6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA-R08-OAR-2015-0463; FRL--9939-43-Region 8]

Approval, Disapproval and Promulgation of Air Quality Implementation Plans; Partial Approval and Partial Disapproval of Air Quality Implementation Plans and Federal Implementation Plan; Utah; Revisions to Regional Haze State Implementation Plan; Federal Implementation Plan for Regional Haze

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The Environmental Protection Agency (EPA) is proposing to take action pursuant to section 110 of the Clean Air Act (CAA or Act) on State Implementation Plan (SIP) revisions submitted by the State of Utah on June 4, 2015, and October 20, 2015 to implement the regional haze program. The State's SIP revisions establish an alternative to best available retrofit technology (BART) controls that would otherwise be required to control nitrogen oxides (NO_X) at PacifiCorp's Hunter and Huntington power plants. The June 2015 SIP revision also includes BART determinations for particulate matter with an aerodynamic diameter of less than 10 micrometers (PM_{10}) at these power plants and provisions for making the NO_X and PM_{10} BART emission limits federally enforceable. The CAA requires states to prevent any future and remedy any existing man-made impairment of visibility in national parks and wilderness areas designated as Class I areas. Air emissions from the four electric generating units (EGUs) at the two plants affected by this action cause or contribute to visibility impairment at nine Class I areas including Grand Canyon, Arches, Bryce Canyon and Zion National Parks. The EPA is issuing two co-proposals in order to fully evaluate the State's submittals and the public's input

thereon. The EPA would work with the State on a revised State plan should a partial disapproval and FIP be finalized.

DATES: Comments: Written comments must be received on or before [**Insert date 60 days after date of publication in the Federal Register**].

Public Hearing: A public hearing for this proposal is scheduled to be held on Tuesday, January 26, 2016 at the Salt Lake City Public Library, Main Library, from 1 p.m. until 5 p.m., and again from 6 p.m. until 8 p.m. (local time).

ADDRESSES: The public hearing will be held at the Salt Lake City Public Library, Main Library, 210 East 400 South, Salt Lake City, Utah 84111.

Submit your comments, identified by Docket ID No. EPA-R08-OAR-2015-0463, to the Federal eRulemaking Portal: http://www.regulations.gov. Follow the online instructions for submitting comments. Once submitted, comments cannot be edited or removed from Regulations.gov. The EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (i.e., on the web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit http://www2.epa.gov/dockets/commenting-epa-dockets.

Instructions*:* Direct your comments to Docket ID No. EPA-R08-OAR-2015-0463. The EPA's policy is that all comments received will be included in the public docket and may be made available online at http://www.regulations.gov, including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through www.regulations.gov or email. The www.regulations.gov web site is an "anonymous access" system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an email comment directly to EPA, without going through www.regulations.gov your email address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses. For additional information about EPA's public docket visit the EPA Docket Center homepage at http://www.epa.gov/epahome/dockets.htm. For additional instructions on submitting comments, go to section I, General Information, of the **SUPPLEMENTARY INFORMATION** section of this document.

Docket: All documents in the docket are listed in the 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

either electronically in www.regulations.gov or in hard copy at the Air Program, Environmental Protection Agency (EPA), Region 8, 1595 Wynkoop Street, Denver, Colorado 80202-1129. EPA requests that if at all possible, you contact the individual listed in the **FOR FURTHER INFORMATION CONTACT** section to view the hard copy of the docket. You may view the hard copy of the docket Monday through Friday, 8:00 a.m. to 4:00 p.m., excluding federal holidays.

FOR FURTHER INFORMATION CONTACT: Gail Fallon, Air Program, EPA, Region 8, Mailcode 8P-AR, 1595 Wynkoop Street, Denver, Colorado, 80202-1129, (303) 312-6218, Fallon.Gail@epa.gov.

SUPPLEMENTARY INFORMATION:

Public Hearing

The public hearing will provide interested parties the opportunity to present data, views, or arguments concerning the proposed action. The EPA may ask clarifying questions during the oral presentations, but will not respond to the presentations at that time. Written statements and supporting information submitted during the comment period will be considered with the same weight as oral comments and supporting information presented at the public hearing. The hearing officer may limit the time available for each commenter to address the proposal to 5 minutes or less if the hearing officer determines it to be appropriate. The limitation is to ensure that everyone who wants to make a comment has the opportunity to do so. We will not be providing equipment for commenters to show overhead slides or make computerized slide presentations. Any person may provide written or oral comments and data pertaining to our proposal at the public hearings. Verbatim transcripts, in English, of the hearings and written statements will be included in the rulemaking docket.

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I. General Information

What should I consider as I prepare my comments for EPA?

1. Submitting Confidential Business Information (CBI). Do not submit CBI to EPA through http://www.regulations.gov or email. Clearly mark the part or all of the information that you claim to be CBI. For CBI information on a disk or CD ROM that you mail to EPA, mark the outside of the disk or CD ROM as CBI and then identify electronically within the disk or CD ROM the specific information that is claimed as CBI. In addition to one complete version of the comment that includes information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted for inclusion in the public docket. Information so marked will not be disclosed except in accordance with procedures set forth in 40 CFR part 2.

2. Tips for preparing your comments. When submitting comments, remember to:

- Identify the rulemaking by docket number and other identifying information (subject heading, Federal Register, date, and page number);
- Follow directions and organize your comments;
- Explain why you agree or disagree;
- Suggest alternatives and substitute language for your requested changes;
- Describe any assumptions and provide any technical information and/or data that you used;
- If you estimate potential costs or burdens, explain how you arrived at your estimate in sufficient detail to allow for it to be reproduced;
- Provide specific examples to illustrate your concerns, and suggest alternatives;
- Explain your views as clearly as possible, avoiding the use of profanity or personal threats; and
- Make sure to submit your comments by the comment period deadline identified.

II. Overview of Proposed Action

The State of Utah submitted SIP revisions on June 4, 2015, and October 20, 2015, to fulfill the CAA requirement to meet the requirements for the Best Available Retrofit Technology (BART) in the Regional Haze Rule (RHR) for the pollutants NOx and PM10. As described more fully in Section III below, the purpose of the RHR is to remedy and prevent impairment of visibility in Class I areas resulting from anthropogenic air pollution. Instead of establishing BART controls for NO_X, Utah's SIP revisions contain an alternative to BART. The revisions also include BART controls for PM_{10}. The idea of a BART alternative, which can take into account (and even encourage) plans that take into account state specific situations is a reasonable one, and one EPA supports where consistent with the CAA and RHR.

The State's SIP contains a NO_X BART Alternative and metrics to evaluate the BART Alternative. In light of the variety of metrics Utah used, this is a complicated analysis and EPA considered the State's BART Alternative in the context of other previous decisions we and the states have made. EPA carefully analyzed the SIP revisions and the supporting information submitted by the State. We also conducted additional analyses, which are included with this proposal. Based on a careful consideration of all of this information, EPA is proposing and soliciting comments on two different actions: a proposal to approve the State SIP in its entirety,[1] and a proposal to partially approve and partially disapprove the State SIP and propose a FIP.[2]

[1] Our proposed approval for one element, reporting for PM BART limits, is a conditional approval based on a commitment from Utah to provide a SIP revision to address this element. See section V.D of this document for a more detailed explanation.

[2] In March 2015, conservation groups sued EPA in the U.S. District Court for the District of Colorado alleging that EPA failed to promulgate a regional haze FIP for Utah within the two-year period allowed by CAA section 110(c). See Wildearth Guardians v. McCarthy, Case No. 1:15-cv-oo630-MSK-KLM, at *1-2 (D. Colo. Mar. 27, 2015). EPA entered into a consent decree resolving this dispute requiring EPA to sign notices of proposed and final rulemaking for the regional haze requirements for Utah by December 16, 2015 and June 1, 2016, respectively. The signing of this proposed rule partially fulfills EPA's obligations under the consent decree. See id. (Doc. 60, Motion to Enter Consent Decree filed on December 8, 2015).

EPA takes seriously its decision to co-propose these two actions (disapprove part of the State's plan, alongside proposing to approve it), as it is preferable that the regional haze program be implemented through state plans. As part of its oversight responsibilities, EPA must be able to find that the state plan is consistent with the requirements of the Act. In this instance, we developed analyses and rationale supporting both a proposed approval and a proposed partial approval and partial disapproval, and we solicit input on each proposal. EPA intends to finalize only one proposal, although the details of our final action may differ somewhat from what is presented here based on any comments and additional information we receive.

Deciding whether to approve the State SIP entails an evaluation of Utah's SIP revision with respect to three elements in the RHR: (1) "[a] demonstration that the emissions trading program or other alternative measure will achieve greater reasonable progress than would have resulted from the installation and operation of BART at all sources subject to BART in the State and covered by the alternative program";[3] (2) "[a] requirement that all necessary emission reductions take place during the period of the first long-term strategy for regional haze";[4] and (3) "[a] demonstration that the emissions reductions resulting from the alternative measure will be surplus to those reductions resulting from measures adopted to meet requirements of the CAA as of the baseline date of the SIP."[5]

For the first element, the determination that the alternative measure will achieve greater reasonable progress than BART, the State must provide the following: (1) a list of all BART-eligible sources within the State; (2) a list of all BART-eligible sources and all BART source categories covered by the alternative program; (3) an analysis of BART and associated emission

[3] 40 CFR 51.308(e)(2)(i).
[4] 40 CFR 51.308(e)(2)(iii).
[5] 40 CFR 51.308(e)(2)(iv).

reductions; (4) an analysis of the projected emission reductions achievable through the BART alternative; and (5) a determination that the alternative achieves greater reasonable progress than would be achievable through the installation and operation of BART. A State has several options for making the greater reasonable progress determination;[6] in this instance, the State elected to use two separate approaches.

EPA's evaluation of the BART Alternative therefore entails consideration of both of the State's analyses. As described in our 2006 revisions to the RHR, concerning BART alternatives, "[t]he State's discretion in this area is subject to the condition that it must be reasonably exercised and that its decisions be supported by adequate documentation of its analyses."[7] As presented in section V below, several of the metrics in the State's analyses appear to support a determination that a BART Alternative presented by the State achieves greater reasonable progress than BART. However, several other metrics in the State's analyses do not appear to support a conclusion that the BART Alternative achieves greater reasonable progress. The complexity of our evaluation leads us to propose and solicit comment on two conclusions and courses of action: (1) the State's submittal meets the test above and we approve the BART Alternative; or (2) the State's submittal falls short of meeting this test and we disapprove the BART Alternative and promulgate a FIP for NO_X BART. We request comment on all aspects of each proposal.

Given the complexities in evaluating these co-proposals, EPA wants to ensure that our final decision is based on the best and most currently available data and information, and is taken with the fullest possible consideration of public input. Therefore, in addition to seeking comments on the co-proposals, we are also asking if interested parties have additional

[6] 40 CFR 51.308(e)(2)(i)(E); 40 CFR 51.308(e)(3).
[7] 71 FR 60612, 60621 (Oct. 13, 2006).

information or analysis on the co-proposals, for example, analysis related to the modeled visibility benefits of the BART Alternative compared to BART. In light of any such information, we are asking whether interested parties think the Agency should consider BART Alternatives or BART control technology options that are related to what we propose and that could be finalized as our FIP (if we disapprove the Utah SIP submittal in our final action). The Agency is also asking if interested parties have additional information or comments on the proposed timing of compliance.

The Agency will take the comments and testimony received, as well as any further SIP revisions received from the State prior to our final action, into consideration in our final promulgation. As noted above, additional information and comments may lead the Agency to adopt final SIP and/or FIP regulations that differ somewhat from the co-proposals presented here regarding the BART Alternative, BART control technology option or emission limits, or impact other proposed regulatory provisions. EPA's final action will fully consider these complex issues and the comments received, which will result in the selection of a final action that meets the CAA and regulatory requirements requiring development and implementation of plans to ensure reasonable progress toward improving visibility in mandatory Class I areas by reducing emissions that cause or contribute to regional haze.

A. Brief Description of These Co-Proposals

1. Summary of Proposal to Approve the SIP

As explained more fully below, we are proposing to approve these aspects of the State's June 4, 2015 SIP submittal:

- NO_X BART Alternative, including NO_X emission reductions from Hunter Units 1, 2, and 3, Huntington Units 1 and 2, and Carbon Units 1 and 2, and sulfur dioxide (SO_2) and PM_{10} emission reductions from Carbon Units 1 and 2.
- BART determinations and emission limits for PM_{10} at Hunter Units 1 and 2 and Huntington Units 1 and 2.
- Monitoring, recordkeeping, and reporting requirements for units subject to the BART Alternative and the PM_{10} emission limits.

We are proposing to approve these elements of the State's October 20, 2015 SIP submittal:

- Enforceable commitments to revise SIP section XX.D.3.c and state rule R307-150 by March 2018 to clarify emission inventory requirements for tracking compliance with the SO_2 milestone and properly accounting for the SO_2 emission reductions due to the closure of the Carbon plant.

2. Summary of Proposal to Partially Approve and Partially Disapprove the SIP and Propose a FIP

We are proposing to approve these elements of the State's SIP submittals:

- BART determinations and emission limits for PM_{10} at Hunter Units 1 and 2, and Huntington Units 1 and 2.
- Monitoring, recordkeeping, and reporting requirements for units subject to the PM_{10} emission limits.

We are proposing to disapprove these aspects of the State's June 4, 2015 SIP:

- NO_X BART Alternative, including NO_X emission reductions from Hunter Units 1, 2, and 3, Huntington Units 1 and 2, and Carbon Units 1 and 2, and SO_2 and PM_{10} emission reductions from Carbon Units 1 and 2.

We are proposing to disapprove the State's October 20, 2015 SIP submittal.

We are proposing promulgation of a FIP to address the deficiencies in the Utah regional haze SIPs that are identified in this notice. The proposed FIP includes the following elements:

- NO_X BART determinations and emission limits for Hunter Units 1 and 2 and Huntington Units 1 and 2.
- Monitoring, recordkeeping, and reporting requirements for NO_X at Hunter Units 1 and 2, and Huntington Units 1 and 2.

If we partially disapprove the SIP, and promulgate a FIP, the State may submit a SIP revision to supersede the FIP. If we determine that the SIP revision is approvable, regardless of whether or not its terms match those of our final FIP, we would propose to approve such a SIP revision. If we issue a final FIP, we encourage the State to submit a SIP revision to replace the FIP.

III. Background and Requirements for Regional Haze SIPs and Utah Submittals

A. Statutory and Regulatory Background

1. Regional Haze

Regional haze is visibility impairment that is produced by numerous sources that are located across a broad geographic area and emit fine particles ($PM_{2.5}$) (e.g., sulfates, nitrates, organic carbon (OC), elemental carbon (EC), and soil dust), and their precursors (e.g., SO_2, NO_X, and in some cases, ammonia (NH_3) and volatile organic compounds (VOC)). Coarse PM also impairs visibility. Fine particle precursors react in the atmosphere to form $PM_{2.5}$, which impairs

visibility by scattering and absorbing light. Visibility impairment reduces the clarity, color, and visible distance that one can see, $PM_{2.5}$ can also cause serious health effects and mortality in humans and contributes to environmental effects such as acid deposition and eutrophication. Coarse PM also can cause adverse health effects.

