further, North Dakota included a list of emissions reductions that have occurred as a result of Regional Haze Round 1 SIP control requirements.<sup>76</sup> North Dakota's first planning period implementation plan includes the following key measures: implementation of BART and reasonable progress for sources subject to this analysis and federal programs to cut on-road emissions and emissions from industrial boilers, combustion turbines, and internal combustion engines.<sup>77</sup>

Additionally, North Dakota included an assessment of visibility conditions and changes on least-impaired days and most-impaired days for both Class I areas within the State (Lostwood Wilderness Area and Theodore Roosevelt National Park), including 5-year averages representing the most recent 5-year period preceding the required date of the progress report.<sup>78</sup> North Dakota also showed the difference between current (at the time of progress report development) visibility conditions for the most impaired and least impaired days and baseline visibility conditions, as well as the change in visibility impairment for the most impaired and least impaired days over the period since the period addressed in the most recent plan.<sup>79</sup> North Dakota compared the baseline average of visibility impairment to both an average from 2005–2009 and an average from 2008–2012.<sup>80</sup>

Further, North Dakota included an analysis tracking the change over the period since the period addressed in the most recent plan in emissions of pollutants contributing to visibility impairment from all sources and activities within the State—these numbers are also broken down by

<sup>74</sup> North Dakota's 2015 Progress Report, table 2.3.

<sup>75</sup> North Dakota's 2015 Progress Report, table 2.1 and table 2.2.

<sup>76</sup> North Dakota's 2015 Progress Report, section 2.2.

<sup>77</sup> North Dakota's 2015 Progress Report, section 2.1 and table 2.4 (MACT Standards).

<sup>78</sup> North Dakota's 2015 Progress Report, table 2.8.

<sup>79</sup> North Dakota's 2015 Progress Report, section 2.3.

<sup>80</sup> Id.

<sup>61</sup> 40 CFR 51.308(e)(1)(ii)(A).

<sup>62</sup> North Dakota's 2022 SIP submittal, section 8 and appendix F.1–15.

<sup>63</sup> Id.

<sup>64</sup> North Dakota's 2022 SIP submittal, appendix F.1–15.

source category.<sup>81</sup> Here, North Dakota included 2011 data, data from the most recent triennial reporting requirements as of the time of progress report development.<sup>82</sup> Further, North Dakota also included 2018 emissions projections to show additional progress that was expected to be achieved by the State by 2018.<sup>83</sup>

North Dakota also included an assessment of changes in anthropogenic emissions within and outside of the State that have occurred since the period addressed in the most recent plan.<sup>84</sup> Here, North Dakota noted that the most obvious source category where emissions have increased is in oil and natural gas production, due to increased development of the Bakken formation, an area in western North Dakota with rich oil and gas reserves.<sup>85</sup> Within this sector, North Dakota notes that the pollutant with the largest increase is volatile organic compounds (VOC).<sup>86</sup> North Dakota also notes an increase in NO<sub>x</sub> emissions in the oil and gas sector, though that increase (6,000 to 17,000 tpy) is outweighed by an approximate decrease of 32,000 tons of NO<sub>x</sub> per year on a statewide (all sectors) basis.<sup>87</sup> North Dakota States that the increase in VOC and NO<sub>x</sub> emissions does not appear to be impacting ozone concentrations in Class I areas or any part of North Dakota.<sup>88</sup> North Dakota points to a plan to reduce natural gas flaring in oil fields, which was adopted by the North Dakota Industrial Commission in April 2014, as support for the expected reduction of NO<sub>x</sub> and VOC.<sup>89</sup> North Dakota notes that this plan is expected to reduce the natural flaring rate of 36% of all gas produced to 15% in two years, 10% within six years, and eventually to 5%.<sup>90</sup> This reduction in flaring is expected to reduce NO<sub>x</sub> and VOC emissions. Considering these changes in emissions and expected reductions in NO<sub>x</sub> and VOC emissions due to a reduction in flaring, North Dakota concludes that there is no evidence at this time that the increase in oil and gas activity (or any other sector) in North Dakota is impeding progress towards the visibility goal.<sup>91</sup>

<sup>81</sup> North Dakota's 2015 Progress Report, section 2.4.

<sup>82</sup> *Id.*

<sup>83</sup> *Id.*

<sup>84</sup> North Dakota's 2015 Progress Report, section 2.5.

<sup>85</sup> *Id.*

<sup>86</sup> *Id.*

<sup>87</sup> *Id.*

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

<sup>89</sup> *Id.*

<sup>90</sup> *Id.*

<sup>91</sup> *Id.*

In its 2015 Progress Report, North Dakota includes an assessment of whether the current implementation plan elements are sufficient to enable North Dakota, and States with Class I areas impacted by North Dakota, to meet their reasonable progress goals for the first planning period.<sup>92</sup> First, North Dakota noted that Theodore Roosevelt National Park had met its reasonable progress goals for the last five years at the time of development of the 2015 Progress Report.<sup>93</sup> North Dakota also noted that Lostwood Wilderness Area had met its reasonable progress goals in the last 2 out of 3 years at the time of development of the 2015 Progress Report.<sup>94</sup> North Dakota pointed to a decrease in SO<sub>2</sub> and NO<sub>x</sub> emissions from the State that occurred from 2002 to 2011.<sup>95</sup> Further, North Dakota notes that on the whole, visibility-impairing emissions were projected to decrease by 2018. While NO<sub>x</sub> emissions are projected to increase by 20,343 tons, SO<sub>2</sub> emissions are projected to decrease by 36,296 tons.<sup>96</sup> This amounts to an overall reduction of 15,953 tpy of visibility-impairing pollutants by 2018.<sup>97</sup> In sum, North Dakota determined that the existing implementation plan elements are sufficient to meet reasonable progress goals for both Theodore Roosevelt National Park and Lostwood Wilderness Area.<sup>98</sup> North Dakota further noted that the decrease in visibility-impairing NO<sub>x</sub> and SO<sub>2</sub> emissions from the State will also help out-of-state Class I areas meet their reasonable progress goals.<sup>99</sup> As noted earlier in this section, the main increase in emissions during the period covered by the 2015 Progress Report occurred as an increase in NO<sub>x</sub> and VOC emissions in the oil and gas sector.<sup>100</sup> North Dakota notes that these pollutants are typically emitted at lower elevations and produce a more localized impact.<sup>101</sup> To assess impacts on its nearest out-of-state Class I area (Medicine Lake Wilderness Area in Montana), North Dakota compared Medicine Lake to nearby Lostwood Wilderness Area, noting that both Class I areas are upwind from North Dakota

<sup>92</sup> North Dakota's 2015 Progress Report, section 2.6.

<sup>93</sup> North Dakota's 2015 Progress Report, section 2.6 and table 2.8.