Data from the existing visibility monitoring network, the "Interagency Monitoring of Protected Visual Environments" (IMPROVE) monitoring network, show that at the time the regional haze rule was finalized in 1999, visibility impairment caused by air pollution occurred virtually all the time at most national parks and wilderness areas. The average visual range[8] in many Class I areas (i.e., national parks, wilderness areas, and international parks meeting certain size criteria) in the western U.S. was 62–93 miles, but in some Class I areas, these visual ranges may have been impacted by natural wildfire and dust episodes.[9] In most of the eastern Class I areas of the U.S., the average visual range was less than 19 miles, "or about one-fifth of the visual range that would exist under estimated natural conditions."[10]

2. Requirements of the CAA and EPA's Regional Haze Rule (RHR)

In section 169A of the 1977 Amendments to the CAA, Congress created a program for protecting visibility in the nation's 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."[11] On December 2, 1980, EPA promulgated regulations to address

[8] Visual range is the greatest distance, in kilometers or miles, at which a dark object can be viewed against the sky.
[9] 64 FR 35715, 35716 (July 1, 1999).
[10] Id.
[11] 42 U.S.C. 7491(a). Areas designated as mandatory Class I Federal areas consist of national parks exceeding 6000 acres, wilderness areas and national memorial parks exceeding 5000 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, 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 (Nov. 30, 1979). The extent of a mandatory Class I area includes subsequent

visibility impairment in Class I areas that are "reasonably attributable" to a single source or small group of sources, i.e., reasonably attributable visibility impairment.[12] These regulations represented the first phase in addressing visibility impairment. EPA deferred action on regional haze that emanates from a variety of sources until monitoring, modeling and scientific knowledge about the relationships between pollutants and visibility impairment were improved.

Congress added section 169B to the CAA in 1990 to address regional haze issues. EPA promulgated a rule to address regional haze on July 1, 1999.[13] The RHR revised the existing visibility regulations to integrate into the regulation provisions addressing regional haze impairment and established a comprehensive visibility protection program for Class I areas. The requirements for regional haze, found at 40 CFR 51.308 and 51.309, are included in EPA's visibility protection regulations at 40 CFR 51.300-309. Some of the main elements of the regional haze requirements are summarized below in section III.C of this preamble. The requirement to submit a regional haze SIP applies to all 50 states, the District of Columbia, and the Virgin Islands. 40 CFR 51.308(b) requires states to submit the first implementation plan addressing regional haze visibility impairment no later than December 17, 2007.[14]

Once EPA has found that a state has failed to make a required submission, EPA is required to promulgate a FIP within two years unless the state submits a SIP and the Agency approves it within the two-year period.[15]

3. Roles of Agencies in Addressing Regional Haze

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changes in boundaries, such as park expansions. 42 U.S.C. 7472(a). Although states and tribes may designate as Class I additional areas which they consider to have visibility as 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 section, we mean a "mandatory Class I Federal area."

[12] 45 FR 80084, 80084 (Dec. 2, 1980).

[13] 64 FR 35714, 35714 (July 1, 1999)(codified at 40 CFR part 51, subpart P).

[14] EPA's RHR requires subsequent updates to the regional haze SIPs. 40 CFR 51.308(g)-(i).

[15] 42 U.S.C. 7410(c)(1).

Successful implementation of the regional haze program requires long-term regional coordination among states, tribal governments, and various federal agencies. As noted above, pollution affecting the air quality in Class I areas can be transported over long distances, even hundreds of kilometers. Therefore, to effectively address the problem of visibility impairment in Class I areas, states need to develop strategies in coordination with one another, taking into account the effect of emissions from one jurisdiction on the air quality in another.

Because the pollutants that lead to regional haze can originate from sources located across broad geographic areas, EPA has encouraged the states and tribes across the United States to address visibility impairment from a regional perspective. Five regional planning organizations (RPOs) were created to address regional haze and related issues. The RPOs first evaluated technical information to better understand how their states and tribes impact Class I areas across the country, and then pursued the development of regional strategies to reduce emissions of pollutants that lead to regional haze.

The Western Regional Air Partnership (WRAP) RPO is a collaborative effort of state governments, tribal governments, and various federal agencies established to initiate and coordinate activities associated with the management of regional haze, visibility and other air quality issues in the western United States. WRAP member state governments include: Alaska, Arizona, California, Colorado, Idaho, Montana, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming. Tribal members include Campo Band of Kumeyaay Indians, Confederated Salish and Kootenai Tribes, Cortina Indian Rancheria, Hopi Tribe, Hualapai Nation of the Grand Canyon, Native Village of Shungnak, Nez Perce Tribe, Northern Cheyenne Tribe, Pueblo of Acoma, Pueblo of San Felipe, and Shoshone-Bannock Tribes of Fort Hall.

4. Development of the Requirements for 40 CFR 51.309

EPA's RHR provides two paths to address regional haze. One is 40 CFR 51.308, requiring states to perform individual point source BART determinations and evaluate the need for other control strategies. These strategies must be shown to make "reasonable progress" in improving visibility in Class I areas inside the state and in neighboring jurisdictions. The other method for addressing regional haze is through 40 CFR 51.309, and is an option for nine states termed the "Transport Region States," which include: Arizona, California, Colorado, Idaho, Nevada, New Mexico, Oregon, Utah, and Wyoming. By meeting the requirements under 40 CFR 51.309, states can be deemed to be making reasonable progress toward the national goal of achieving natural visibility conditions for the 16 Class I areas on the Colorado Plateau.

Section 309 requires participating states to adopt regional haze strategies that are based on recommendations from the Grand Canyon Visibility Transport Commission (GCVTC) for protecting the 16 Class I areas on the Colorado Plateau.[16] The EPA established the GCVTC on November 13, 1991. The purpose of the GCVTC was to assess information about the adverse impacts on visibility in and around the 16 Class I areas on the Colorado Plateau and to provide policy recommendations to EPA to address such impacts. Section 169B of the CAA called for the GCVTC to evaluate visibility research, as well as other available information, pertaining to adverse impacts on visibility from potential or projected growth in emissions from sources located in the region. The GCVTC determined that all Transport Region States could potentially impact the Class I areas on the Colorado Plateau. The GCVTC submitted a report to EPA in

[16] The Colorado Plateau is a high, semi-arid tableland in southeast Utah, northern Arizona, northwest New Mexico, and western Colorado. The 16 mandatory Class I areas are as follows: Grand Canyon National Park, Mount Baldy Wilderness, Petrified Forest National Park, Sycamore Canyon Wilderness, Black Canyon of the Gunnison National Park Wilderness, Flat Tops Wilderness, Maroon Bells Wilderness, Mesa Verde National Park, Weminuche Wilderness, West Elk Wilderness, San Pedro Parks Wilderness, Arches National Park, Bryce Canyon National Park, Canyonlands National Park, Capital Reef National Park, and Zion National Park.

1996 with its policy recommendations for protecting visibility for the Class I areas on the Colorado Plateau. Provisions of the 1996 GCVTC report include: strategies for addressing smoke emissions from wildland fires and agricultural burning; provisions to prevent pollution by encouraging renewable energy development; and provisions to manage clean air corridors (CACs), mobile sources, and wind-blown dust, among other things. The EPA codified these recommendations as an option available to states as part of the 1999 RHR.[17]

EPA determined that the GCVTC strategies would provide for reasonable progress in mitigating regional haze if supplemented by an annex containing quantitative emission reduction milestones and provisions for a trading program or other alternative measure.[18] Thus, the 1999 RHR required that western states submit an annex to the GCVTC report with quantitative milestones and detailed guidelines for an alternative program in order to establish the GCVTC recommendations as an alternative approach to fulfilling the section 308 requirements for compliance with the RHR. In September 2000, the WRAP, which is the successor organization to the GCVTC, submitted an annex to EPA. The annex contained SO_2 emissions reduction milestones and detailed provisions of a backstop trading program to be implemented automatically if voluntary measures failed to achieve the SO_2 milestones. EPA codified the annex on June 5, 2003 at 40 CFR 51.309(h).[19]

Five western states, including Utah, submitted implementation plans under section 309 in 2003. EPA was challenged by the Center for Energy and Economic Development (CEED) on the validity of the annex provisions. In CEED v. EPA, the DC Circuit Court of Appeals vacated EPA

[17] 64 FR 35714, 35749 (July 1, 1999).
[18] 64 FR 35714, 35749, 35756.
[19] 68 FR 33764, 33767 (June 5, 2003).

approval of the WRAP annex.[20] In response to the court's decision, EPA vacated the annex requirements adopted as 40 CFR 51.309(h), but left in place the stationary source requirements in 40 CFR 51.309(d)(4).[21] The requirements under 40 CFR 51.309(d)(4) contain general requirements pertaining to stationary sources and market trading, and allow states to adopt alternatives to the point source application of BART.

5. SIP and FIP Background

The CAA requires each state to develop plans to meet various air quality requirements, including protection of visibility.[22] The plans developed by a state are referred to as SIPs. A state must submit its SIPs and SIP revisions to EPA for approval. Once approved, a SIP is enforceable by EPA and citizens under the CAA, which is also known as being federally enforceable. If a state fails to make a required SIP submittal or if we find that a state's required submittal is incomplete or not approvable, then we must promulgate a FIP to fill this regulatory gap.[23] As discussed elsewhere in this document, one of today's proposals would disapprove aspects of Utah's regional haze SIP and promulgate a FIP to address the deficiencies in Utah's regional haze SIP, should we disapprove the SIP in our final action.

B. Requirements for Regional Haze SIPs Applicable to This Proposal

1. The CAA and the Regional Haze Rule

Regional haze SIPs must assure reasonable progress towards the national goal of achieving natural visibility conditions in Class I areas. Section 169A of the CAA and EPA's implementing regulations require states to establish long-term strategies for making reasonable progress toward meeting this goal. Implementation plans must also give specific attention to

[20] Ctr. for Energy & Econ. Dev. v. EPA, 398 F.3d 653, 654 (DC Cir. 2005).
[21] 71 FR 60612, 60612 (Oct. 13, 2006).
[22] 42 U.S.C. 7410(a), 7491, and 7492 (a), 169A, and 169B.
[23] 42 U.S.C. 7410(c)(1).

certain stationary sources that were in existence on August 7, 1977, but were not in operation before August 7, 1962, and require these sources, where appropriate, to install BART controls for the purpose of eliminating or reducing visibility impairment. The specific regional haze SIP requirements are discussed in further detail below.

2. Determination of Baseline, Natural, and Current Visibility Conditions

The RHR establishes the deciview (dv) as the principal metric or unit for expressing visibility.[24] This visibility metric expresses uniform changes in the degree of haze in terms of common increments across the entire range of visibility conditions, from pristine to extremely hazy conditions. Visibility expressed in deciviews is determined by using air quality measurements to estimate light extinction and then transforming the value of light extinction using a logarithmic function. The dv is a more useful measure for tracking progress in improving visibility than light extinction itself because each dv change is an equal incremental change in visibility perceived by the human eye. Most people can detect a change in visibility at one dv.[25]

The dv is used in expressing reasonable progress goals (RPGs, which are interim visibility goals towards meeting the national visibility goal), in defining baseline, current, and natural conditions; and in tracking changes in visibility. The regional haze SIPs must contain measures that ensure "reasonable progress" toward the national goal of preventing and remedying visibility impairment in Class I areas caused by anthropogenic emissions that cause or contribute to regional haze. The national goal is a return to natural conditions, i.e. to reach a state at which anthropogenic sources of air pollution no longer impair visibility in Class I areas.

[24] See 70 FR 39104, 39118 (July 6, 2005).
[25] The preamble to the RHR provides additional details about the deciview (dv) scale. 64 FR 35714, 35725 (July 1, 1999).

To track changes in visibility over time at each of the 156 Class I areas covered by the visibility program,[26] and as part of the process for determining reasonable progress, states must calculate the degree of existing visibility impairment at each Class I area at the time of each regional haze SIP submittal and review progress every five years, midway through each 10-year implementation period. To do this, the RHR requires states to determine the degree of impairment (in deciviews) for the average 20 percent least impaired ("best") and 20 percent most impaired ("worst") visibility days over a specified time period at each of their Class I areas. In addition, states must also develop an estimate of natural visibility conditions for the purpose of comparing progress toward the national goal. Natural visibility is determined by estimating the natural concentrations of pollutants that cause visibility impairment and then calculating total light extinction based on those estimates. In 2003, EPA provided guidance to states regarding how to calculate baseline, natural and current visibility conditions.[27] Subsequently, the Natural Haze Levels II Committee developed updated estimates of natural haze for average natural conditions and for the averages of the best 20% and worst 20% natural condition days[28] that have been used by states and EPA in visibility assessments.

For the first regional haze SIPs that were due by December 17, 2007, "baseline visibility conditions" were the starting points for assessing "current" visibility impairment. Baseline visibility conditions represent the five-year averages of the degree of visibility impairment for

[26] 40 CFR 81.401-437.

[27] Guidance for Estimating Natural Visibility Conditions Under the Regional Haze Rule, EPA-454/B-03-005, available at http://www3.epa.gov/ttn/caaa/t1/memoranda/rh_envcurhr_gd.pdf, (hereinafter referred to as "our 2003 Natural Visibility Guidance") (Sept. 2003)(documents identified with Internet addresses are available in the docket) ; Guidance for Tracking Progress Under the Regional Haze Rule, EPA-454/B-03-004, available at http://www3.epa.gov/ttnamti1/files/ambient/visible/tracking.pdf (hereinafter referred to as our "2003 Tracking Progress Guidance") (Sept. 2003).

[28] "Natural Haze Levels II: Application of the New IMPROVE Algorithm to Natural Species Concentrations Estimates", Final Report by the Natural Haze Levels II Committee to the RPO Monitoring/Data Analysis Workgroup, power point presentation included in the docket.

the 20 percent least impaired days and the 20 percent most impaired days for each calendar year from 2000 to 2004. Using monitoring data for 2000 through 2004, states are required to calculate the average degree of visibility impairment for each Class I area, based on the average of annual values over the five-year period. The comparison of initial baseline visibility conditions to natural visibility conditions indicates the amount of improvement necessary to attain natural visibility, while the future comparison of baseline conditions to the then current conditions will indicate the amount of progress made. In general, the 2000-2004 baseline period is considered the time from which improvement in visibility is measured.

3. Best Available Retrofit Technology

Section 169A of the CAA directs states to evaluate the use of retrofit controls at certain larger, often uncontrolled, older stationary sources in order to address visibility impacts from these sources. Specifically, section 169A(b)(2)(A) of the CAA requires states to revise their SIPs to contain such measures as may be necessary to make reasonable progress towards the natural visibility goal, including a requirement that certain categories of existing major stationary sources[29] built between 1962 and 1977 procure, install, and operate the "Best Available Retrofit Technology" as determined by the state. Under the RHR, states are directed to conduct BART determinations for such "BART-eligible" sources that may be anticipated to cause or contribute to any visibility impairment in a Class I area. Rather than requiring source-specific BART controls, states also have the flexibility to adopt an emissions trading program or other alternative program as long as the alternative provides greater reasonable progress towards improving visibility than BART.

[29] See 42 U.S.C. 7491(g)(7) (listing the set of "major stationary sources" potentially subject-to-BART).

On July 6, 2005, EPA published the "Guidelines for BART Determinations Under the Regional Haze Rule" at appendix Y to 40 CFR part 51 (hereinafter referred to as the "BART Guidelines") to assist states in determining which of their sources should be subject to the BART requirements and in determining appropriate emission limits for each applicable source.[30] In making a BART determination for a fossil fuel-fired electric generating plant with a total generating capacity in excess of 750 megawatts (MW), a state must use the approach set forth in the BART Guidelines. A state is encouraged, but not required, to follow the BART Guidelines in making BART determinations for other types of sources. Regardless of source size or type, a state must meet the requirements of the CAA and our regulations for selection of BART, and the state's BART analysis and determination must be reasonable in light of the overarching purpose of the regional haze program.

The process of establishing BART emission limitations can be logically broken down into three steps: first, states identify those sources that meet the definition of "BART-eligible source" set forth in 40 CFR 51.301;[31] second, states determine which of such sources "emits any air pollutant which may reasonably be anticipated to cause or contribute to any impairment of visibility in any such area"[32] (a source that fits this description is "subject-to-BART"); and third, for each source subject-to-BART, states then identify the best available type and level of control for reducing emissions.

States must address all visibility-impairing pollutants emitted by a source in the BART determination process. The most significant visibility impairing pollutants are SO_2, NO_X, and

[30] 70 FR 39104, 39104 (July 6, 2005).
[31] 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.
[32] 42 U.S.C. 7491(b)(2)(A).

PM. EPA has stated that states should use their best judgment in determining whether VOC or NH_3 compounds impair visibility in Class I areas.

Under the BART Guidelines, states may select an exemption threshold value for their BART modeling, below which a BART-eligible source would not be expected to cause or contribute to visibility impairment in any Class I area. The state must document this exemption threshold value in the SIP and must state the basis for its selection of that value. Any source with emissions that model above the threshold value would be subject to a BART determination review. The BART Guidelines acknowledge varying circumstances affecting different Class I areas. States should consider the number of emission sources affecting the Class I areas at issue and the magnitude of the individual sources' impacts. Any exemption threshold set by the state should not be higher than 0.5 dv.[33]

In their SIPs, states must identify the sources that are subject-to-BART and document their BART control determination analyses for such sources. In making their BART determinations, section 169A(g)(2) of the CAA requires that states consider the following factors when evaluating potential control technologies: 1) the costs of compliance; 2) the energy and non-air quality environmental impacts of compliance; 3) any existing pollution control technology in use at the source; 4) the remaining useful life of the source; and 5) the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology.

A regional haze SIP must include source-specific BART emission limits and compliance schedules for each source subject-to-BART. Once a state has made its BART determination, the BART controls must be installed and in operation as expeditiously as practicable, but no later

[33] 40 CFR part 51, appendix Y, § III.A.1.

than five years after the date of EPA approval of the regional haze SIP.[34] As noted above, the RHR allows states to implement an alternative program in lieu of BART so long as the alternative program can be demonstrated to achieve greater reasonable progress toward the national visibility goal than would BART.

4. Monitoring, Recordkeeping and Reporting

The CAA requires that SIPs, including the regional haze SIP, contain elements sufficient to ensure emission limits are practically enforceable. CAA section 110(a)(2) states that the monitoring, recordkeeping and reporting (MRR) provisions of states' SIPs must:

> (A) include enforceable emission limitations and other control measures, means, or techniques (including economic incentives such as fees, marketable permits, and auctions of emissions rights), as well as schedules and timetables for compliance, as may be necessary or appropriate to meet the applicable requirements of this chapter;… (C) include a program to provide for the enforcement of the measures described in subparagraph (A), and regulation of the modification and construction of any stationary source within the areas covered by the plan as necessary to assure that national ambient air quality standards are achieved, including a permit program as required in parts C and D of this subchapter;… (F) require, as may be prescribed by the Administrator – (i) the installation, maintenance, and replacement of equipment, and the implementation of other necessary steps, by owners or operators of stationary sources to monitor emissions from such sources, (ii) periodic reports on the nature and amounts of emissions and emissions-related data from such sources, and (iii) correlation of such reports by the State agency with any emission limitations or standards established pursuant to this chapter, which reports shall be available at reasonable times for public inspection.

Accordingly, 40 CFR part 51, subpart K, Source Surveillance, requires the SIP to provide for monitoring the status of compliance with the regulations in it, including "[p]eriodic testing and inspection of stationary sources,"[35] and "legally enforceable procedures" for recordkeeping and reporting.[36] Furthermore, 40 CFR part 51, appendix V, Criteria for Determining the Completeness of Plan Submissions, states in section 2.2 that complete SIPs contain: "(g)

[34] 42 U.S.C. 7491(g)(4); 40 CFR 51.308(e)(1)(iv).
[35] 40 CFR 51.212(a).
[36] 40 CFR 51.211.

Evidence that the plan contains emission limitations, work practice standards and recordkeeping/reporting requirements, where necessary, to ensure emission levels"; and "(h) Compliance/enforcement strategies, including how compliance will be determined in practice."

5. Consultation with States and Federal Land Managers (FLMs)

The RHR requires that states consult with FLMs before adopting and submitting their SIPs.[37] States must provide FLMs an opportunity for consultation, in person and at least 60 days prior to holding any public hearing on the SIP. This consultation must include the opportunity for the FLMs to discuss their assessments of impairment of visibility in any Class I area and to offer recommendations on the development of the RPGs and on the development and implementation of strategies to address visibility impairment. Further, a state must include in its SIP a description of how it addressed any comments provided by the FLMs. Finally, a SIP must provide procedures for continuing consultation between the state and FLMs regarding the state's visibility protection program, including development and review of SIP revisions, five-year progress reports, and the implementation of other programs having the potential to contribute to impairment of visibility in Class I areas.

C. Requirements for Regional Haze SIPs Submitted Under 40 CFR 51.309

The following is a summary and basic explanation of the regulations covered under section 51.309 of the RHR that are addressed in this notice.[38]

1. Projection of Visibility Improvement

For each of the 16 Class I areas located on the Colorado Plateau, the SIP must include a projection of the improvement in visibility expressed in deciviews.[39] An explanation of the

[37] 40 CFR 51.308(i).

[38] Utah addressed some of the requirements of 40 CFR 51.309 in 2008 and 2011 SIP submissions. EPA took final action on some of the provisions in the 2008 and 2011 SIP submissions in earlier notices. See 40 CFR 51.309 for a complete listing of the regulations under which the 2008 and 2011 SIP submissions were evaluated.

deciview metric is provided above in section III.C.2. States need to show the projected visibility improvement for the best and worst 20 percent days through the year 2018, based on the application of all section 309 control strategies.

2. Stationary Source Reductions

a. Sulfur Dioxide Emission Reductions

Rather than requiring source-specific BART controls as explained above in section III.C.4, states have the flexibility to adopt an emissions trading program or other alternative program as long as the alternative provides greater reasonable progress than would be achieved by the application of BART pursuant to 40 CFR 51.308(e)(2). Under 40 CFR 51.309, states can satisfy the SO_2 BART requirements by adopting SO_2 emission milestones and a backstop trading program.[40] Under this approach, states must establish declining SO_2 emission milestones for each year of the program through 2018. The milestones must be consistent with the GCVTC's goal of 50 to 70 percent reduction in SO_2 emissions by 2040.

Pursuant to 40 CFR 51.309(d)(4)(ii)-(iv), states must include requirements in the SIP that allow states to determine whether the milestone has been exceeded. These requirements include documentation of the baseline emission calculation, monitoring, recordkeeping, and reporting of SO_2 emissions, and provisions for conducting an annual evaluation to determine whether the milestone has been exceeded. SIPs must also contain requirements for implementing the backstop trading program in the event that the milestone is exceeded and the program is triggered.[41]

[39] 40 CFR 51.309(d)(2).
[40] 40 CFR 51.309(d)(4).
[41] 40 CFR 51.309(d)(4)(v).

The WRAP, in conjunction with EPA, developed a model for a backstop trading program. In order to ensure consistency between states, states opting to participate in the 309 program needed to adopt rules that are substantively equivalent to the model rules for the backstop trading program to meet the requirements of 40 CFR 51.309(d)(4). The trading program must also be implemented no later than 15 months after the end of the first year that the milestone is exceeded, require that sources hold allowances to cover their emissions, and provide a framework, including financial penalties, to ensure that the 2018 milestone is met.

b. Provisions for Stationary Source Emissions of Nitrogen Oxides and Particulate Matter

Pursuant to 40 CFR 51.309(d)(4)(vii), a section 309 SIP must contain any necessary long term strategies and BART requirements for PM and NO_X. These requirements, including the process for conducting BART determinations either based on the consideration of the five statutory factors or based on an alternative program, are explained above in section III.C.4 and below in section III.E, respectively.

D. General Requirements for PM_{10} and NO_X Alternative Programs Under the Regional Haze Rule and the "Better-Than-BART Demonstration"

States opting to submit an alternative program must meet requirements under 40 CFR 51.308(e)(2) and (e)(3). These requirements for alternative programs relate to the "better-than-BART" test and fundamental elements of any alternative program.

In order to demonstrate that the alternative program achieves greater reasonable progress than source-specific BART, a state must demonstrate that its SIP meets the requirements in 40 CFR 51.308(e)(2)(i)-(v). States submitting section 309 SIPs or other alternative programs are required to list all BART-eligible sources and categories covered by the alternative program.

States are then required to determine which BART-eligible sources are "subject-to-BART." The SIP must provide an analysis of the best system of continuous emission control technology available and the associated reductions for each source subject-to-BART covered by the alternative program, or what is termed a "BART benchmark." Where the alternative program has been designed to meet requirements other than BART, states may use simplifying assumptions in establishing a BART benchmark.

Pursuant to 40 CFR 51.308(e)(2)(i)(E), the State must also provide a determination that the alternative program achieves greater reasonable progress than BART under 40 CFR 51.308(e)(3) or otherwise based on the clear weight of evidence. 40 CFR 51.308(e)(3), in turn, provides a specific test for determining whether the alternative achieves greater reasonable progress than BART:

> "If the distribution of emissions is not substantially different than under BART, and the alternative measure results in greater emission reductions, then the alternative measure may be deemed to achieve greater reasonable progress. If the distribution of emissions is significantly different, the State must conduct dispersion modeling to determine differences in visibility between BART and the trading program for each impacted Class I area for the worst and best 20 percent of days. The modeling would demonstrate "greater reasonable progress" if both the following two criteria are met: (1) visibility does not decline in any Class I area, and (2) there is an overall improvement in visibility, determined by comparing the average differences between BART and the alternative over all affected Class I areas."

Alternately, pursuant to 40 CFR 51.308(e)(2) States may show that the BART alternative achieves greater reasonable progress than the BART benchmark "based on the clear weight of evidence" determinations, which

> "attempt to make use of all available information and data which can inform a decision while recognizing the relative strengths and weaknesses of that information in arriving at the soundest decision possible. Factors which can be used in a weight of evidence determination in this context may include, but not be limited to, future projected emissions levels under the program as compared to under BART, future projected visibility conditions under the two scenarios, the geographic distribution of sources likely to reduce or increase emissions under the program as compared to BART sources,

> monitoring data and emissions inventories, and sensitivity analyses of any models used. This array of information and other relevant data may be of sufficient quality to inform the comparison of visibility impacts between BART and the alternative program. In showing that an alternative program is better than BART and when there is confidence that the difference in visibility impacts between BART and the alternative scenarios are expected to be large enough, a weight of evidence comparison may be warranted in making the comparison. The EPA will carefully consider the evidence before us in evaluating any SIPs submitted by States employing such an approach."[42]

Finally, in promulgating the final regional haze program requirements and responding to concerns regarding "impermissibly vague" language in section 51.308(e)(3) that would allow a State to "approve alternative measures that are less protective than BART," we explained that "[t]he State's discretion in this area is subject to the condition that it must be reasonably exercised and that its decisions be supported by adequate documentation of its analyses."[43]

Under 40 CFR 51.308(e)(2)(iii) – (iv), all emission reductions for the alternative program must take place by 2018, and all the emission reductions resulting from the alternative program must be surplus to those reductions resulting from measures adopted to meet requirements of the CAA as of the baseline date of the SIP. Pursuant to 40 CFR 51.309(e)(2)(v), states have the option of including a provision that the emissions trading program or other alternative measure include a geographic enhancement to the program to address the requirement under 40 CFR 51.302(c) related to BART for reasonably attributable visibility impairment from the pollutants covered under the emissions trading program or other alternative measure.

E. Summary of State Regional Haze Submittals and EPA Actions

1. 2008 and 2011 Utah RH SIPs

On May 26, 2011, the Governor of the State of Utah submitted to EPA a Regional Haze SIP under 40 CFR 51.309 of the RHR ("2011 Utah RH SIP"). This submittal included BART

[42] 71 FR 60612, 60622 (Oct. 13, 2006).
[43] 71 FR 60612, 60621.

determinations for NO_X and PM_{10} at Utah's four subject-to-BART sources: PacifiCorp's Hunter Units 1 and 2 and Huntington Units 1 and 2. All four units are tangentially fired fossil fuel fired EGUs each with a net generating capacity of 430 MW, permitted to burn bituminous coal. This submittal also included a backstop trading program under 40 CFR 51.309 intended to meet the requirement for controlling SO_2 by establishing a cap on emissions. The trading program covers Utah, Wyoming, New Mexico and the City of Albuquerque.

Utah also submitted SIPs on December 12, 2003, August 8, 2004 and September 9, 2008, to meet the requirements of the RHR. These submittals were, for the most part, superseded and replaced by the May 26, 2011 submittal as further explained in the next section discussing our action on these submittals.

2. 2012 EPA Action on 2011 and 2008 Utah RH SIPs

On December 14, 2012, EPA partially approved and partially disapproved the 2011 Utah RH SIP.[44] We approved all sections of the 2011 Utah RH SIP as meeting the requirements of 40 CFR 51.309, with the exception of the requirements under 40 CFR 51.309(d)(4)(vii) pertaining to NO_X and PM_{10} BART. EPA's partial disapproval action was based on the following: (1) Utah did not take into account the five statutory factors in its BART analyses for NO_X and PM_{10}; and (2) the 2011 Utah RH SIP did not contain the provisions necessary to make the BART limits practically enforceable as required by section 110(a)(2) of the CAA and 40 CFR 51, appendix V.[45]

We also approved two sections of the 2008 Utah RH SIP. Specifically, we approved UAR R307-250--Western Backstop Sulfur Dioxide Trading Program and R307-150--Emission Inventories. We took no action on the rest of the 2008 submittal as the 2011 submittal

[44] 77 FR 74355, 74357 (Dec. 14, 2012).
[45] Id.

superseded and replaced the remaining sections of the 2008 submittal. We also took no action on the December 12, 2003 and August 8, 2004 submittals as these were superseded by the 2011 submittal.

On November 8, 2011, we separately proposed approval of Section G—Long-Term Strategy for Fire Programs of the May 26, 2011 submittal and finalized our approval of that action on January 18, 2013.[46]

3. 2013 Litigation

In 2013, conservation groups sued EPA in the U.S. Court of Appeals for the Tenth Circuit on our approval of the SO_2 backstop trading program as an alternative to BART. On October 21, 2014, the court upheld EPA's finding that the trading program was better than BART.[47]

4. 2015 Utah RH SIPs

On June 4, 2015, the Governor of the State of Utah submitted to EPA a revision to its Regional Haze SIP under 40 CFR 51.309 of the RHR ("June 2015 Utah RH SIP"), specifically to address the requirements under 40 CFR 51.309(d)(4)(vii) pertaining to NO_X and PM_{10} BART. Utah developed the June 2015 Utah RH SIP in response to EPA's December 14, 2012 partial disapproval of the 2011 Utah RH SIP. The June 2015 Utah RH SIP evolved from a draft SIP on which Utah sought public comment in October 2014. After receiving extensive public comments, Utah decided to pursue a BART alternative ("Utah BART Alternative," "BART Alternative," or "Alternative") under 40 CFR 51.308(e)(2) that takes credit for early NO_X reductions due to combustion controls installed at PacifiCorp's Hunter and Huntington power plants in addition to NO_X, SO_2, and PM_{10} reductions from the August 2015 retirement of

[46] 78 FR 4071, 4072 (Jan. 18, 2013).
[47] Wildearth Guardians v. United States EPA, 728 F.3d 1075, 1083-84 (10th Cir. 2013).