<sup>94</sup> *Id.*

<sup>95</sup> North Dakota's 2015 Progress Report, table 2.16.

<sup>96</sup> *Id.*

<sup>97</sup> *Id.*

<sup>98</sup> North Dakota's 2015 Progress Report, section 2.6.

<sup>99</sup> *Id.*

<sup>100</sup> North Dakota's 2015 Progress Report, section 2.5.

<sup>101</sup> *Id.*

oil and gas sources and are thus unlikely to be impeded from meeting reasonable progress goals due to emissions from North Dakota.<sup>102</sup> North Dakota ultimately concluded that its emissions will not impede the achievement of reasonable progress goals in in-state or out-of-state Class I areas.<sup>103</sup>

North Dakota also included an assessment of its visibility monitoring strategy. North Dakota stated that it relies on the Interagency Monitoring of Protected Visual Environments (IMPROVE) program for its monitoring strategy.<sup>104</sup> North Dakota concluded that there is no change needed to the monitoring strategy at the time the 2015 progress report was developed.<sup>105</sup> North Dakota included a determination of the adequacy of its existing implementation plan, concluding that based on the information provided in North Dakota's 2015 Progress Report, the existing implementation plan is sufficient to achieve established goals for visibility improvement and emissions reduction.<sup>106</sup> Lastly, North Dakota noted that it provided an opportunity for consultation with FLMs with regard to the 2015 Progress Report on June 25, 2014 by providing FLMs a copy of the 2015 Progress Report. The 2015 Progress Report was distributed to the National Park Service, the U.S. Fish and Wildlife Service, and the U.S. Forest Service. The National Park Service and the U.S. Forest Service provided comments on the progress report.<sup>107</sup> North Dakota documented this consultation in its 2015 Progress Report submittal.<sup>108</sup>

#### IV. The EPA's Evaluation and Proposed Approval of North Dakota's NO<sub>x</sub> BART Determination for Coal Creek Station Units 1 and 2

The EPA is proposing to approve North Dakota's regional haze SIP submittal for the NO<sub>x</sub> BART determination for Coal Creek Units 1 and 2. In our analysis of North Dakota's 2022 SIP submittal, we evaluated North Dakota's BART determination for Coal Creek Units 1 and 2 under CAA section 169A, 40 CFR 51.308(e)(1)(ii)(A), and 40 CFR part 51, appendix Y. Under these requirements, a State must consider the following five factors and include a

<sup>102</sup> North Dakota's 2015 Progress Report, section 2.6.

<sup>103</sup> *Id.*

<sup>104</sup> North Dakota's 2015 Progress Report, section 2.7.

<sup>105</sup> *Id.*

<sup>106</sup> *Id.*

<sup>107</sup> North Dakota's 2015 Progress Report, section 3.

<sup>108</sup> North Dakota's 2015 Progress Report, section 4.



demonstration of how they were taken into consideration in making a BART determination:

- costs of compliance;
- energy and non-air quality environmental impacts of compliance;
- existing pollution control equipment in use at the source;
- remaining useful life of any potentially affected sources; and
- visibility improvement anticipated to result from controls.

The State must consider these five factors in making BART determinations for a specific source.<sup>109</sup> While States have discretion to consider these five factors, this discretion must be “reasonably exercised, and must be supported by adequate documentation of the analyses.”<sup>110</sup>

#### A. Basis of the EPA’s Proposed Approval

The EPA is proposing to approve the portion of North Dakota’s 2022 SIP submittal relating to the updated NO<sub>x</sub> BART determination for Coal Creek Units 1 and 2, finding that LNC3+ at 0.15 lb/MMBtu (30-day rolling average) constitutes BART for these units. As an initial matter, we find that the State reasonably characterized the five factors required in a BART analysis, including the costs of compliance, energy and non-air quality environmental impacts of compliance, pollution control equipment at the source, the remaining useful life of any potentially affected sources, and visibility improvement anticipated to result from controls. The EPA also finds that North Dakota’s revised cost calculation is appropriate, including: (1) the use of LNC3 with DryFining™ as a baseline control technology in cost analysis; (2) the use of baseline NO<sub>x</sub> emissions rates of 0.18 lb/MMBtu for both units based on three-year annual average data of LNC3 operation on Unit 1; (3) and the use of amortization periods of 20 and 30 years for SNCR and SCR, respectively. We find that the State reasonably considered that information, as well as each of the five BART factors, in reaching its revised NO<sub>x</sub> BART determination. After consideration of all five of these factors, we propose to approve the State’s determination that LNC3+ at a rate of 0.15lb/MMBtu (30-day rolling average) constitutes NO<sub>x</sub> BART for Coal Creek Units 1 and 2.

<sup>109</sup> CAA section 169A(b)(2)(A), CAA section 169 A(g)(2), and 40 CFR part 51, appendix Y.

<sup>110</sup> “Regional Haze Regulations and Guidelines for Best Available Retrofit Technology (BART) Determinations” (BART Guidelines) at 70 FR 39138 at 39,138 (July 6,2005).

#### 1. Costs of Compliance

To evaluate North Dakota’s updated BART analysis for Coal Creek Units 1 and 2 with respect to the cost of compliance, we first evaluate North Dakota’s selection of baseline control technology and associated emission rates for analysis. Next, we evaluate North Dakota’s characterization of the costs using the updated Control Cost Manual. Finally, we evaluate the reasonableness of the costs that North Dakota associated with the installation of LNC3+, LNC3+ w/SNCR, and LNC3+ w/SCR on Units 1 and 2 with respect to average and incremental cost-effectiveness, and the State’s explanation for why requiring LNC3+ w/SNCR and LNC3+ w/SCR on Units 1 and 2 is unreasonable.

##### i. North Dakota’s Selection of Baseline Emission Rates

Both Coal Creek Units 1 and 2 utilize “low NO<sub>x</sub> coal-and-air nozzles with close-coupled and separated overfire air,” which is referred to as LNC3. Coal Creek installed additional NO<sub>x</sub> controls (LNC3+) <sup>111</sup> on Unit 2 in 2010 and on Unit 1 in 2020. The 2016–2018 three-year annual average data from LNC3 (with DryFining™) on Unit 1 was used as the baseline performance rate in pounds of NO<sub>x</sub> per MMBtu for both units. According to North Dakota, this approach is consistent with the EPA’s responses to comments about anticipated controls at Coal Creek on the EPA’s 2012 FIP for North Dakota, where the EPA stated that potential control options are evaluated “based on baseline conditions, not on ongoing revisions to a facility after the baseline period”, and that “It is not reasonable to consider controls installed after the baseline period in determining BART” because “Such an approach would tend to lead to higher cost effectiveness values for more effective controls and encourage sources to voluntarily install lesser controls to avoid installing more effective BART controls later”.<sup>112</sup>

North Dakota further noted that because the annual average NO<sub>x</sub> performance rate from 2002 through 2006 in lb/MMBtu for Units 1 and 2 was 0.22 and 0.23, respectively, the similarity of this five-year average supports the notion that Unit 1 and Unit 2 operate nearly identically with similar controls.<sup>113</sup> According to North Dakota, the differences in performance rates

<sup>111</sup> LNC3+ is defined by modified and additional separated overfire air (SOFA), close-coupled overfire air (COFA), and low NO<sub>x</sub> burners (LNB).