PacifiCorp's nearby Carbon power plant. The June 2015 Utah RH SIP also includes measures to make the SIP requirements practically enforceable and includes additional information pertaining to the PM_{10} BART determinations for Hunter and Huntington to address deficiencies identified by EPA in our December 2012 partial disapproval.

On October 20, 2015, Utah submitted to EPA an additional revision to its Regional Haze SIP under 40 CFR 51.309 of the RHR ("October 2015 Utah RH SIP"). This SIP includes an enforceable commitment to provide an additional SIP revision by mid-March 2018 to address concerns raised in public comments that the State would be double counting certain emissions reductions under the Utah BART Alternative in respect to milestone reporting for the SO_2 backstop trading program.

Sections 110(a)(2) and 110(l) of the CAA require that a state provide reasonable notice and public hearing before adopting a SIP revision and submitting it to us. Utah, after providing notice, accepted comments on the June 2015 Utah RH SIP in April 2015 and accepted comments on the October 2015 Utah RH SIP in mid-August through mid-September 2015. Following the comment period and legal review by the Utah Attorney General's Office, the Utah Air Quality Board adopted the June 2015 Utah RH SIP on June 3, 2015 and the October 2015 Utah RH SIP on October 7, 2015. The Governor submitted the SIP revisions to EPA on June 4, 2015 and October 20, 2015.

IV. Utah's Regional Haze SIP

A. Summary of Elements Under EPA's Previous Actions Upon Which We Are Relying

Several SIP elements that we previously approved in our December 2012 final rule and upon which we are relying in our current action include the following:

1. Affected Class I areas

Utah provided two maps in Section XX of its 2011 RH SIP, one showing the locations of the 16 Class I areas on the Colorado Plateau and one showing the locations of the five in Utah (Arches National Park, Bryce Canyon National Park, Canyonlands National Park, Capitol Reef National Park, and Zion National Park).[48] Utah also provided a comparison of the monitored 2000-2004 baseline visibility conditions in deciviews for the 20 percent best and 20 percent worst days to the projected visibility improvement for 2018 for the 16 Class I areas.[49]

We determined that the State's SIP satisfies the requirements of 40 CFR 51.309(d)(2) for this element in our December 14, 2012 rulemaking.

2. BART-eligible sources

Pursuant to 40 CFR 51.308(e)(2)(i)(A), the 2011 Utah RH SIP listed the BART-eligible sources covered by the backstop trading program (see Table 1 below). The State identified the following BART-eligible sources in Utah: PacifiCorp Hunter Units 1 and 2 and PacifiCorp Huntington Units 1 and 2.

PacifiCorp's Hunter Power Plant (Hunter), is located in Castle Dale, Utah and consists of three electric utility steam generating units. Of the three units, only Units 1 and 2 are subject to BART. Hunter Units 1 and 2 have a nameplate generating capacity of 488.3 MW each.[50] The boilers are tangentially fired pulverized coal boilers, burning bituminous coal from the Deer Creek Mine in Utah.

PacifiCorp's Huntington Power Plant (Huntington), is located in Huntington City, Utah, and consists of two electric utility steam generating units. Huntington Units 1 and 2 have a

[48] See Utah Regional Haze State Implementation Plan, § XX.B.8, pp. 8-9 (Figures 1 and 2) (2011).
[49] See id., at § XX.K.2, p. 116 (Table 24).
[50] See U.S. Energy Information Administration, Electric Generating Capacity for 2011 (taken from Form EIA-860). See "EIA existing generating units 2011.xls" spreadsheet in the docket.

nameplate generating capacity of 498 MW each.[51] The boilers are tangentially fired pulverized coal boilers, burning bituminous coal from the nearby Deer Creek Mine.

We determined that the State's SIP satisfies the requirements of 40 CFR 51.309(e)(2)(i)(A) in our December 14, 2012 rulemaking.

3. Sources Subject-to-BART

Pursuant to 40 CFR 51.308(e)(2)(i)(B), the 2011 Utah RH SIP described the State's source modeling that determined which of the BART-eligible sources within Utah cause or contribute to visibility impairment and are thus subject-to-BART (more information on subject-to-BART sources and modeling can be found in Section XX.D.6 of the 2011 Utah RH SIP and section V.F of our May 16, 2012 proposed rulemaking).

Table 1 shows Utah's BART-eligible sources covered by the 309 SO_2 backstop program, Hunter Units 1 and 2, and Huntington Units 1 and 2, and indicates that all are subject-to-BART.

We determined that the State's SIP satisfies the requirements of 40 CFR 51.308(e)(2)(i)(B) in our December 14, 2012 rulemaking.

Table 1 – Subject-to-BART Status for Utah's Section 309 BART-Eligible Sources

Company	Source	Unit ID	Service Date	BART Category	Generating Capacity (MW)	Coal Type	Boiler Type	Subject-to-BART?
PacifiCorp	Hunter	1	1978	Fossil Fuel EGU	430	Bituminous	Tangential	Yes
PacifiCorp	Hunter	2	1980	Fossil Fuel EGU	430	Bituminous	Tangential	Yes
PacifiCorp	Huntington	1	1977	Fossil Fuel EGU	430	Bituminous	Tangential	Yes
PacifiCorp	Huntington	2	1974	Fossil Fuel EGU	430	Bituminous	Tangential	Yes

[51] Id.

We note that Section XX.D.6 in the June 2015 Utah RH SIP supersedes Section XX.D.6 in the 2011 Utah RH SIP and that some reformatting occurred. As Utah did not make substantive revisions to the SIP provisions addressing BART-eligible sources and subject-to-BART sources, XX.D.6.b and XX.D.6.c, in the 2011 SIP, we are not proposing any additional action on these provisions in this document.

B. Summary of Utah's BART Alternative and PM_{10} BART SIP Revision

Utah's June 2015 RH SIPs include the following SIP provisions:

- Revised R307-110-17, General Requirements: State Implementation Plan. Section IX, Control Measures for Area and Point Sources, Part H, Emissions Limits (incorporates by reference most recently amended SIP Section IX, Part H into state rules)
- Revised R307-110-28, General Requirements: State Implementation Plan, Regional Haze (incorporates by reference most recently amended SIP Section XX into state rules)
- Revised SIP Section XX.D.6 Regional Haze. Long-Term Strategy for Stationary Sources. Best Available Retrofit Technology (BART) Assessment for NO_X and PM (supersedes Section XX.D.6 in the 2011 Utah RH SIP)
- New SIP Section IX.H.21 General Requirements: Control Measures for Area and Point Sources, Emission Limits and Operating Practices, Regional Haze Requirements
- New SIP Section IX.H.22 Source Specific Emission Limitations: Regional Haze Requirements, Best Available Retrofit Technology.

The June 2015 Utah RH SIP, including the five SIP revisions listed above, consists of the following three components: 1) a NO_X BART alternative that includes NO_X and SO_2, and

PM_{10} emission reductions from Hunter Units 1 – 3, Huntington Units 1 and 2, and Carbon Units 1 and 2 and PM_{10} emission reductions from Carbon Units 1 and 2; 2) BART determinations for PM_{10} at Hunter Units 1 and 2 and Huntington Units 1 and 2 based on a streamlined analysis; and 3) monitoring, recordkeeping and reporting requirements for the Utah BART Alternative and PM_{10} BART emission limits to make the SIP requirements practically enforceable. The emission limits in the June 2015 Utah RH SIP are provided in Table 2. We further explain the three components of the SIP below.

Table 2. Emission Limits and Shutdown in Utah's BART Alternative and PM_{10} SIP[1]

Source	Unit	PM_{10} Limit[2] (lb/MMBtu, Three-Run Test Average)	NO_X Limit[3] (lb/MMBtu, 30-Day Rolling Average)	SO_2 Limit
Hunter	1	0.015	0.26	NA
	2	0.015	0.26	NA
	3	NA	0.34	NA
Huntington	1	0.015	0.26	NA
	2	0.015	0.26	NA
Carbon	1	Shutdown by August 15, 2015	Shutdown by August 15, 2015	Shutdown by August 15, 2015
	2	Shutdown by August 15, 2015	Shutdown by August15, 2015	Shutdown by August 15, 2015

[1]Obtained from the June 2015 Utah RH SIP, Section IX.H.22.
[2]Based on annual stack testing.
[3]Based on continuous emission monitoring system (CEMS) measurement.

1. Utah BART Alternative

Utah has opted to establish an alternative measure for NO_X under 40 CFR 51.308(e)(2). The State compared the Utah BART Alternative against a BART Benchmark of selective catalytic reduction (SCR) on all four BART units at Hunter and Huntington (Units 1 and 2 at both plants). Utah's BART Alternative consists of the shutdown of Carbon Units 1 and 2 and the installation of upgraded NO_X combustion controls (new low-NO_X burners [LNB] and overfire air

[OFA]) on Hunter Unit 3 (all non-BART units). The Utah BART Alternative also includes the NO_X reductions from installation of upgraded combustion controls (new LNB and separated overfire air [SOFA]) at Hunter Units 1 and 2 and Huntington Units 1 and 2 (all BART units). The BART Benchmark includes the four BART units with combustion controls and SCR, Carbon's baseline emissions, and Hunter Unit 3's emissions with original combustion controls. The Utah BART Alternative is generally described in SIP Section XX.D.6 with a detailed demonstration included in Chapter 1 of Utah's Technical Support Document (TSD) to support the State's assertion that the alternative achieves greater reasonable progress than BART. The State's demonstration is also described in more detail in section IV.C below.

A summary of the State's estimates of emissions for the Utah BART Alternative and the BART Benchmark is provided in Table 3. EPA developed a summary of the emissions reductions based on Utah's emission estimates and this is presented in Table 4.

Utah indicated that PacifiCorp announced plans to shut down the Carbon Power Plant in 2015 due to the high cost to control mercury to meet the requirements of EPA's Mercury and Air Toxics Standards (MATS).[52] The State noted that the MATS rule was finalized in 2011, and the Utah RH SIP contains the requirement for the Carbon Power Plant to shut down in August 2015. Therefore, the emission reductions occur after the 2002 base year for Utah's RH SIP and thus, Utah asserts, the reductions may be considered as part of an alternative strategy under 40 CFR 51.308(e)(2)(iv).

2. PM_{10} BART Determinations

Utah included a streamlined analysis for PM_{10} BART determinations in accordance with section D.9 of the BART Guidelines for the BART units at Hunter and Huntington in the SIP

[52] Utah Regional Haze State Implementation Plan, p. 7 (TSD Chapter 1) (2011).

TSD in Chapter 1, Section III and referenced this analysis in SIP Section XX.D.6. In the TSD, Utah summarized the BART analysis submitted by PacifiCorp in an August 5, 2014 report.[53]

PacifiCorp's analysis identified three available technologies: upgraded ESP and flue gas conditioning (0.040 lb/MMBtu); polishing fabric filter (0.015 lb/MMBtu); and replacement fabric filter (0.015 lb/MMBtu). The 2008 Utah RH SIP and BART determination had required PacifiCorp to install a fabric filter baghouse with a PM_{10} emission limit of 0.015 lb/MMBtu at the Hunter and Huntington BART units. Utah staff reviewed PacifiCorp's 2012 analysis and determined that the baghouse technology required in 2008 is still the most stringent technology available and that 0.015 lb/MMBtu represents the most stringent emission limit. Utah cited EPA's BART Guidelines and regional haze actions in Colorado, Wyoming, North Dakota and Montana to support these assertions.

Utah determined that the PM_{10} BART emission limit for Hunter Units 1 and 2 and Huntington Units 1 and 2 was 0.015 lb/MMBtu based on a three-run test average. Utah noted that because the most stringent technology is in place at these units and that the PM_{10} emission limits have been made enforceable in the SIP, no further analysis was required.

3. Monitoring, Recordkeeping and Reporting

To address EPA's partial disapproval of the 2011 Utah RH SIP for lack of enforceable measures and monitoring, recordkeeping and reporting requirements for the Utah BART Alternative and the PM_{10} BART determinations, Utah added two new subsections to SIP Sections IX, General H.21 and 22. Under H.21, Utah has detailed general requirements for sources subject to its regional haze program. Under H.22, Utah has listed source-specific regional haze requirements for Hunter, Huntington and Carbon.

[53] For PacifiCorp BART analyses reports, see TSD Chapter 2 of the SIP.

Specifically, under H.21, Utah added a new definition for boiler operating day. Utah noted that state rules R307-107-1 and R307-107-2 (applicability, timing and reporting of breakdowns) apply to sources subject to regional haze requirements under H.22. Utah required that information used to determine compliance shall be recorded for all periods when the source is in operation, and that such records shall be kept for a minimum of five years. Under H.21, Utah specified that emission limitations listed in H.22 shall apply at all times and identified stack testing requirements to show compliance with those emission limitations. Finally, under H.21, Utah also specified the requirements for continuous emission monitoring by listing the requirements and cross-referencing the State's rule for continuous emission monitoring system requirements, R307-170 as well as 40 CFR 13 and 40 CFR 60, appendix B – Performance Specifications. Utah included the requirements to calculate hourly average NO_X concentrations for any hour in which fuel is combusted and a new 30-day rolling average emission rate at the end of each boiler operating day. Utah also noted that the hourly average NO_X emission rate is valid only if the minimum number of data points specified in R307-170 is acquired for both the pollutant concentration monitor and diluent monitor.

Under H.21, Utah did not provide for reporting of violations of PM_{10} emissions limitations for instances other than breakdowns (e.g., stack test violations). However, the State provided a commitment letter on December 10, 2015 to address this deficiency with a SIP revision within one year of EPA's final action on the June 4, 2015 RH SIP.[54]

Under H.22, Utah provided the NO_X and PM_{10} emission limitations for Hunter Units 1 through 3 and Huntington Units 1 and 2, a requirement to perform annual stack testing for PM_{10}, and a requirement to measure NO_X via continuous emission monitoring for the sources covered

[54] Letter from Department of Environmental Quality, State of Utah to EPA, DAQP-120-15 (Dec. 10, 2015).

under the Utah BART Alternative. Under H.22, Utah also listed the enforceable conditions related to closing Carbon Units 1 and 2 by August 15, 2015 including PacifiCorp's and Utah's notification and permit rescission obligations.

C. Summary of Utah's Demonstration for Alternative Program

As discussed above in background section III.A, a state may opt to implement an alternative measure rather than to require sources subject to BART to install, operate, and maintain BART. Utah has included the following information in its June and October 2015 RH SIPs to address the regulatory criteria for an alternative program:

1. A List of All BART-Eligible Sources Within the State

Pursuant to 40 CFR 51.308(e)(2)(i)(A) and (B), the SIP must include a list of all BART-eligible sources within the State. Utah included a list of BART-eligible sources and noted the following sources are all covered by the alternative program:

- PacifiCorp Hunter, Unit 1
- PacifiCorp Hunter, Unit 2
- PacifiCorp, Huntington, Unit 1
- PacifiCorp, Huntington, Unit 2

Utah provided the same list of BART-eligible sources in the 2011 RH SIP. We determined that the State's SIP satisfies the requirements of 40 CFR 51.309(e)(2)(i)(A) in our December 14, 2012 rulemaking.

2. A List of All BART-Eligible Sources and All BART Source Categories Covered by the Alternative Program

Pursuant to 40 CFR 51.308(e)(2)(i)(B), each BART-eligible source in the State must be subject to the requirements of the alternative program or have a federally enforceable emission

limitation determined by the State and approved by EPA as meeting BART. In this instance, the alternative program covers all the BART-eligible sources in the state, Hunter Units 1 and 2 and Huntington Units 1 and 2, in addition to three non-BART units, PacifiCorp's Hunter Unit 3 and Carbon Units 1 and 2.

Utah provided the same list of BART sources subject to an alternative program in the 2011 RH SIP. We determined that the State's SIP satisfies the requirements of 40 CFR 51.309(e)(2)(i)(B) in our December 14, 2012 rulemaking.

3. Analysis of BART and Associated Emission Reductions Achievable

Pursuant to 40 CFR 51.308(e)(2)(i)(C), the SIP must include an analysis of BART and associated emission reductions at Hunter and Huntington. In the June 2015 Utah RH SIP, the State compared the Utah BART Alternative to a BART Benchmark that included the most stringent NO_X BART controls, SCR plus new LNBs and SOFA, at the four BART units.

4. Analysis of Projected Emissions Reductions Achievable Through the BART Alternative

Pursuant to 40 CFR 51. 308(e)(2)(D), the SIP must include "[a]n analysis of the projected emissions reductions achievable through the … alternative measure." A summary of the State's estimates of emissions in tons per year (tpy) for the Utah BART Alternative and the BART Benchmark is provided in Table 3. A summary of the emissions reductions based on those emission estimates is presented in Table 4.

Table 3. Estimated Emissions under Utah's BART Benchmark and the BART Alternative[55]

Units	NO_X emissions (tpy)		SO_2 emissions (tpy)		PM_{10} emissions (tpy)[4]		Combined	
	Benchmark[2]	Alternative[3]	Benchmark [2]	Alternative[3]	Benchmark	Alternative	Benchmark	Alternative
Carbon 1	1,408	0	3,388	0	221	0	5,016	0
Carbon 2	1,940	0	4,617	0	352	0	6,909	0

[55] Utah Regional Haze State Implementation Plan, Technical Support Document, Ch. 1 (Reference Table 2) (2015).

Hunter 1[1]	775	3,412	1,529	1,529	169	169	2,473	5,100
Hunter 2	843	3,412	1,529	1,529	169	169	2,541	5,110
Hunter 3	6,530	4,622	1,033	1,033	122	122	7,685	5,777
Huntington 1	809	3,593	1,168	1,168	176	176	2,153	4,937
Huntington 2	856	3,844	1,187	1,187	200	200	2,243	5,231
Total	13,161	18,882	14,451	6,446	1,409	836	29,020	26,164

[1] Hunter 1 controls were installed in the spring of 2014, therefore Hunter 2 actual emissions are used as a surrogate.
[2] Most stringent NO_X rate for BART-eligible units (see email and spreadsheet, "Attachment to Utah September 16, 2015 email, BART Analysis.pdf" in the docket, inadvertently omitted from Utah TSD), 2012-2013 actual emissions Carbon, 2001-2003 actual emissions Hunter 3 (EPA Acid Rain Program).
[3] Average actual emissions 2012-13 for Hunter and Huntington units, EPA Acid Rain Program.
[4] Actual emissions for 2012, Utah Department of Air Quality annual inventory.

Table 4. EPA Summary of Emission Reductions Achievable with the Utah BART Alternative as Compared to the BART Benchmark

Description	Combined Emissions for All Units (tpy)			
	NO_X	SO_2	PM_{10}	Combined
BART Benchmark	13,161	14,451	1,409	29,020
BART Alternative	18,882	6,446	836	26,164
Emission Reduction (BART Benchmark minus BART Alternative)[1]	-5,721	8,005	573	2,856

[1]A negative value indicates the BART Alternative results in more emissions of the specified pollutant in comparison to the BART Benchmark.

5. A Determination That the Alternative Achieves Greater Reasonable Progress Than Would Be Achieved Through the Installation and Operation of BART

Pursuant to 40 CFR 51.308(e)(2)(i)(E), the State must provide a determination under 40 CFR 51.308(e)(3) or otherwise based on the clear weight of evidence that the alternative achieves greater reasonable progress than BART. 40 CFR 51.308(e)(3), in turn, provides two different tests for determining whether the alternative achieves greater reasonable progress than BART.

Utah first used the "greater emission reductions" test in 40 CFR 51.308(e)(3) to support its assertion that the BART Alternative achieves greater reasonable progress. In the June 2015

Utah RH SIP, the State noted that the Hunter, Huntington and Carbon plants are all located within 40 miles of each other in Central Utah. Utah stated that because of the close proximity of the three plants, the distribution of emissions would not be substantially different under the Utah BART Alternative than under BART. With the alternative measure resulting in greater aggregate emission reductions by 2,856 tons/year (tpy) (described in Table 4 above), Utah asserted that the alternative measure may be deemed to achieve greater reasonable progress than BART under 51.308(e)(3).

Utah also chose to conduct a weight-of-evidence analysis under 51.308(e)(2) based on emissions from the Hunter, Huntington, and Carbon power plants and considered the following evidence:[56]

a. Annual Emissions Comparison for Visibility-impairing Pollutants

The emissions of visibility-impairing pollutants from both the Utah BART Alternative and the BART Benchmark, as estimated by the State, are summarized in Table 3 above. Compared with the Utah BART Benchmark, the State projects that the Utah BART Alternative will result in 5,721 tpy more NO_X emissions, 8,005 tpy fewer SO_2 emissions and 573 tpy fewer PM_{10} emissions. Utah also found that the combined emissions of NO_X, SO_2 and PM_{10} will be 2,856 tpy lower under the Utah BART Alternative.

b. Improvement in the Number of Days with Significant Visibility Impairment

Utah provided modeling results to assess the improvement in the number of days with significant visibility impairment – that is, the improvement in the number of days with impacts

[56] Utah referenced that greater reasonable progress can be demonstrated using one of two methods: (i) "greater emission reductions" than under BART (40 C.F.R. 51.308(e)(3)); or (ii) "based on the clear weight of evidence" (40 C.F.R. 51.308(e)(2)(i)(E)). Utah further explained that: as the U.S. Circuit Court of Appeals for the 10th Circuit recently observed, the state is free to choose one method or the other. WildEarth Guardians v. E.P.A., 770 F.3d 919, 935-37 (10th Cir. 2014). Finally, Utah noted that the court characterized the former approach as "quantitative" and the latter as "qualitative," and specifically sanctioned the use of qualitative factors under the clear weight of evidence.

that either cause (> 1.0 dv) or contribute (> 0.5 dv) to visibility impairment. The State presented this information in a number of ways, including: 1) the average number of days per year for three years modeled (2001-2003) with impacts above the cause and contribute thresholds for the nine affected Class I areas under the BART Alternative as compared to under the BART Benchmark; and 2) the total number of days for the three years modeled with impacts above the thresholds for the nine Class I areas under the two scenarios.[57]

On average for the three years modeled, the Utah BART Alternative causes visibility impairment (>1.0 dv) on fewer days than the BART Benchmark (258 days vs. 264 days, for the nine affected Class I areas). Similarly, on average for the three years modeled, the Utah BART Alternative also contributes to visibility impairment (> 0.5 dv) on fewer days than the BART Benchmark (441 days vs. 499 days for the nine affected Class I areas). See Tables 5 and 6 below.

Table 5. Average (2001-2003) Number of Days > 1.0 dv Impact[58]

Class I Area	Basecase	BART Alternative	BART Benchmark
Arches	128	68	77
Black Canyon of the Gunnison	36	10	9
Bryce Canyon	19	9	8
Canyonlands	141	87	87
Capitol Reef	68	42	41
Flat Tops	46	13	15

[57] Utah noted that EPA has proposed approval of an Alternative Measure for the Apache Generating Station in Arizona on similar "weight of evidence" grounds. 79 FR 56322, 56327 (Sept. 19, 2014). Utah also noted that EPA has approved a similar Alternative Measure in Washington, based in part on a reduction in the number of days of impairment greater than 0.5 dv and 1.0 dv. 79 FR 33438, 33440-33442 (June 11, 2014).

[58] Utah Regional Haze State Implementation Plan, Technical Support Document, Ch. 1 (Reference Table 5) (2015).

Grand Canyon	22	11	10
Mesa Verde	40	13	12
Zion	11	6	6
Total	511	258	264

Table 6. Average (2001-2003) Number of Days > 0.5 dv Impact[59]

Class I Area	Basecase	BART Alternative	BART Benchmark
Arches	176	109	130
Black Canyon of the Gunnison	75	27	34
Bryce Canyon	36	17	19
Canyonlands	178	131	140
Capitol Reef	96	63	65
Flat Tops	93	34	44
Grand Canyon	38	19	20
Mesa Verde	71	32	37
Zion	21	10	10
Total	784	441	499

As for the total number of days over the course of the three modeled years, the Utah BART Alternative causes visibility impairment (> 1.0 dv) on fewer days than the BART Benchmark (775 days vs. 793 days for the nine affected Class I areas). Similarly, in total for the

[59] See id., at Technical Support Document, Ch. 1 (Reference Table 6).

three years modeled, the Utah BART Alternative also contributes to visibility impairment (> 0.5 dv) on fewer days than the BART Benchmark (1,323 days vs. 1,498 days for the nine affected Class I areas). See Tables 7 and 8 below.

Table 7. Total (2001-2003) Number of Days > 1.0 dv Impact[60]

Class I Area	Basecase	BART Alternative	BART Benchmark
Arches	383	203	230
Black Canyon of the Gunnison	108	31	28
Bryce Canyon	57	26	25
Canyonlands	422	260	260
Capitol Reef	204	126	124
Flat Tops	138	38	44
Grand Canyon	67	34	30
Mesa Verde	121	40	35
Zion	32	17	17
Total	1,532	775	793

Table 8. Total (2001-2003) Number of Days > 0.5 dv Impact[61]

Class I Area	Basecase	BART Alternative	BART Benchmark
Arches	529	327	391
Black Canyon of the Gunnison	224	81	103

[60] See id., at Technical Support Document, Chapter 6.b (Summary of Visibility Modeling).
[61] See id.

Bryce Canyon	107	50	57
Canyonlands	533	393	420
Capitol Reef	288	188	194
Flat Tops	280	101	133
Grand Canyon	115	56	59
Mesa Verde	213	97	110
Zion	63	30	31
Total	2,352	1,323	1,498

c. 98th Percentile Impact (dv)

Utah explained that the only metric it evaluated that showed greater improvement for the BART Benchmark in comparison to the BART Alternative was the 98th percentile metric when visibility impacts were averaged across all Class I areas and meteorological years modeled. Utah's comparison of the modeled visibility impacts on the 98th percentile day (8th highest impacted day in a given meteorological year) for the most impacted year shows that the BART Benchmark would result in greater visibility improvement at five of the nine Class I areas, and is better on average across all nine Class I areas (0.11 dv difference). At two of the most impacted Class I areas, Canyonlands and Capitol Reef, Utah found that the 98th percentile metric indicates the BART Benchmark has 0.76 dv and 0.57 dv, respectively, greater improvement than the Utah BART Alternative. At other Class I areas, Utah found that the 98th percentile metric indicates that the BART Alternative provides greater visibility improvement (for example, 0.44 dv at Flat Tops).

Utah noted that because high nitrate values occur primarily in the winter months, the BART Benchmark achieved greater modeled visibility improvement on certain winter days with high nitrate impacts. Utah stated its position that there is greater uncertainty regarding the effect of NO_X reductions on wintertime nitrate values, and thus on visibility, because past NO_X emission reductions have not resulted in corresponding reductions in monitored nitrate values during the winter months. Utah noted it has greater confidence in the visibility improvement due to reductions of SO_2 because past reductions have resulted in corresponding reductions in monitored sulfate values throughout the year.

d. Annual Average Impact (dv)

As modeled by Utah, which used CALPUFF modeling results, the average annual dv impact is better under the Utah BART Alternative at five of the nine Class I areas, and is better on average across all the Class I areas. The average impact was calculated by averaging all daily modeling results for each year and then calculating a three-year average from the annual average. Utah's information shows that the BART Alternative is better than the BART Benchmark by 0.009 dv on average across all nine Class I areas.

e. 90^{th} Percentile Impact (dv)

Utah's comparison of the modeled visibility impacts at the 90^{th} percentile (the 110^{th} highest day across three years) dv impact shows that the Utah BART Alternative is better at seven of the nine Class I areas and is better averaged both across three years and across nine Class I areas by 0.006 dv.

f. Timing for the Emissions Reductions

Utah provided the schedule for installation of controls as noted in Table 9 below. Utah discussed that NO_X reductions at Hunter Units 1 and 2 and Huntington Units 1 and 2 occurred

between 2006 and 2014, earlier than was required by the Regional Haze Rule, providing a corresponding early and on-going visibility improvement. Utah cited the 2014 10th Circuit Court of Appeals decision regarding the 309 program to support that such early reductions are properly included as weight of evidence in the State's analysis.

Table 9. Installation Schedule

Source/Unit	Timing of Control Installation or Shutdown
Hunter 1	New LNB and SOFA - Spring 2014
Hunter 2	New LNB and SOFA - Spring 2011
Hunter 3	New LNB and OFA - Summer 2008
Huntington 1	New LNB and SOFA - Fall 2010
Huntington 2	New LNB and SOFA - December 2006
Carbon 1	Shutdown August 2015
Carbon 2	Shutdown August 2015

The reductions under the Utah BART Alternative are required under the State SIP by August 2015, as noted above in Table 5, providing an early and on-going visibility benefit as compared to BART.[62] Installation and operation of the combustion control upgrades at Hunter and Huntington were made enforceable under Administrative Orders DAQE-AN0102370012-08 and DAQE-AN0102380021-10.[63]

g. IMPROVE Monitoring Data

Utah's SIP presents sulfate and nitrate monitoring data at the Canyonlands IMPROVE monitor that shows that "sulfates are the dominant visibility impairing pollutant"[64] and that

[62] Conforming permit amendments for the Carbon plant are due under the SIP by December 15, 2015. Section IX.H.22 of Utah's SIP requires PacifiCorp to cease operation of Carbon by August 15, 2015, notify the State of the permanent closure by September 15, 2015, and request rescission of Operating Permit #700002004 and Approval Order DAQE-AN0100810005-08 by September 15, 2015. The State is then required to rescind the operating permit and approval order by December 15, 2015.

[63] Copies of Administrative Orders DAQE-AN0102370012-08 and DAQE-AN0102380021-10 are included in the docket.

[64] Utah Regional Haze State Implementation Plan, Technical Support Document, Ch. 1, p. 12 (2015).

sulfate levels have decreased,[65] and references similar results at other Class I areas in the TSD.[66] Utah also presents data on trends in emissions from EGUs showing substantial reductions in emissions of both SO_2 and NO_X.[67] Based on these data, Utah indicates it "has confidence that the SO_2 reductions will achieve meaningful visibility improvement," under the Utah BART Alternative, while "the visibility improvement during the winter months due to NO_X reductions is much more uncertain."[68] Utah makes this point even though nitrate concentrations are highest in the winter, explaining that while there has been a reduction in NOx, the ammonium nitrate values do not show similar improvement in the winter months.[69] Utah offers several possible explanations for the results, but does not provide any definitive conclusions.[70]

Utah also presents data on the seasonality of park visitation and monitoring data for nitrate and sulfates. The data show that the highest measured nitrate concentrations occur in winter during the period of lowest park visitation, and that sulfates affect visibility throughout the year and are the dominant visibility impairing pollutant from anthropogenic sources during the high visitation period of March through November. Utah concludes that it has greater confidence that reductions in SO_2 will be reflected in improved visibility for visitors to the Class I areas, while reductions in NO_X will have a more uncertain benefit for visitors to Class I areas.

h. Energy and Non-air Quality Benefits

Utah stated that energy and non-air quality environmental impacts are one of the factors listed in CAA section 169A(g)(2) that must be considered when determining BART. The State noted that the Utah BART Alternative would avoid the energy penalty due to operating SCR

[65] Id. at p. 15.
[66] Id. at p. 12.
[67] Id. at p. 14.
[68] Id. at p.13.
[69] Id.
[70] Id. at pp. 16-19.

units. PacifiCorp included the energy penalty in its BART analysis as part of the total cost for installing SCR on each of the units. The energy penalty costs are provided in Table 10.