<sup>112</sup> Id.

<sup>113</sup> North Dakota’s 2022 SIP submittal, appendix F.1–3.

between Unit 1 and Unit 2 since that time period can be attributed to the installation of LNC3+ on Unit 2 in 2010. The EPA finds that this information supports the use of a baseline rate of 0.18 lb/MMBtu for both Units 1 and 2 that is representative of historical operation at Unit 1. Though North Dakota did not incorporate all existing controls into the baseline, the State did consider the existing LNC3+ by performing an incremental cost analysis looking at the standalone cost of implementing SNCR, the next most stringent control, relative to the existing LNC3+. North Dakota also performed incremental analyses looking at the standalone cost of SCR relative to LNC3+. Per the EPA’s BART guidelines, which advise that incremental costs should be calculated relative to the next most stringent control option,<sup>114</sup> North Dakota also performed incremental cost analyses looking at the standalone cost of SCR relative to SNCR. Based on this information, the EPA finds that North Dakota selected an appropriate baseline rate and adequately considered the existing controls at Coal Creek in its cost analysis.

##### ii. North Dakota’s Characterization of Costs Using the Control Cost Manual

The revised NO<sub>x</sub> control cost estimates in the BART portion of North Dakota’s 2022 SIP submittal are based on the current version of the EPA’s Control Cost Manual, which has been revised since the first planning period. As updated, the Control Cost Manual includes a 30-year equipment life for SCR.<sup>115</sup> The change in equipment life estimate from 20 to 30 years for SCR affects annual cost estimates, as well as average cost-effectiveness and incremental cost-effectiveness estimates. The Control Cost Manual also includes a 20-year equipment life for SNCR.<sup>116</sup> We find North Dakota’s use of the

<sup>114</sup> “40 CFR part 51, appendix Y section IV.D.4.e.1.: “The incremental cost effectiveness calculation compares the costs and performance level of a control option to those of the next most stringent option, as shown in the following formula (with respect to cost per emissions reduction): Incremental Cost Effectiveness (dollars per incremental ton removed) = (Total annualized costs of control option) – (Total annualized costs of next control option) ÷ (Control option annual emissions) – (Next control option annual emissions).”

<sup>115</sup> The EPA, “Control Cost Manual,” section 4, Chapter 2, June 2019, page 80, available at <https://www.epa.gov/economic-and-cost-analysis-air-pollution-regulations/cost-reports-and-guidance-air-pollution> (last visited December 2023).

<sup>116</sup> The EPA, “Control Cost Manual,” section 4, Chapter 1, April 2019, page 54, available at <https://www.epa.gov/economic-and-cost-analysis-air-pollution-regulations/cost-reports-and-guidance-air-pollution> (last visited December 2023).

updated Control Cost Manual appropriate.

In its updated BART submission, North Dakota provided updated capital costs, annual costs, and average cost-effectiveness figures for LNC3+, LNC3+ w/SNCR, and LNC3+ w/SCR.<sup>117</sup> In cost-effectiveness calculations, North Dakota used a 5.25% interest rate,<sup>118</sup> which was the bank prime rate at the time the 2022 SIP submittal was in development (2018). North Dakota's use of the bank prime rate in control cost analyses follows the EPA's Control Cost Manual.<sup>119</sup>

North Dakota also included incremental cost-effectiveness figures for LNC3+ w/SNCR and LNC3+ w/SCR.<sup>120</sup> The BART Guidelines instruct that States can evaluate both average and incremental costs according to the Control Cost Manual to maintain and improve consistency.<sup>121</sup> These figures take into account capital and annual costs and allow States and the EPA to compare costs of controls industry-wide. The BART Guidelines further caution against considering in isolation the capital costs of a control option, as large or small capital costs alone are not dispositive of the reasonableness of a potential control.<sup>122</sup> Thus, we consider the average and incremental cost-effectiveness figures to be most relevant to our consideration of North Dakota's revised BART cost analysis.

### iii. Costs Associated With the Installation of New Controls

In the revised cost analysis for the BART portion of the 2022 SIP submittal, North Dakota's cost estimates show an average cost-effectiveness for LNC3+ for Coal Creek Units 1 and 2 of \$683/ton of NO<sub>x</sub> removed.<sup>123</sup> Based on North Dakota's estimates, the cost of LNC3+ is cost-effective.<sup>124</sup> In our evaluation of

<sup>117</sup> North Dakota's 2022 SIP submittal, appendix F.1–7.

<sup>118</sup> North Dakota's 2022 SIP submittal, appendix B.4.b.

<sup>119</sup> The EPA, "Control Cost Manual," section 1, Chapter 2, November 2017, page 15, available at <https://www.epa.gov/economic-and-cost-analysis-air-pollution-regulations/cost-reports-and-guidance-air-pollution> (last visited December 2023).

<sup>120</sup> *Id.*

<sup>121</sup> 40 CFR part 51, appendix Y section IV.D.4.

<sup>122</sup> *Id.*

<sup>123</sup> See table 1 in this document. See also North Dakota's 2022 SIP submittal, appendix F.1–7.

<sup>124</sup> *Id.* North Dakota did not determine this cost to be unreasonable. Indeed, this cost-effectiveness value is in line with—and in some cases well below—the cost-effectiveness values the EPA and States found reasonable for regional haze control measures in the first planning period, even without adjusting for inflation. After evaluating first planning period cost of compliance values, plus the other BART statutory factors and/or the four reasonable progress statutory factors, the vast majority of cost/ton values <\$2,500/ton were found

North Dakota's 2013 SIP submittal, the EPA found an average value of \$629/ton of NO<sub>x</sub> removed based on LNC3+ installation at Antelope Valley Station Units 1 and 2 to be cost-effective, and we approved the State's NO<sub>x</sub> BART determination for those sources in a final rule issued in 2022.<sup>125</sup> Thus, the revised average cost-effectiveness value for LNC3+ on Coal Creek Units 1 and 2 in North Dakota's updated BART analysis is similar in cost to what North Dakota determined was cost-effective for a similar lignite coal facility in 2013. The EPA agrees with North Dakota that LNC3+ is cost effective for Coal Creek Units 1 and 2.