Table 10. SCR Energy Penalty[71]

Source/Unit	Energy Penalty	
	kW	$/year
Hunter Unit 1	2,090	$494,247
Hunter Unit 2	2,090	$494,247
Huntington Unit 1	2,182	$516,098
Huntington Unit 2	2,182	$516,098
Total	8,544	$2,020,690

Utah presented additional non-air quality benefits associated with the closure of the Carbon plant. First, it noted that solid wastes in the form of fly ash from the electrostatic precipitators and bottom ash conveyors which clean the residuals from the two steam generating units (the boilers), would be eliminated. These wastes are currently landfilled. The Carbon plant also runs water through the boilers as well as two cooling towers. This uses water and has associated wastewater discharge. Hauling the ash to the landfill requires additional fuel use and water or chemical dust suppression for minimization of fugitive dust. Finally, for maintenance and emergency purposes, Utah noted that the plant has a number of emergency generators, fire pumps, and ancillary equipment – all of which must be periodically operated, tested and maintained – with associated air emissions, fuel use, painting, and the like. Utah suggests that all of these non-air quality impacts are reduced as the result of closing the Carbon plant.

[71] PacifiCorp quantified the energy penalty associated with SCR in its August 4, 2014 BART Analysis Update, Appendix A. See id. at p. 26 (Table 13 presents this information).

i. Cost

Utah cited PacifiCorp's comments on the State's proposed SIP revision that the BART Alternative not only produces greater reasonable progress, including lower emissions and improved visibility, but that it does so at a significant capital cost savings to PacifiCorp and its customers as compared to the BART Benchmark. Utah acknowledged that it did not officially determine the cost of installing SCR on the four BART units, but that it believed the cost of installing SCR would be significant. On the other hand, Utah noted that the Carbon Plant has already been closed due to the high cost of complying with the MATS rule. Utah explained that the costs to Utah rate payers (and those in other states served by PacifiCorp) to replace the power generated by the Carbon Plant have already occurred; there will be no additional cost to achieve the co-benefit of visibility improvement. As a result, Utah asserted that the BART Alternative not only achieves better visibility improvements than would be achieved by requiring SCR as BART at the four EGUs, but at a significantly lower cost. The State believed this presents a classic "win/win" scenario –the BART Alternative results in greater reasonable progress that is achieved at a much lower price compared to SCR. The State also noted that cost is one of the factors listed in CAA section 169A(g)(2) that should be considered when determining BART.

6. Requirement That Emission Reductions Take Place During Period of First Long-Term Strategy

Pursuant to 40 CFR 51.308(e)(2)(iii), the State must ensure that all necessary emission reductions take place during the period of the first long-term strategy for regional haze, i.e., by December 31, 2018. The RHR further provides that, "[t]o meet this requirement, the State must provide a detailed description of the . . . alternative measure, including schedules for implementation, the emission reductions required by the program, all necessary administrative

and technical procedures for implementing the program, rules for accounting and monitoring emissions, and procedures for enforcement."[72]

As noted above, the Utah SIP revision incorporates the revisions to R307-110-17, Section IX, Control Measures for Area and Point Sources, Part H, Emissions Limits, which includes provisions for implementing the Utah BART Alternative. In addition to the emission limitations for NO_X and PM_{10}, and the requirement for shutdown of the Carbon Plant listed in Table 2 above, the SIP includes compliance dates, operation and maintenance requirements, and monitoring, recordkeeping, and reporting requirements.

7. Demonstration That Emissions Reductions from Alternative Measure Will Be Surplus

Pursuant to 40 CFR 51.308(e)(2)(iv), the SIP must demonstrate that the emissions reductions resulting from the alternative measure will be surplus to those reductions resulting from measures adopted to meet requirements of the CAA as of the baseline date of the SIP. The baseline date for regional haze SIPs is 2002.[73] Utah developed the 2002 baseline inventory in the 2008 RH SIP for regional modeling, evaluating the impact on Class I areas outside of the Colorado Plateau, and BART as outlined in EPA Guidance and the July 6, 2005 BART Rule. Utah noted that 2002 is the baseline inventory that was used by other states throughout the country when evaluating BART under the provisions of 40 CFR 51.308 and that any measure adopted after 2002 is considered "surplus" under 40 CFR 51.308(e)(2)(iv). Utah referenced other EPA actions that are consistent with this interpretation.[74] Utah stated that the BART Benchmark

[72] 40 CFR 51.308(e)(2)(iii).
[73] See Memorandum from Lydia Wegman and Peter Tsirigotis, 2002 Base Year Emission Inventory SIP Planning: 8-hr Ozone, $PM_{2.5}$, and Regional Haze Programs (Nov. 18, 2002), available at http://www3.epa.gov/ttnchie1/eidocs/2002baseinven_102502new.pdf.
[74] 79 FR 33438, 33441-33442 (June 11, 2014); 79 FR 56322, 56328 (Sept. 9, 2014).

scenario includes measures required before the baseline date of the SIP but does not include later measures that are credited as part of the BART Alternative scenario.

To address potential concerns with double counting SO_2 emissions reductions from the Carbon plant closure under both the 308 and 309 programs, in addition to providing the explanation in the June 2015 SIP (discussed in TSD Chapter 1, Section X), Utah's October 7, 2015 SIP also includes enforceable commitments to address these concerns. The State explained how the WRAP modeling done to support the Utah RH backstop trading program SIP included regional SO_2 emissions based on the 2018 SO_2 milestone and also included NO_X and PM_{10} emissions from the Carbon plant. Actual emissions in the three-state region are calculated each year and compared to the milestones. Utah provided Table 11 below to show that in 2011 emissions were below the 2018 milestone (141,849 tpy). Utah noted that the most recent milestone report for 2013 demonstrates that SO_2 emissions are currently 26 percent lower than the 2018 milestone. Utah stated that the Carbon plant was fully operational in the years 2011-2013 when the emissions were below the 2018 milestone. The State noted that the SO_2 emission reductions from the closure of the Carbon plant are surplus to what is needed to meet the 2018 milestone established in Utah's RH SIP.

Table 11. SO_2 Milestone Trends[75]

Year	Milestone (tpy)	Three-Year Average SO_2 Emissions[1] (tpy)	Carbon Plant SO_2 Emissions (tpy)
2003	303,264	214,780	5,488
2004	303,264	223,584	5,642
2005	303,264	220,987	5,410
2006	303,264	218,499	6,779
2007	303,264	203,569	6,511

[75] See Utah Regional Haze State Implementation Plan, Technical Support Document, Ch. 1 (Reference Table 15) (2015).

2008	269,083	186,837	5,057
2009	234,903	165,633	5,494
2010	200,722	146,808	7,462
2011	200,722	130,935	7,740
2012	200,722	115,115	8,307
2013	185,795	105,084	7,702
2014	170,868	--	--
2015	155,940	--	--
2016	155,940	--	--
2017	155,940	--	--
2018	141,849	--	--

[1]The three-year average is based on the emissions averaged for the current and two preceding years.

For Hunter Unit 3, Utah also explained that PacifiCorp upgraded the LNB controls in 2008 and that the upgrade was not required under the requirements of the CAA as of the 2002 baseline date of the SIP; the emission reductions from the upgrade are therefore considered surplus and creditable for the BART Alternative under 40 CFR 51.308(e)(2)(iv). Utah noted that prior to the 2008 upgrade, the emission rate for Hunter Unit 2 was 0.46 lb/MMBtu heat input for a 30-day rolling average as required by Phase II of the Acid Rain Program.[76]

D. Summary of Utah's Enforceable Commitment SIP Revision

To address potential concerns that Utah would be double counting SO_2 emissions reductions for the Carbon plant closure under both the 40 CFR 51.308 and 309 programs, on October 7, 2015 the State adopted an enforceable commitment into the Utah RH SIP at Chapter XX, Section N. Utah submitted this SIP revision to EPA on October 20, 2015. In this commitment, the State explained that it will continue to report the historical emissions for the Carbon plant in the annual milestones reports from 2016 through the life of the backstop trading program. In addition, the State has committed to making revisions as necessary to SIP Section

[76] There is a typographical error in Chapter 1, section X.C, PacifiCorp Hunter Unit 3, p. 31. The reference to Hunter Unit 2 should be Unit 3 based on the section heading as well as confirmed emission limits in Utah Approval Order DAQE-AN0102370012-08.

XX.D.3.c ("Triggering the Trading Program") and State rule R307-150 ("Emission Inventories Program") as well as any other applicable provisions to implement the requirement for reporting Carbon's historical emissions under the 309 program. The State notes it will follow its SIP adoption process when making these SIP revisions. The SIP will be adopted by the Governor-appointed Air Quality Board through a rulemaking process that includes public participation. Once approved into the SIP, the commitment will be enforceable by both EPA and citizens under the CAA.

The State noted that EPA has historically recognized that, under certain circumstances, issuing full approval may be appropriate for a SIP submission that consists of, in part, an enforceable commitment. Utah explained that its October 2015 submission satisfies EPA's requirements for enforceable commitments because it has adopted such a commitment for what is a small portion of its regional haze program in relation to its regional haze obligations as a whole. In addition, Carbon's 8,005 tpy SO_2 emissions reductions is small in comparison to the 2018 milestone of 141,849 tpy described in Table 7 above.

On the matter of timing, the State has committed to providing the required subsequent SIP submittal by mid-March 2018.

E. Consultation with FLMs

Utah's SIPs do not specifically discuss how it addressed the requirements of 40 CFR 308(i)(2) for providing the FLMs with an opportunity for consultation at least 60 days prior to holding the public hearing for the June 2015 RH SIP. However, we are aware that Utah consulted with the FLMs and explain those efforts here. The State held an initial public comment period for proposed SIP amendments from November 1 through December 22, 2014. The State provided the opportunity for the FLMs to review the preliminary draft SIP documents via email

approximately 68 days prior to the public hearing that was held on a December 1, 2014. Copies of the email correspondence documenting this effort are included in the docket.

Utah received a number of comments during the public comment period in late 2014. After reviewing the comments and consulting with EPA, Utah determined additional work was needed to develop a BART alternative measure that would take credit for emission reductions from the Carbon plant shutdown among other things. Utah held an additional public comment period from April 1 through April 30, 2015. One of the FLMs, the National Park Service, provided extensive public comments to Utah during this second public comment period and Utah included responses to these comments, along with responses to other commenters, in the June 2015 RH SIP submittal along with other administrative documentation.

The October 2015 Utah RH SIP was provided for public comment August 15 through September 14, 2015, and we are not aware of any prior FLM consultation on this SIP. The FLMs did not submit comments during this public comment period.

V. EPA's Evaluation and Proposed Approval of Utah's Regional Haze SIP

As explained in section II.A above, EPA is soliciting comments on two alternative proposals: a proposal to approve the State SIP in its entirety, and a proposal to partially approve and partially disapprove the State SIP and to issue a FIP. The co-proposals detailed in this section and Section VI represent different conclusions regarding Utah's NO_X BART Alternative and the metrics the State has proposed to support this alternative. As described in this section, EPA is proposing to approve the two Utah 2015 RH SIP revisions. Alternatively, as discussed in section VI, EPA is co-proposing to disapprove the Utah's June 2015 and October 2015 RH SIP revisions and promulgate a FIP.

This document is written as two separate proposals in order to clearly present the options and solicit comment on each. EPA intends to finalize only one of these co-proposals; however, we also acknowledge that additional information and comments may also lead the Agency to adopt final SIP and/or FIP regulations that differ somewhat from the co-proposals presented here regarding the BART Alternative, BART control technology option or emission limits, or impact other proposed regulatory provisions.

A. Basis for Proposed Approval

For the reasons described below, EPA proposes to approve the two Utah 2015 RH SIP revisions. Our proposed action is based on an evaluation of Utah's regional haze SIP submittals against the regional haze requirements at 40 CFR 51.300–51.309 and CAA sections 169A and 169B. All general SIP requirements contained in CAA section 110, other provisions of the CAA, and our regulations applicable to this action were also evaluated. The purpose of this proposed action is to ensure compliance with these requirements and to provide additional rationale to support our conclusions.

B. Utah BART Alternative

1. Summary of Utah BART Alternative

Utah has opted to establish an alternative measure (or program) for NO_X in accordance with 40 CFR 51.308(e)(2). A description of the Utah BART Alternative is provided above in section IV.B.1. The RHR requires that a SIP revision establishing a BART alternative include three elements as listed below. We have evaluated the Utah BART Alternative with respect to each of these elements.

- A demonstration that the emissions trading program or other alternative measure will achieve greater reasonable progress than would have resulted from the

installation and operation of BART at all sources subject to BART in the State and covered by the alternative program.[77]

- A requirement that all necessary emissions reductions take place during the period of the first long-term strategy for regional haze.[78]
- A demonstration that the emissions reductions resulting from the alternative measure will be surplus to those reductions resulting from measures adopted to meet requirements of the CAA as of the baseline date of the SIP.[79]

2. Demonstration of Greater Reasonable Progress for the Alternative Program

As discussed above in section III.E.1, pursuant to 40 CFR 51.308(e)(2)(i), Utah must demonstrate that the alternative measure will achieve greater reasonable progress than would have resulted from the installation and operation of BART at all sources subject to BART in the State and covered by the alternative program. This demonstration, primarily included in Chapter 1 of the TSD of the Utah RH SIP,[80] must be based on five criteria which are addressed below.

a. A List of All BART-Eligible Sources Within the State

As discussed above in section IV.A.2, Utah included a list of BART-eligible sources and noted the following sources are all covered by the alternative program:

- PacifiCorp Hunter, Unit 1
- PacifiCorp Hunter, Unit 2
- PacifiCorp, Huntington, Unit 1
- PacifiCorp, Huntington, Unit 2

[77] 40 CFR 51.308(e)(2)(i).
[78] 40 CFR 51.308(e)(2)(iii).
[79] 40 CFR 51.308(e)(2)(iv).
[80] As presented in this proposal, while the majority of the State's demonstration is contained in Chapter 1, EPA has identified additional information regarding the demonstration and we include references to the additional information.

EPA previously approved Utah's BART eligibility determinations in our 2012 rulemaking.[81]

b. A List of All BART-Eligible Sources and All BART Source Categories Covered by the Alternative Program

As discussed above in section IV.A.3, the Utah BART Alternative covers all the BART-eligible sources in the state, Hunter Units 1 and 2 and Huntington Units 1 and 2, in addition to three non-BART units, PacifiCorp's Hunter Unit 3 and Carbon Units 1 and 2. EPA previously approved Utah's BART eligibility determinations in our 2012 rulemaking.[82]

c. Analysis of BART and Associated Emission Reductions

As noted above in section IV.C.3, in the June 2015 Utah RH SIP, the State compared the Utah BART Alternative to a BART Benchmark that included the most stringent NO_X BART controls, SCR plus new LNBs and SOFA, at the four BART units. This is consistent with the streamlined approach described in Step 1 of the BART Guidelines. The BART Guidelines note that a comprehensive BART analysis can be avoided if a source commits to a BART determination that consists of the most stringent controls available.[83]

We propose to find that Utah has met the requirement for an analysis of BART and associated emission reductions achievable at Hunter and Huntington under 40 CFR 51.308(e)(2)(i)(C).

d. Analysis of Projected Emissions Reductions Achievable Through the BART Alternative

[81] 77 FR 74357 (Dec. 14, 2012).
[82] 77 FR 74355, 74357 (Dec. 14, 2012).
[83] 40 CFR 51, appendix Y, section IV.D.1.9.

As discussed above in section IV.C.4, a summary of Utah's estimates of emissions for the Utah BART Alternative and the BART Benchmark is provided above in Table 3. We propose to find that Utah has met the requirement for an analysis of the projected emissions reductions achievable through the alternative measure under 40 CFR 51.308(e)(2)(i)(D).

e. A Determination That the Alternative Achieves Greater Reasonable Progress Than Would Be Achieved Through the Installation and Operation of BART

Greater Reasonable Progress Based on 40 CFR 51.308(e)(3)'s Greater Emission Reductions Test

EPA's evaluation of the State's demonstration based on 40 CFR 51.308(e)(3) is located below in section VI.B.2.e.

Greater Reasonable Progress Based on 40 CFR 51.308(e)(2)'s Weight-of-Evidence Test

Although Utah found that the BART Alternative demonstrates greater reasonable progress under 40 CFR 51.308(e)(3), it also chose to conduct a weight-of-evidence analysis under 40 CFR 51.308(e)(2) based on a BART Alternative involving the Hunter, Huntington, and Carbon power plants and considered the following evidence:

i. Annual emissions comparison for visibility-impairing pollutants

The emissions of visibility-impairing pollutants from both the Utah BART Alternative and the BART Benchmark, as estimated by Utah, are summarized above in Table 3 in section IV.C.4. Compared with the Utah BART Benchmark, the State projects that the Utah BART Alternative will result in 5,721 tpy more NO_X emissions, 8,005 tpy fewer SO_2 emissions, and 573 tpy fewer PM_{10} emissions than the BART Benchmark. Utah also found that the combined emissions of NO_X, SO_2 and PM_{10} will be 2,856 tpy lower under the BART Alternative.

We propose to concur with Utah's finding that the BART Alternative will achieve greater SO_2 and PM_{10} emissions reductions and greater aggregate emissions reductions of all pollutants. We further propose to recognize that not all pollutants impact visibility equally and that the total emissions reductions of all pollutants is not necessarily a direct indicator of whether the BART Alternative or the BART Benchmark will achieve greater reasonable progress. However, for reasons described below in subsection vii for our evaluation of Utah's IMPROVE monitoring metric, we propose to concur with Utah's finding that SO_2 emissions reductions should provide visibility benefits in all seasons and that sulfate is the largest contributor to visibility impairment at the affected Class I areas. Furthermore, we propose to find that these observations suggest that the BART Alternative is likely to achieve greater reasonable progress. We note that Utah has also provided CALPUFF modeling results for the BART Benchmark and BART Alternative scenarios to assess the relative visibility benefits of each. These modeling results are considered here by EPA as part of the overall weight-of-evidence analysis.

ii. Improvement in the number of days with significant visibility impairment

As discussed above in section IV.C.5, Utah provided modeling results to assess the improvement in the number of days with significant visibility impairment – that is, the improvement in the number of days with impacts that either cause (> 1.0 dv) or contribute (> 0.5 dv) to visibility impairment.

The BART Guidelines provide that, when making a BART determination, a State may consider the number of days or hours that a threshold was exceeded.[84] In developing the BART Guidelines, our example modeling analysis of a hypothetical source examined the number of

[84] 40 CFR 51, appendix Y, section IV.D.5.

days that 1.0 dv and 0.5 dv thresholds were exceeded.[85] In addition, we have used these metrics, and in particular the total number of days for the meteorological years modeled, in previous regional haze rulemakings such as for North Dakota,[86] Montana,[87] and Washington.[88] This metric is useful in assessing the frequency and duration of significant visibility impacts from a source or small group of sources. Therefore, for this reason and because these metrics are supported by our regulations and past practice, we propose to find the State's use of these metrics is appropriate. Moreover, we propose to find the difference in the total number of days impacted – 18 fewer days greater than the causation threshold of 1.0 dv (775 days for the BART Alternative vs. 793 days for the BART Benchmark), and 175 fewer days greater than the contribution 0.5 dv threshold (1,323 days for the BART Alternative vs. 1,498 days for the BART Benchmark) – is an indication that the BART Alternative achieves greater reasonable progress.

iii. 98th percentile impact (dv)

As discussed above in section IV.C.5, Utah explained that the only metric it evaluated that showed greater improvement for the BART Benchmark in comparison to the BART Alternative was the 98th percentile metric (when averaged across all Class I areas and meteorological years modeled). Utah's comparison of the modeled visibility impacts on the 98th percentile day (8th highest impacted day in a given meteorological year) for the most impacted year shows that the BART Benchmark would result in greater visibility improvement at five of the nine Class I areas, and is slightly better on average across all nine Class I areas (0.11 dv difference). At the most impacted Class I areas, Canyonlands and Capitol Reef, Utah found that the 98th percentile metric indicates the BART Benchmark has 0.76 dv and 0.57 dv, respectively,

[85] 70 FR 39130 (July 6, 2005).
[86] 76 FR 58584 (Sept. 21, 2011).
[87] 77 FR 24006 (Apr. 20, 2012).
[88] 79 FR 33438, 33440-33441 (June 11, 2014).

more improvement than the BART Alternative. At other Class I areas, Utah found that the 98th percentile metric indicates that the BART Alternative provides greater visibility improvement (for example, 0.44 dv at Flat Tops).

The 98th percentile visibility impact is a key metric recommended by the BART Guidelines[89] when selecting BART controls. In addition, this is one of the primary metrics that EPA has relied on in evaluating prior regional haze actions that have included BART alternatives.[90] In the BART Guidelines, EPA described this metric as an appropriate measure in determining the degree of visibility improvement expected from controls.[91] Therefore, we propose to find that it is an appropriate metric for assessing the relative benefits of the Utah BART Alternative here.

We note that when calculating visibility improvements for individual Class I areas, Utah mixed the impacts from different meteorological years between modeling scenarios (baseline, BART benchmark, and BART Alternative). This may introduce some error as the visibility improvements could be driven by year-to-year variability in meteorological conditions, as opposed to the differences in emission reductions between the BART Alternative and BART Benchmark. For this reason, in addition to considering the State's numbers, EPA also calculated the visibility improvements for each modeling scenario using consistent meteorological years.[92] Using this method, whether the BART Alternative resulted in lower 98th percentile impacts depended on both the particular Class I area and meteorological year modeled. In some years and

[89] 40 CFR 51, appendix Y, section IV.D.5.
[90] See, e.g., 78 FR 79344 (Dec. 30, 2012)(proposed rule, FIP for Tesoro Refining and Intalco Refinery BART Alternatives); 79 FR 33438 (June 11, 2014)(final rule, FIP for Tesoro Refining and Intalco Refinery BART Alternatives); 79 FR 56322, 56328 (Sept. 19, 2014)(proposed approval of Arizona Apache BART Alternative); 80 FR 19220 (April 10, 2015)(final approval of Arizona Apache BART Alternative); 77 FR 11827, 11837 (Feb. 28, 2012)(proposed approval of Maryland BART Alternative); 77 FR 39938, 39940-1 (July 6, 2012)(final approval of Maryland BART Alternative).
[91] 70 FR at 39129.
[92] See EPA Calculation of 98th Percentile Improvement for Utah Bart Alternative spreadsheet (in docket).

some Class I areas, particularly some of the most impacted Class I areas, the BART Benchmark shows better visibility improvement than the BART Alternative. Notably, the BART Benchmark shows 0.93 dv greater improvement for Canyonlands in 2002 and 0.75 dv greater improvement for Capitol Reef in 2001.[93] By contrast, the BART Alternative shows 0.90 dv greater improvement for Arches in 2003 and 0.43 dv greater improvement for Flat Tops in 2002.[94] On the whole, when using this method, the BART Benchmark is better on average across all years and nine Class I areas (0.14 dv difference). See Table 12 below. We propose to find, consistent with the State's evaluation, that this metric favors the BART Benchmark.

Table 12. Summary of EPA Comparison of Utah CALPUFF 98th Percentile Modeling Results Based on Consistent Meteorological Years[95]

Class I Area	Average Visibility Improvement of BART Benchmark Over BART Alternative (delta dv)[1]
Arches	-0.21
Black Canyon of the Gunnison	0.06
Bryce Canyon	0.04
Canyonlands	0.78
Capitol Reef	0.59
Flat Tops	-0.15
Grand Canyon	0.06

[93] Id.
[94] Id.
[95] Id.

Mesa Verde	0.12
Zion	0.02
Class I Area Average	0.14

[1]A negative value indicates the modeling results favor the BART Alternative. Results are based on the three-year average of results for 2001, 2002 and 2003.

iv. Annual average impact (dv)

As discussed above in section IV.C.5, Utah's modeling shows that the average annual dv impact at all Class I areas is better under the Utah BART Alternative at five of the nine Class I areas, and is better on average across all the Class I areas. The average impact was calculated by averaging all daily modeling results for each year and then calculating a 3-year average from the annual average. Utah's information shows that the BART Alternative is better than the BART Benchmark by 0.009 dv on average across all nine Class I areas. While EPA has not considered this metric in the past,[96] since the State includes it, we consider it here. Furthermore, the BART Guidelines state that, "in determining what, if any, emission controls should be required, the State will have the opportunity to consider the frequency, duration, and intensity of a source's predicted effect on visibility."[97] The annual average does provide an indication of the modeled visibility impacts for the entire year while the 98th percentile modeled results speak to a particular day (the 8th highest impacted day). Accordingly, and while we have typically relied primarily on the 98th percentile impacts in evaluating BART controls in other actions, we propose to find that the annual average impact provides additional useful information in considering Utah's weight of evidence. However, given that the difference in this metric is small

[96] EPA final actions on BART alternatives that evaluated CALPUFF modeling analysis, which did not include consideration of annual average dv impacts include: 80 FR 19220 (April 10, 2015)(Region 9, Apache); 79 FR 33438 (June 11, 2014)(Region 10, Tesoro Refining and Alcoa Intalco Operations); 77 FR 39938 (July 6, 2012)(Region 3, Maryland HAA).
[97] 70 FR 39121 (July 5, 2005).

(0.009 dv), we propose to find that it only marginally supports a conclusion that the BART Alternative achieves greater reasonable progress.

v. 90^{th} percentile impact (dv)

As discussed above in section IV.C.5, Utah's comparison of the modeled visibility impacts at the 90^{th} percentile (the 110^{th} highest day across three years) dv impact shows that the Utah BART Alternative is better at seven of the nine Class I areas and is slightly better averaged both across three years and across nine Class I areas (0.006 dv difference). We note that the use of the 90^{th} percentile impacts to evaluate alternatives has not been EPA's practice for source-specific BART determinations; however, as discussed above for the average dv impact metric, the BART Guidelines allow states to consider other visibility metrics in addition to the 98^{th} percentile. Yet, because of the small difference between the two scenarios (0.006 dv), we propose to find that it only marginally supports a conclusion that the BART Alternative achieves greater reasonable progress.

vi. Timing for the emissions reductions

As discussed above in section IV.C.5, Utah noted that reductions under the Utah BART Alternative will occur earlier than the BART Benchmark. The reductions under the Utah BART Alternative are required under the State SIP by August 2015, as noted in Table 5, providing an early and on-going visibility benefit as compared to BART. Also notable is that combustion control upgrades at the Hunter and Huntington facilities have been achieving significant NO_X reductions since the time of their installation between 2006 and 2014, depending on the unit. If, as proposed in section VI.C, BART for the four units is LNB/SOFA plus SCR, BART likely would be fully implemented sometime between 2019 and 2021.

Therefore, we note that the reductions from the BART Alternative will occur before the BART Benchmark.

vii. IMPROVE Monitoring Data

Utah's SIP presents sulfate and nitrate monitoring data at the Canyonlands IMPROVE monitor that show that "sulfates are the dominant visibility impairing pollutant"[98] and that sulfate levels have decreased,[99] and references similar results at other Class I areas in the TSD.[100] Utah also presents data on trends in emissions from EGUs showing substantial reductions in emissions of both SO_2 and NO_X.[101] Based on these data, Utah indicates it "has confidence that the SO_2 reductions will achieve meaningful visibility improvement," under the Utah BART Alternative, while "the visibility improvement during the winter months due to NO_X reductions is much more uncertain."[102] Utah makes this point even though nitrate concentrations are highest in the winter, explaining that while there has been a reduction in NO_X, the ammonium nitrate values do not show similar improvement in the winter months.[103] Utah offers several possible explanations for the results, but does not provide any definitive conclusions.[104]

Utah also presents data on the seasonality of park visitation and monitoring data for nitrate and sulfates. The data show that the highest measured nitrate concentrations occur in winter during the period of lowest park visitation, and that sulfates affect visibility throughout the year and are the dominant visibility impairing pollutant from anthropogenic sources during the high visitation period of March through November. Utah concludes that it has greater

[98] Utah Regional Haze State Implementation Plan, Technical Support Document, Ch. 1, p. 12 (2015).
[99] Id. at p. 15.
[100] Id. at p.12.
[101] Id. at p. 14.
[102] Id. at p. 13.
[103] Id.
[104] Id. at pp. 16-19.

confidence that reductions in SO_2 will be reflected in improved visibility for visitors to the Class I areas, while reductions in NO_X will have a more uncertain benefit for visitors to Class I areas.

We invite comment on the information and conclusions provided by Utah as summarized above.

We propose to concur with one of the State's findings. We propose to find that visibility benefits associated with NO_X reductions are much more likely to occur in the winter months because this is when aerosol thermodynamics favors nitrate formation.[105] By contrast, SO_2 emissions reductions should provide visibility benefits in all seasons.[106] We also propose to find that, as concluded by the GCVTC, and supported by the IMPROVE monitoring data presented by Utah, anthropogenic visibility impairment on the Colorado Plateau is dominated by sulfates.[107, 108] Therefore, we propose to concur with Utah's statement that sulfate is the largest contributor to visibility impairment at the affected Class I areas.

We propose to disagree with the State's findings related to park visitation. While the BART Guidelines do mention visitation as something that can inform a control decision,[109] EPA is proposing to place little weight on the State's correlation of emissions reductions and park

[105] Fountoukis, C. & Nenes, A. ISORROPIA II: A Computationally Efficient Aerosol Thermodynamic Equilibrium Model for K^+, Ca_2^+, Mg_2^+, NH_4^+, Na^+, SO_4^{2-}, NO_3^-, Cl-, H_2O Aerosols, 7 ATMOS. CHEM. PHYS., 4639–4659 (2007).

[106] Seinfeld, John H., Urban Air Pollution: State of the Science, 243 SCIENCE MAGAZINE, No. 4892, 745, 745-752 (1989).

[107] While natural sources of haze from wildfires or windblown dust can be the largest contributor on some of the 20% haziest days, the RHR defines "impairment" as anthropogenic impairment, and sulfate formed from anthropogenic SO2 emissions is the dominant contributor to anthropogenic visibility impairment on the haziest days.

[108] The Grand Canyon Visibility Transport Commission Recommendations for Improving Western Vistas, June 10, 1996, p. 32. Available at http://www.wrapair.org/WRAP/reports/GCVTCFinal.PDF and included in the docket.