Next, North Dakota analyzed the cost-effectiveness of LNC3+ w/SNCR. North Dakota's cost estimates show an average cost-effectiveness for LNC3+ w/SNCR for Units 1 and 2 of \$3,348/ton of NO<sub>x</sub> removed.<sup>126</sup> North Dakota's cost estimates also show an incremental cost-effectiveness for LNC3+ w/SNCR for Units 1 and 2 of \$7,850 per ton of NO<sub>x</sub> removed relative to the next-most-stringent control (LNC3+).<sup>127</sup> North Dakota's decision to reject LNC3+ w/SNCR is based on its consideration of incremental cost. The EPA believes that both average and incremental costs provide information useful for making control determinations. The BART Guidelines explain how average and incremental costs may be used in an analysis to choose between two available control devices.<sup>128</sup>

Though the average cost-effectiveness value that North Dakota evaluated for LNC3+ w/SNCR of \$3,348/ton of NO<sub>x</sub> removed is in line with average cost-

to be reasonable and cost-effective. This includes control determinations for sources both within North Dakota and in other States. Examples for several sources can be found at: 76 FR 16168, 16180–81, (Mar. 22, 2011) (proposed); finalized at 76 FR 81728 (Dec. 28, 2011) (Oklahoma); 76 FR 58570, 58586 (Sept. 21, 2011) (proposed); finalized at 77 FR 20894 (Apr. 4, 2012) (North Dakota); 77 FR 24794, 24817 (Apr. 25, 2012) (proposed); finalized at 77 FR 51915 (Aug. 29, 2012) (New York); and 77 FR 18052, 18070 (Mar. 26, 2012) (proposed); finalized at 77 FR 76871 (Dec. 12, 2012) (Colorado); and 77 FR 73369, 73378 (Dec. 10, 2012) (proposed); finalized at 78 FR 53250 (Aug. 29, 2013) (Florida). The cited costs have not been adjusted for inflation.

<sup>125</sup> See Proposal 86 FR 14,055 (Mar. 12, 2021); Final 87 FR 19635 (April 5, 2022).

<sup>126</sup> See table 1 in this document. See also North Dakota's 2022 SIP submittal, appendix F.1–7.

<sup>127</sup> *Id.*

<sup>128</sup> 40 CFR part 51, appendix Y section IV.D.4.e.5.: "The average cost (total annual cost/total annual emission reductions) for each may be deemed to be reasonable. However, the incremental cost (total annual cost<sub>A-B</sub>/total annual emission reductions<sub>A-B</sub>) of the additional emission reductions to be achieved by control B may be very great. In such an instance, it may be inappropriate to choose control B, based on its high incremental costs, even though its average cost may be considered reasonable."

effectiveness values that States and the EPA found reasonable in first planning period BART actions,<sup>129</sup> and the visibility benefits of LNC3+ w/SNCR are not insignificant, we find that it was reasonable for North Dakota to determine that the relatively small incremental visibility benefits from adding SNCR (incremental visibility improvement ranging from 0.06–0.09 dv)<sup>130</sup> do not warrant selection of LNC3+ w/SNCR in light of the incremental cost of that control over LNC3+ (\$7,850 per ton of NO<sub>x</sub> removed). In a 2016 approval of a source-specific revision to the Arizona first planning period SIP that addressed BART requirements at Cholla Generating Station (Cholla), the EPA approved Arizona's determination that LNB+SOFA+SNCR was not required based on an incremental visibility improvement of 0.07 dv and an incremental cost of \$6,989–7,091/ton compared to LNB+SOFA, the control Arizona selected for BART.<sup>131</sup> The average cost associated with the addition of LNB+SOFA+SNCR was around \$3,000–3,200/ton.<sup>132</sup> The EPA explained:

With regard to SNCR, we find that it was reasonable for [Arizona] to conclude that the costs of SNCR were not warranted by the visibility benefits. In particular, with regard to costs, we are not aware of any instance in which the EPA has determined SNCR to be BART where the average cost-effectiveness of SNCR was greater than \$3,000/ton and the incremental cost-effectiveness was roughly \$7,000/ton, as is the case with Cholla Units 3 and 4. Similarly, we are not aware of any instance in which the EPA has disapproved a state's BART determination that rejected

<sup>129</sup> These cost-effectiveness values are in line with those the EPA and States found reasonable for regional haze control measures adopted in the first planning period, even without adjusting for inflation. After evaluating first planning period cost of compliance values, plus the other BART statutory factors and/or the four reasonable progress statutory factors, States and the EPA found numerous instances of cost-effectiveness values up to and sometimes higher than \$4,500/ton to be reasonable and cost effective. This includes control determinations for sources within North Dakota and in other States. Examples for several sources can be found at: 76 FR 16168, 16181, (Mar. 22, 2011) (proposed rule); finalized at 76 FR 81728 (Dec. 28, 2011) (Oklahoma); 76 FR 58570, 58587–88, (Sept. 21, 2011) (proposed); finalized at 77 FR 20894 (Apr. 6, 2012) (North Dakota); 77 FR 11022, 11033, (Feb. 14, 2013) (proposed); finalized at 78 FR 10546 (Feb. 14, 2013) (Alaska); and 79 FR 5032, 5038 (Jan. 30, 2014) (Wyoming) (final rule). The cited costs have not been adjusted for inflation.

<sup>130</sup> Incremental visibility improvement is the visibility improvement between two control options. In this case, it is the visibility improvement of adding LNC3+ w/SNCR versus LNC3+ alone.

<sup>131</sup> 81 FR 46852, 46861–2 (Jul. 19, 2016) (proposed); finalized at 82 FR 15139 (Mar. 27, 2011).

<sup>132</sup> *Id.*

SNCR as BART based on similar cost-effectiveness values.<sup>133</sup>

In its 2022 SIP revision, North Dakota finds the selection of LNC3+ w/SNCR to be unwarranted based on an average cost-effectiveness of \$3,348/ton, an incremental cost-effectiveness of \$7,850/ton, and incremental visibility improvement ranging from 0.06–0.09 dv compared to LNC3+ alone.<sup>134</sup> These cost and visibility numbers are very similar to those evaluated in the EPA's 2016 action approving Arizona's BART determination that LNB+SOFA+SNCR was unwarranted at Cholla Units 3 and 4.

Thus, the EPA finds that it was reasonable for North Dakota to conclude that the incremental visibility benefits of LNC3+ w/SNCR over LNC3+ alone do not warrant selection of LNC3+ w/SNCR given its incremental cost over LNC3+.

Lastly, North Dakota analyzed the cost-effectiveness of LNC3+ w/SCR. North Dakota evaluated cost-effectiveness under two different control efficiencies: 0.08 lb/MMBtu NO<sub>x</sub> and 0.06 lb/MMBtu NO<sub>x</sub> removed. North Dakota's cost estimates show an average cost-effectiveness for Units 1 and 2 of \$6,983/ton of NO<sub>x</sub> removed (0.08 lb/MMBtu rate) and \$6,284/ton of NO<sub>x</sub> removed (0.06 lb/MMBtu rate).<sup>135</sup> North Dakota's cost estimates show an incremental cost-effectiveness for LNC3+ w/SCR compared to LNC3+ for Units 1 and 2 of \$13,368/ton of NO<sub>x</sub> removed (0.08 lb/MMBtu rate) and \$10,339/ton of NO<sub>x</sub> removed (0.06 lb/MMBtu rate).<sup>136</sup> North Dakota's cost estimates also show an incremental cost-effectiveness for LNC3+ w/SCR for Units 1 and 2 of \$21,645/ton of NO<sub>x</sub> removed (0.08 lb/MMBtu rate) and \$12,206/ton of NO<sub>x</sub> removed (0.06 lb/MMBtu rate), relative to the next-most-stringent control (LNC3+ w/SNCR).<sup>137</sup> Because both the average and incremental costs in this instance are above the costs previously approved as cost-effective for BART,<sup>138</sup> the EPA finds that North Dakota reasonably concluded, based on its analysis of average and incremental costs, that LNC3+ w/SCR is not cost-effective.

In summary, the EPA finds that North Dakota's consideration of costs of

compliance is reasonable and consistent with the Control Cost Manual, the BART Guidelines, EPA guidance, and the EPA's reasoning in other first planning period BART actions. Specifically, the EPA finds that: (1) LNC3+ is a reasonable cost control based on the circumstances of this SIP submittal; (2) the incremental visibility benefits of LNC3+ w/SNCR over LNC3+ alone (incremental visibility improvement ranging from 0.06–0.09 dv) do not warrant selection of LNC3+ w/SNCR given its incremental cost compared to LNC3+ (\$7,850 per ton of NO<sub>x</sub> removed); and (3) the average and incremental cost-effectiveness values for installing LNC3+ w/SCR are not cost-effective. Based on inherent monthly variabilities in NO<sub>x</sub> rate performance for LNC3+, including the likelihood of variability in rates due to changes in unit load to meet electricity needs, the EPA finds that North Dakota's proposed limit of 0.15 lb/MMBtu NO<sub>x</sub> on a 30-day rolling average<sup>139</sup> for Coal Creek Units 1 and 2 is appropriate and provides for reasonable monthly variability.

## 2. Energy and Non-Air Quality Impacts of Compliance

North Dakota considered a variety of energy and non-air quality impacts. For SCR control technology, North Dakota noted visibility impacts from SAM emissions and additional energy use and emissions of pollutants associated with low dust SCR systems. For SNCR, North Dakota estimated that the control technology would require 70–80 million gallons of water per year,<sup>140</sup> would result in an estimated 92,000 tons of fly ash disposal,<sup>141</sup> and potentially produce pollution from ammonia slip.<sup>142</sup> North Dakota supported its assessments with its own analysis and commissioned a study to evaluate the potential for adverse impacts of from ammoniated fly ash. North Dakota did not disqualify SCR or SNCR as reasonable control technologies based on the energy and non-air quality impacts of compliance.

North Dakota's consideration of energy and non-air quality impacts satisfies the BART Guidelines in that it provides some additional support for North Dakota's decision to reasonably rule out SCR and SNCR based on cost.

## 3. Pollution Control Equipment at the Source

As described in section III.C.3. and section IV.A.1.i. of this document, North Dakota's BART analysis in the 2022 SIP submittal considered existing controls on Coal Creek Units 1 and 2, including DryFining™ and other combustion controls. Though North Dakota did not incorporate all existing controls into the baseline for its average cost-effectiveness analysis, the State did consider existing controls by performing an incremental cost-effectiveness analysis looking at the standalone cost of implementing SNCR, the next most stringent control, relative to the existing LNC3+ (which includes DryFining, a voluntarily installed control technology). North Dakota also performed incremental cost analyses looking at the standalone cost of SCR relative to the existing control of LNC3+. Per the EPA's BART Guidelines, which advise that incremental costs should be calculated relative to the next most stringent control option,<sup>143</sup> North Dakota also performed incremental cost analyses looking at the standalone cost of SCR relative to SNCR.

North Dakota's approach of including voluntary existing controls in its evaluation of the BART factor "any existing pollution control technology in use at the source" is consistent with the Eighth Circuit's decision in *North Dakota*.<sup>144</sup> The Eighth Circuit found that use of the word "any" has an expansive meaning and includes consideration of voluntarily installed controls as part of the BART factor "any existing pollution control technology in use at the source."<sup>145</sup> Based on this, the EPA finds that North Dakota adequately considered any existing controls at Coal Creek in its BART determination.

## 4. Remaining Useful Life of Any Potentially Affected Sources

North Dakota's 2022 SIP submittal notes that Coal Creek is expected to operate beyond the life of the control equipment evaluated for BART. North Dakota considered remaining useful life as an element of its cost analysis and applied the timeframes of 30 years for

<sup>133</sup> Id.

<sup>134</sup> North Dakota's 2022 SIP revision, appendix F.1–13, table 15.

<sup>135</sup> See table 1 in this document. See also North Dakota's 2022 SIP submittal, appendix F.1–7.

<sup>136</sup> Id.

<sup>137</sup> Id.

<sup>138</sup> The EPA is not aware of any instance in which the EPA has determined SCR to be BART where the average cost-effectiveness of SCR was greater than \$6,000/ton and the incremental cost-effectiveness was greater than \$10,000/ton, as is the case with Coal Creek Units 1 and 2.

<sup>139</sup> The BART Guidelines State that any enforceable limits associated with BART EGUs should be set as a 30-day rolling average. 40 CFR part 51, appendix Y section V. The BART Guidelines expressly apply to Coal Creek because it is an EGU with a total generating capacity greater than 750 MW: 40 CFR part 51, appendix Y section I.F.1.

<sup>140</sup> North Dakota's 2022 SIP revision, appendix B.4.b.

<sup>141</sup> Id.

<sup>142</sup> Id.

<sup>143</sup> 40 CFR part 51, appendix Y section IV.D.4.e.1.: "The incremental cost effectiveness calculation compares the costs and performance level of a control option to those of the next most stringent option, as shown in the following formula (with respect to cost per emissions reduction): Incremental Cost Effectiveness (dollars per incremental ton removed) = (Total annualized costs of control option) – (Total annualized costs of next control option) ÷ (Control option annual emissions) – (Next control option annual emissions)."

<sup>144</sup> See *North Dakota*, 730 F.3d at 762–63.

<sup>145</sup> See *North Dakota*, 730 F.3d at 764.

SCR and 20 years for SNCR from the EPA's Control Cost Manual.<sup>146</sup>

The BART Guidelines advise that States "may decide to treat the requirement to consider the source's 'remaining useful life' of the source for BART determinations as one element of the overall cost analysis. The 'remaining useful life' of a source, if it represents a relatively short time period, may affect the annualized costs of retrofit controls."<sup>147</sup> The BART Guidelines further advise that if the remaining useful life of the source clearly exceeds the time period for amortization, "the remaining useful life has essentially no effect on control costs and on the BART determination process."<sup>148</sup> If the remaining useful life of the source is less than the time period for amortizing the costs of the retrofit control, States may use the shorter time period in cost calculations.<sup>149</sup>

Even though North Dakota expects Coal Creek to operate beyond the life of the control equipment, the State chose to apply in its cost analyses the shorter timeframes of 30 years for SCR and 20 years for SNCR recommended in the EPA's Control Cost Manual.<sup>150</sup> For this reason, the EPA finds that North Dakota satisfactorily considered this factor.

#### 5. Visibility Improvement Anticipated To Result From Controls

North Dakota considered CALPUFF dispersion modeling conducted by Coal Creek to assess the potential visibility improvement from the use of additional NO<sub>x</sub> BART controls. The EPA's BART Guidelines advise that for the purposes of assessing the degree of improvement in visibility from various BART control levels for a BART determination, States may use CALPUFF modeling using source-specific and site-specific data.<sup>151</sup> The BART Guidelines further advise that if expected improvement is shown from the various control choices, the State can weigh the results with the other four BART determination factors when establishing BART for a particular source.<sup>152</sup>

Table 2 in section III.C.5. of this document displays North Dakota's modeled average combined 98th percentile deciview improvement from

2000–2002 for Coal Creek Station Unit 1 and Unit 2. The modeling indicates that in general, there is an incremental improvement in deciview reductions for each increasingly stringent control technology option. For LNC3+ w/SNCR, the largest modeled deciview improvement (compared to Modeling Scenario 1) for Theodore Roosevelt National Park was 0.21, and for Lostwood was 0.21, with incremental visibility improvement from the addition of SNCR ranging from 0.06–0.09 dv (compared to LNC3+ alone). As noted in section IV.A.1.iii. of this document, the EPA finds that the incremental visibility benefits of LNC3+ w/SNCR over LNC3+ alone do not warrant selection of LNC3+ w/SNCR given its incremental cost compared to LNC3+. For LNC3+ w/SCR 5% SO<sub>2</sub> to SO<sub>3</sub> oxidation rate, the largest modeled deciview improvement for Theodore Roosevelt National Park was 0.14 compared to the Modeling Scenario 1. Notably, for LNC3+ w/SCR 5% SO<sub>2</sub> to SO<sub>3</sub> oxidation rate, the modeling indicated a decrease in deciview improvement for Lostwood at –0.02 deciviews compared to the Modeling Scenario 1. North Dakota's assessment of the modeling data was that none of the NO<sub>x</sub> BART controls were shown to have a significant impact on improving visibility in North Dakota's Class I areas. Considering the modeled overall and incremental visibility improvements (visibility improvement between two control measures) associated with installation of LNC3+ w/SCR versus LNC3+ alone (maximum incremental improvement of 0.21 dv)<sup>153</sup> and LNC3+ w/SCR versus LNC3+ w/SNCR (maximum incremental improvement of 0.12 dv)<sup>154</sup> and in light of the incremental costs described in section IV.A.1. of this document, the EPA agrees that LNC3+ w/SCR is not warranted.

Because North Dakota conducted the modeling in accordance with the BART Guidelines and reasonably concluded that the difference in visibility improvements between installing LNC3+ versus LNC3+ w/SCR were relatively small, the EPA finds that North Dakota's consideration of visibility improvement was satisfactory.

#### 6. Summary of the EPA's Evaluation of North Dakota's NO<sub>x</sub> BART Determination for Coal Creek Station Units 1 and 2

In summary, the EPA proposes to approve the portion of North Dakota's 2022 SIP submittal that addresses North

Dakota's NO<sub>x</sub> BART determination for Coal Creek Units 1 and 2. The EPA bases this decision on the determination that North Dakota reasonably considered all five factors in determining BART as required under CAA section 169A, 40 CFR 51.308(e), and 40 CFR part 51, appendix Y. This action addresses the last outstanding North Dakota BART requirement for the first planning period.

#### B. Clean Air Act Section 110(l)

Under CAA section 110(l), the EPA cannot approve a plan revision "if the revision would interfere with any applicable requirement concerning attainment and reasonable further progress (as defined in section 7501 of this title), or any other applicable requirement of this chapter." All areas in North Dakota are currently meeting the NAAQS.<sup>155</sup> This proposed approval would require new NO<sub>x</sub> BART limits at Coal Creek Units 1 and 2, resulting in a reduction of 1,162 tpy of NO<sub>x</sub> from the baseline. Because this action is associated with a reduction in NO<sub>x</sub> emissions and is not associated with any increase in emissions, this action is unlikely to interfere with attainment or reasonable further progress in North Dakota or nearby States.

The EPA finds that approval of the portion of North Dakota's August 2022 SIP submittal that addresses NO<sub>x</sub> BART for Coal Creek is in compliance with CAA section 110(l).

#### C. Coordination With FLMs

Under 40 CFR 51.308(i)(2), States are obligated to provide FLMs with an opportunity for consultation in development of the State's proposed SIP submittal no less than sixty days prior to the associated public hearing or public comment opportunity.

For the 2022 SIP submittal, North Dakota engaged with FLMs early in the planning process by participating in WRAP meetings and by holding separate calls with FLMs to discuss visibility impairment in Class I areas and the State's plans for the North Dakota 2022 SIP submittal. North Dakota also met via video conference with the NPS on November 6, 2020, and December 15, 2020, and with the USFS on November 23, 2020.

Upon completing its draft 2022 SIP submittal, North Dakota provided the draft to FLMs for a review and consultation period from September 20, 2021, through November 19, 2021, pursuant to 40 CFR 51.308(i)(2).

<sup>146</sup> EPA Air Pollution Control Cost Manual, section 4—NO<sub>x</sub> Controls, available at <https://www.epa.gov/economic-and-cost-analysis-air-pollution-regulations/cost-reports-and-guidance-air-pollution> (last visited December 2023).

<sup>147</sup> 40 CFR part 51, appendix Y section IV.D.4.k.1.

<sup>148</sup> *Id.*

<sup>149</sup> *Id.*

<sup>150</sup> North Dakota's 2022 SIP submittal, appendix F.1–9.

<sup>151</sup> 40 CFR part 51, appendix Y section IV.D.5.

<sup>152</sup> 40 CFR part 51, appendix Y section IV.E.5.

<sup>153</sup> North Dakota's 2022 SIP revision, appendix F.1–13, table 15.

<sup>154</sup> *Id.*

<sup>155</sup> EPA Green Book, Current Nonattainment Counties for All Pollutants, available at <https://www3.epa.gov/airquality/greenbook/ancl.html> (last visited December 2023).

Additionally, North Dakota held a video conference with the NPS, USFS, and EPA Region 8 staff on November 10, 2021, to discuss the draft and receive feedback from the FLMs. North Dakota received comments from USFS on November 17, 2021, and from the NPS on November 19, 2021.<sup>139</sup> Specific to the BART determination for Coal Creek Units 1 and 2 contained in North Dakota's 2022 SIP submittal, the NPS commented on the control efficiency considered by North Dakota for SCR controls, the 5.25% interest rate used by North Dakota in cost-effectiveness calculations, and the remaining useful life used by North Dakota in cost calculations. North Dakota responded to the FLM comments and included the responses in appendix D of the North Dakota 2022 SIP submittal, in accordance with 40 CFR 51.308(i)(3).

In consideration of these consultation actions, the EPA finds that North Dakota has satisfied the requirements under 40 CFR 51.308(i) to consult with the FLMs for the 2022 SIP submittal as it pertains to Coal Creek Station Units 1 and 2 BART.

#### V. The EPA's Evaluation of North Dakota's Five-Year Progress Report

This section includes the EPA's analysis of North Dakota's 2015 Progress Report for the first planning period and an explanation of the basis of our proposed approval. As listed in section III.D. above, North Dakota's 2015 Progress Report included the elements required in 40 CFR 51.308(g) and 40 CFR 51.308(h) of the 1999 Regional Haze Rule, which was the applicable rule at the time of submission.<sup>156</sup> As a result, the EPA finds that North Dakota's progress report addresses the requirements of the CAA and the EPA's rules that require States to submit periodic reports describing progress toward reasonable progress goals established for regional haze.

To meet 40 CFR 51.308(g)(1), North Dakota included a description of the status of implementation of the measures included in the first planning period implementation plan, including current emissions rates, BART/ reasonable progress limits, and implementation dates.<sup>157</sup> North Dakota also included a breakdown of its species contribution to impairment in both in-

state and out-of-state Class I areas.<sup>158</sup> To address 40 CFR 51.308(g)(2), North Dakota included a list of emissions reductions that have occurred as a result of Regional Haze SIP control requirements.<sup>159</sup>

To satisfy 40 CFR 51.308(g)(3), North Dakota included an assessment of visibility conditions and changes on least-impaired days and most-impaired days for both Class I areas within the State (Lostwood Wilderness Area and Theodore Roosevelt National Park) expressed in terms of 5-year averages of these annual values.<sup>160</sup> North Dakota compared the baseline average of visibility impairment to both an average from 2005–2009 and an average from 2008–2012.<sup>161</sup>

To meet 40 CFR 51.308(g)(4), North Dakota included an analysis tracking the change over the past 5 years addressed within the 2015 progress report in emissions of pollutants contributing to visibility impairment from all sources and activities within the State; these numbers are also broken down by source category.<sup>162</sup> Here, North Dakota included 2011 data from the most recent triennial reporting requirements as of the time of progress report development.<sup>163</sup>

To satisfy 40 CFR 51.308(g)(5), North Dakota included an assessment of changes in anthropogenic emissions within or outside of the State that have occurred over the past 5 years addressed within the 2015 progress report.<sup>164</sup> Considering changes in emissions over time and expected reductions in NO<sub>x</sub> and VOC emissions due to a reduction in flaring, North Dakota concluded that there was no evidence at the time that the increase in oil and gas activity (or any other sector) in North Dakota was impeding progress towards the visibility goal.<sup>165</sup>

To meet 40 CFR 51.308(g)(6), North Dakota included an assessment of the implementation plan elements that were current at the time of submission (including BART controls and reasonable progress controls resulting from the first planning period).<sup>166</sup> North Dakota ultimately concluded that its emissions would not impede the

achievement of reasonable progress goals in in-state or out-of-state Class I areas.<sup>167</sup>

North Dakota also included an assessment of its visibility monitoring strategy to address 40 CFR 51.308(g)(7). North Dakota stated that it relies on the IMPROVE<sup>168</sup> program for its monitoring strategy.<sup>169</sup> North Dakota confirmed that there is no change needed to this monitoring strategy at this time.<sup>170</sup> North Dakota met the requirements of 40 CFR 51.308(h) by including a determination that the existing implementation plan is sufficient to achieve established goals for visibility improvement and emissions reduction.<sup>171</sup>

North Dakota provided an opportunity for consultation with FLMs for the 2015 progress report by providing a copy of the draft progress report on June 25, 2014. The 2015 progress report was distributed to the National Park Service, the U.S. Fish and Wildlife Service, the U.S. Forest Service, and EPA Region 8 staff. The National Park Service, the U.S. Forest Service, and the EPA provided comments.<sup>172</sup> North Dakota documented this consultation in its 2015 progress report submittal.<sup>173</sup> The EPA finds that North Dakota has satisfied the requirement to consult with FLMs on the 2015 progress report.

Based on the information provided in North Dakota's 2015 progress report, the EPA proposes to approve North Dakota's 2015 progress report for the first planning period.

#### VI. Summary of the EPA's Proposed Action

The EPA is proposing to approve North Dakota's NO<sub>x</sub> BART determination for Coal Creek units 1 and 2 from the August 2022 SIP submittal. Specifically, the EPA is proposing to approve the NO<sub>x</sub> BART determination for the Coal Creek Station, included in appendix F of North Dakota's 2022 SIP submittal, of

<sup>167</sup> Id.

<sup>168</sup> 2019 Guidance, section 8.c.: "With respect to § 51.308(f)(6)(i) through (iv) regarding monitoring of ambient visibility conditions, we recommend that all States with Class I areas confirm in their SIPs that they participate in the IMPROVE monitoring program through the representation of their interests by a State air agency representative on the IMPROVE Steering Committee and through the allocation of CAA air management grant funding to the IMPROVE program."

<sup>169</sup> North Dakota's 2015 Progress Report, section 2.7.

<sup>170</sup> Id.

<sup>171</sup> Id.

<sup>172</sup> North Dakota's 2015 Progress Report, section 3.

<sup>173</sup> North Dakota's 2015 Progress Report, section 4.

<sup>158</sup> North Dakota's 2015 Progress Report, table 2.1 and table 2.2.

<sup>159</sup> North Dakota's 2015 Progress Report, section 2.2.

<sup>160</sup> North Dakota's 2015 Progress Report, table 2.8.

<sup>161</sup> Id.

<sup>162</sup> North Dakota's 2015 Progress Report, section 2.4.; table 2.5; table 2.6; table 2.7.

<sup>163</sup> Id.

<sup>164</sup> North Dakota's 2015 Progress Report, section 2.5.

<sup>165</sup> Id.

<sup>166</sup> North Dakota's 2015 Progress Report, section 2.6.

<sup>156</sup> Because North Dakota's 2015 Progress Report was developed before the EPA's 2017 Regional Haze Rule Revisions, the applicable requirements are the requirements from the 1999 Regional Haze Rule. See 82 FR 3078, 3080 (January 10, 2017): "These changes do not affect the development and review of State plans for the first implementation period or the first progress reports due under the 1999 RHR."

<sup>157</sup> North Dakota's 2015 Progress Report, table 2.3.

0.15 lb/MMBtu NO<sub>x</sub> averaged across unit 1 and unit 2 on a 30-day rolling average. Additionally, the EPA is proposing to approve North Dakota's 2015 Progress Report as meeting the requirements of 40 CFR 51.308(g) and (h).

## VII. Environmental Justice

The EPA conducted an environmental justice (EJ) screening analysis around the location of Coal Creek to identify potential environmental stressors on the nearby communities. The EPA is providing the information associated with this analysis for informational purposes only; it does not form any part of the basis of this proposed action.

The EPA conducted the screening analysis using EJScreen, an EJ mapping and screening tool that provides the EPA with a nationally consistent dataset and approach for combining various environmental and demographic indicators.<sup>174</sup> The EPA prepared an EJScreen report covering buffer areas of approximately six miles around Coal Creek. From this report, there were no EJ indices greater than the 80th national percentiles.<sup>175</sup> The full, detailed EJScreen report is provided in the docket for this rulemaking.

## VIII. Incorporation by Reference

In this proposed rule, the EPA is proposing to include regulatory text in an EPA final rule that includes incorporation by reference. In accordance with the requirements of 1 CFR 51.5, the EPA is proposing to incorporate by reference the SIP amendments described in section VI. The EPA has made, and will continue to make, these materials generally available through <https://www.regulations.gov> (refer to docket EPA-R08-OAR-2023-0641).

## IX. Statutory and Executive Order Reviews

Under the CAA, the Administrator is required to approve a SIP submission that complies with the provisions of the Act and applicable Federal regulations. 42 U.S.C. 7410(k); 40 CFR 52.02(a). Thus, in reviewing SIP submissions, the EPA's role is to approve State choices, provided that they meet the criteria of the CAA. Accordingly, this action merely 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 action:

- Is not a "significant regulatory action" subject to review by the Office

of Management and Budget under Executive Orders 12866 (58 FR 51735, October 4, 1993) and 13563 (76 FR 3821, January 21, 2011);

- Does not impose an information collection burden under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*);
- Is certified as not having a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*);
- Does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Pub. L. 104-4);
- Does not have Federalism implications as specified in Executive Order 13132 (64 FR 43255, August 10, 1999);
- Is not an economically significant regulatory action based on health or safety risks subject to Executive Order 13045 (62 FR 19885, April 23, 1997);
- Is not a significant regulatory action subject to Executive Order 13211 (66 FR 28355, May 22, 2001);
- 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

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

Executive Order 12898 (Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations, 59 FR 7629, Feb. 16, 1994) directs Federal agencies to identify and address "disproportionately high and adverse human health or environmental effects" of their actions on minority populations and low-income populations to the greatest extent practicable and permitted by law. The EPA defines environmental justice (EJ) as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies." The EPA

further defines the term fair treatment to mean that "no group of people should bear a disproportionate burden of environmental harms and risks, including those resulting from the negative environmental consequences of industrial, governmental, and commercial operations or programs and policies."

North Dakota did not evaluate environmental justice considerations as part of its SIP submittal; the CAA and applicable implementing regulations neither prohibit nor require such an evaluation. The EPA performed an environmental justice screening analysis, as described above in section VI. The analysis was done for the purpose of providing additional context and information about this rulemaking to the public, not as a basis of the action. There is no information in the record upon which this decision is based inconsistent with the stated goal of E.O. 12898 of achieving environmental justice for people of color, low-income populations, and Indigenous peoples.

## List of Subjects in 40 CFR Part 52

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

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

Dated: August 2, 2024.

**KC Becker,**

*Regional Administrator, Region 8.*

For the reasons set forth in the preamble, 40 CFR part 52 is proposed to be amended as follows:

## PART 52—APPROVAL AND PROMULGATION OF IMPLEMENTATION PLANS

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

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

### Subpart JJ—North Dakota

- 2. In § 52.1820, the table in paragraph (d) is amended by revising the entry "PTC10005" under the center heading "Coal Creek Station Units 1 and 2." to read as follows:

#### § 52.1820 Identification of plan.

\* \* \* \* \*  
(d) \* \* \*

percentile filter as an initial starting point for interpreting EJScreen results.

<sup>174</sup> The EJSCREEN tool is available at <https://www.epa.gov/ejscreen>.

<sup>175</sup> For a place at the 80th percentile nationwide, that means 20 percent of the U.S. population has a higher value. The EPA identified the 80th

Rule No.	Rule title	State effective date	EPA effective date	Final rule citation/date	Comments
*	*	*	*	*	*
<b>Coal Creek Station Units 1 and 2.</b>					
PTC 21001 .....	Air Pollution Control Permit to Construct for Best Available Retrofit Technology (BART).	7/27/2022	[Date 30 days after date of publication of the final rule in the <b>Federal Register</b> ].	[ <b>Federal Register</b> citation of the final rule], [Date of publication of the final rule in the <b>Federal Register</b> ].	Only: NO <sub>x</sub> BART emissions limits for Units 1 and 2 and corresponding monitoring, recordkeeping, and reporting requirements.
*	*	*	*	*	*

\* \* \* \* \*  
 [FR Doc. 2024-17471 Filed 8-13-24; 8:45 am]  
**BILLING CODE 6560-50-P**

**ENVIRONMENTAL PROTECTION AGENCY**

**40 CFR Part 84**

[EPA-HQ-OAR-2021-0643; FRL-11739-03-OAR]

**Phasedown of Hydrofluorocarbons: Restrictions on the Use of HFCs Under the AIM Act in Variable Refrigerant Flow Air Conditioning Subsector; Reopening the Comment Period**

*Correction*

In proposed rule document 2024-17751, appearing on pages 65575-65576

in the issue of Monday, August 12, 2024, make the following correction:  
 On page 65575, in the second column, the **DATES** section should read as follows:  
**DATES:** The comment period for the proposed rule published on June 26, 2024, at 89 FR 53373, is reopened to allow for the opportunity to request a public hearing. To request a public hearing, please submit a comment per the instructions in the **ADDRESSES** section on or before August 19, 2024. See **SUPPLEMENTARY INFORMATION** for information on requesting and registering for a public hearing. If no public hearing is requested, the comment period will close on August 27, 2024. If a public hearing is requested, the comment period will close on September 26, 2024.  
 [FR Doc. C1-2024-17751 Filed 8-12-24; 2:00 pm]  
**BILLING CODE 0099-10-D**