[109] 70 FR 39104, 39130 (July 6, 2005) ("Other ways that visibility improvement may be assessed to inform the control decisions would be to examine distributions of the daily impacts, determine if the time of year is important (e.g. high impacts are occurring during tourist season), consideration of the cost-effectiveness of visibility improvements (i.e. the cost per change in deciview), using the measures of deciview improvement identified by the State, or simply compare the worst case days for the pre- and post-control runs. States may develop other methods as well.").

visitation because nothing in the CAA suggests that visitors during busy time periods are entitled to experience better visibility than visitors during off-peak periods. On the contrary, in the Regional Haze provisions of the CAA, Congress declared a national goal of remedying all manmade visibility impairment in all class I areas, which includes both heavily-visited national parks and seldom-visited wilderness areas. We invite comment on our evaluation and the information and conclusions provided by Utah as summarized above.

viii. Energy and non-air quality benefits

As discussed above in section IV.C.5, the State noted that the Utah BART Alternative would avoid an annual energy penalty of approximately $2 million due to operating four SCR units at the Hunter and Huntington plants and presented additional non-air quality benefits associated with the closure of the Carbon plant such as waste reduction and decreased water usage. Because such benefits do not have direct bearing on whether the BART Alternative achieves greater reasonable progress, it is not material to our action whether we agree or disagree with Utah's assessment that they reduce energy and non-air quality impacts.

ix. Cost

As discussed above in section IV.C.5, the State noted that the Utah BART Alternative would achieve greater reasonable progress at lower cost to PacifiCorp than the BART Benchmark. Utah also noted that cost is one of the factors listed in CAA 169A(g)(2) that should be considered when determining BART. While we propose to find that the described cost difference does not have a direct bearing on whether the BART Alternative achieves greater reasonable progress, it is not material to our action whether we agree or disagree with Utah's conclusion that the BART Alternative would have a lower cost impact to PacifiCorp than the

BART Benchmark (i.e., costs provided by PacifiCorp in its BART analyses of August 5, 2014, SIP TSD Chapter 2). However, we do agree.

f. Evaluation of the Weight of Evidence

In accordance with our regulations governing BART alternatives, we support the use of a weight-of evidence determination as an alternative to the methodology set forth in section 51.308(e)(3).[110] In evaluating Utah's weight-of-evidence demonstration, we have evaluated all nine elements of Utah's analysis, and as discussed below, rely primarily on the following four elements in proposing to approve the BART Alternative: annual emissions comparison for two pollutants; improvement in the number of days with significant visibility impairment; IMPROVE monitoring data regarding sulfates; and the early timing for installation of controls. Additional elements that either marginally support or do not support our proposed approval of Utah's determination are also discussed below.

Regarding the emissions reduction comparison, the Utah BART Alternative will result in 8,005 tpy fewer SO_2 emissions compared to the BART Benchmark. In addition, the combined emissions of NO_X, SO_2 and PM_{10} will be 2,856 tpy lower under the BART Alternative.

Regarding the improvement in the number of days with significant visibility impairment, modeling submitted by Utah shows that the Utah BART Alternative will result in improved visibility at all affected Class I areas compared with baseline conditions. The units at issue will have impacts of 1.0 dv or more at the affected Class I areas on 48 fewer days under the Utah BART Alternative as compared to BART. When considering impacts of 0.5 dv or more, the units at issue will impact the affected Class I areas on 154 fewer days under the BART Alternative as compared to BART.

[110] 71 FR 60622 (Oct. 13, 2006).

Regarding the IMPROVE visibility monitoring data, we propose to agree with the State's finding that SO_2 emissions reductions provide visibility benefits throughout the year. We also propose to concur with Utah's statement that sulfate is the largest contributor to visibility impairment at the affected Class I areas.

Regarding the timing of emissions reductions, these SO_2 emissions reductions were achieved in August 2015, the date in the June 2015 Utah RH SIP requiring the closure of the Carbon plant. Combustion controls at the four BART units in addition to Hunter Unit 3 were installed between 2006 and 2014. BART likely would otherwise have been implemented sometime between 2019 and 2021. So the Utah BART Alternative provides early and on-going visibility benefits as compared to BART.

Regarding other metrics that only marginally support or do not support our proposed approval of Utah's BART Alternative, we propose to find that average annual dv impact and the 90^{th} percentile impact are the two metrics that marginally support a conclusion that the BART Alternative achieves greater reasonable progress.

Regarding the 98^{th} percentile visibility impact, we propose to find this metric does not support our proposed approval of Utah's BART Alternative. While the 98^{th} percentile visibility impact is a key metric that EPA has primarily focused on in prior actions, we propose to conclude that by itself it is not a dispositive metric in weighing a BART Alternative. Nonetheless, as discussed in section VI, we have given considerable weight to this metric in previous actions where we have evaluated BART alternatives as it captures a source's likely greatest visibility impacts at a Class I area; as such, it is a useful comparison point for determining whether one emission control scenario will have a greater impact on visibility improvement than another. In those actions, the 98^{th} percentile visibility impact favored the

BART alternative and therefore there was less need to introduce and consider additional evidence to determine whether an alternative would provide greater reasonable progress. In the case of the Utah BART Alternative, where the 98th percentile does not favor the alternative, Utah has introduced additional evidence that we considered in order to evaluate whether the BART Alternative, on balance, achieves greater reasonable progress.

Regarding the 90th percentile visibility impact, we propose to find that consideration of this metric is appropriate in assessing the weight of evidence associated with a BART alternative. Visibility at a Class I area changes from day to day, and each emission control scenario would result in visibility improvements at the affected Class I areas that would differ from one day to another. The metrics related to the number of days with impacts greater than 0.5 dv and 1.0 dv are examples of the type of additional information that allows for consideration of the frequency and duration of visibility impacts. Similarly, the use of the 90th percentile impact metric allows for the comparison of BART and a BART alternative at a different point in the range of impacts. This can be useful, given the varying impacts of different pollutants under different meteorological conditions. The information provided by Utah for the 90th percentile shows that the BART Alternative is better at seven of the nine Class I areas for this metric, by amounts ranging from 0.019 to 0.140 dv, and is better when taking into account the impacts averaged both across three years and across nine Class I areas, but only by 0.006 dv. These values marginally support our proposed approval of Utah's BART Alternative as better than BART. We invite comment on this proposed assessment of how the 90th percentile metric should be considered in the weight of evidence determination. We also invite interested parties to submit additional information on how the impacts of the BART Alternative under various

conditions compare to the impacts of the presumed BART scenario, because while the 90th percentile impact provides additional insight, it is not uniquely informative.

Regarding the energy and non-air quality impacts, as well as cost, we propose to find these metrics do not have direct bearing on whether the Utah BART Alternative achieves greater reasonable progress than the BART Benchmark; and therefore, we have not taken them into consideration.

Consistent with EPA's regulations governing BART alternatives,[111] in evaluating the weight-of-evidence demonstration, we have evaluated all of the information and data submitted by Utah, while recognizing the relative strengths and weaknesses of that information to arrive at our proposed decision. Based on the weight-of-evidence presented, we propose to approve Utah's determination that the Utah BART Alternative would achieve greater reasonable progress than BART under 40 CFR 51.308(e)(2)(i)(I).

g. Requirement That Emission Reductions Take Place During Period of First Long-Term Strategy

As discussed above in section IV.C.6, pursuant to 40 CFR 51.308(e)(2)(iii), the State must ensure that all necessary emission reductions take place during the period of the first long-term strategy for regional haze, i.e., by December 31, 2018. The RHR further provides that, to meet this requirement, the State must provide a detailed description of the alternative measure, including schedules for implementation, the emission reductions required by the program, all necessary administrative and technical procedures for implementing the program, rules for accounting and monitoring emissions, and procedures for enforcement.[112]

[111] 71 FR 60622 (Oct. 13, 2006).
[112] 40 CFR 51.308(e)(2)(iii).

As noted above, the Utah SIP revision incorporates the revisions to R307-110-17, Section IX, Control Measures for Area and Point Sources, Part H, Emissions Limits, which includes provisions for implementing the Utah BART Alternative. In addition to the emission limitations for NO_X and PM_{10}, and the requirement for shutdown of the Carbon plant listed in Table 2 above, the SIP includes compliance dates, operation and maintenance requirements, and monitoring, recordkeeping, and reporting requirements. We propose to find that these provisions meet the requirements of 40 CFR 51.308(e)(2)(iii).

h. Demonstration That Emission Reductions from Alternative Measure Will Be Surplus

i. June 2015 Utah RH SIP

As discussed above in section IV.C.7, pursuant to 40 CFR 51.308(e)(2)(iv), the SIP must demonstrate that the emissions reductions resulting from the alternative measure will be surplus to those reductions resulting from measures adopted to meet requirements of the CAA as of the baseline date of the SIP. The baseline date for regional haze SIPs is 2002.[113] As discussed in section IV.C.7, all of the emission reductions required by the Utah BART Alternative result from measures applicable to Hunter, Huntington and Carbon that occur after 2002.

Furthermore, the State's SIP explains that the WRAP modeling that was done to support the Utah RH SIP included regional SO_2 emissions based on the 2018 SO_2 milestone and also included NO_X and PM_{10} emissions from the Carbon plant. Thus, WRAP did not rely on emission reductions from the Carbon plant in establishing the 2018 SO_2 milestone.

[113] See Memorandum from Lydia Wegman and Peter Tsirigotis, 2002 Base Year Emission Inventory SIP Planning: 8-hr Ozone, $PM_{2.5}$, and Regional Haze Programs, November 18, 2002. http://www3.epa.gov/ttnchie1/eidocs/2002baseinven_102502new.pdf.

The State's SIP also includes SO_2 trend data that further demonstrate emission reductions from the Carbon plant do not appear to be needed for meeting the 2018 milestone of 141,849 tpy. Actual emissions in the three-state region are calculated each year and compared to the milestones. As can be seen in Table 7 above, SO_2 emissions reported for 2011 are below the 2018 milestone and the most recent milestone report for 2013 demonstrates that SO_2 emissions are currently 26 percent lower than the 2018 milestone. Additionally, the Carbon plant was fully operational in the years 2011-2013 when the emissions from the three-state region were below the 2018 milestone for those years. Therefore, the SO_2 emission reductions from the closure of the Carbon plant appear to be surplus to what is needed to meet the 2018 milestone established in Utah's RH SIP.

ii. October 2015 Utah RH SIP

As discussed above in section IV.D, Utah submitted enforceable commitments in its October 20, 2015 SIP to address potential concerns that the State would be double counting SO_2 emissions reductions for the Carbon plant closure under both the 40 CFR 51.308 and 309 programs.[114]

EPA has historically recognized that under certain circumstances, it is appropriate to approve a SIP submission that consists, in part, of an enforceable commitment. Once EPA determines that circumstances warrant consideration of an enforceable commitment to meet section 110(a)(2)(A) of the Act (and other applicable sections as relevant), EPA applies three factors to determine whether to approve the enforceable commitment: (1) whether the commitment addresses a limited portion of the statutorily-required program; (2) whether the state is capable of fulfilling its commitment; and (3) whether the commitment is for a reasonable and

[114] Regional Haze Section XX, N. (1).

appropriate period of time. Once approved in a SIP, the commitments are enforceable by both EPA and citizens under the Act.

First, Utah's revisions address a limited portion of the statutorily-required program. The Air Quality Board adopted revisions to SIP Section XX, Regional Haze, and added a new subsection N, "Enforceable Commitments for the Utah Regional Haze SIP" that resolves specific identified issues. In this provision of the SIP, "[t]he State commits to resolving this double counting issue by revising the Utah 309 plan to specifically state that the 8,005 tons of SO_2 emissions from the Carbon units will be added into the annual milestone reports from 2016 through the life of the backstop trading program, thereby removing any credit for that emission reduction in meeting the levels specified in the Utah 309 plan."[115] Reporting Carbon's emissions in this manner is reasonable and ensures that these emissions reductions are only credited under the BART Alternative.

The SIP indicates the Board is capable of fulfilling these commitments by explaining that "[a]ll required amendments to this SIP will be done through the State's SIP adoption process"[116] and that "[t]he SIP is adopted by the Governor-appointed Air Quality Board through a rulemaking process that includes public comment periods and an opportunity for a public hearing."[117]

The SIP commits to resolve the identified issues ("SIP Section XX.D.3.c and [the State's rule] R307-150 will be revised…"[118]), and any other related issues, within reasonable amount of time ("Utah will work with EPA and take appropriate action to resolve any completeness or

[115] Regional Haze SIP Section XX, N. (1).
[116] Regional Haze SIP Section XX, N. (4).
[117] Regional Haze SIP Section XX, N. (4).
[118] Regional Haze SIP Section XX, N. (3).

approvability issues that arise regarding the proposed SIP revision by March 2018"[119]). This will allow sufficient time for EPA to act on the submittal before the end of the milestone commitment.

We also propose to concur that Carbon's 8,005 tpy of SO_2 emissions reductions is a limited portion of the overall requirements of the 309 program and particularly in comparison to the 2018 SO_2 milestone of 141,849 tpy described in Table 7 above.[120]

Based on these considerations, we propose to approve the enforceable commitment SIP.

Therefore, based on the information presented above from the State's SIP and enforceable commitment SIP, we propose to concur that the reductions from Carbon are surplus and can be considered as part of an alternative strategy under 40 CFR 51.308(e)(2)(iv).

C. PM_{10} BART Determinations

As discussed above in section IV.B.2, Utah determined that the PM_{10} BART emission limit for Hunter Units 1 and 2 and Huntington Units 1 and 2 was 0.015 lb/MMBtu based on a three-run test average. Utah noted that because the most stringent technology is in place at these units and that the PM_{10} emission limits have been made enforceable in the SIP, no further analysis was required.

EPA has reviewed Utah's PM_{10} BART streamlined five-factor analysis and PM_{10} BART determinations for Hunter Units 1 and 2 and Huntington Units 1 and 2 and proposes to find that these determinations meet the requirements of 40 CFR 51.309(d)(4)(vii). The fabric filter baghouses installed at these BART units are considered the most stringent technology available. The emission limit of 0.015 lb/MMBtu at these units represents the most stringent emission limit for PM_{10}. Utah's use of a streamlined approach to the five-factor analysis is reasonable as the

[119] Regional Haze SIP Section XX, N. (6), (3).
[120] Regional Haze SIP Section XX, N. (2).

BART Guidelines provide that a comprehensive BART analysis can be avoided if a source commits to a BART determination that consists of the most stringent controls available.[121]

Utah's regulatory text provides, "[e]missions of particulate (PM) shall not exceed 0.015 lb/MMBtu heat input from each boiler based on a 3-run test average." It further states that "[s]tack testing for the emission limitation shall be performed each year on each boiler."[122] We note that BART limits must apply at all times. See CAA section 302(k), 40 CFR Part 51, Appendix Y, section V. Furthermore, EPA's credible evidence rule states:

> For the purpose of submitting compliance certifications or establishing whether or not a person has violated or is in violation of any standard in this part, the plan must not preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed.[123]

Consistent with these requirements, we propose to interpret Utah's regulatory text as imposing a PM limit of 0.015 lb/MMBtu that applies at all times and does not preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source is in compliance with the limit.

D. Monitoring, Recordkeeping, and Reporting

EPA has reviewed Utah's monitoring, recordkeeping and reporting measures in its June 4, 2015 SIP Section IX, Part H for the BART Alternative and the PM_{10} BART determinations and proposes to approve these measures as meeting the requirements of section 110(a)(2) of the CAA and 40 CFR 51, subpart K, Source Surveillance, with the exception of reporting requirements for violations of PM_{10} emissions limitations. For PM_{10} reporting, we are proposing to conditionally approve this element in accordance with CAA section 110(k)(4) based on Utah's

[121] 40 CFR 51, appendix Y, section IV.D.1.9.
[122] June 2015 Utah RH SIP, Sections IX.H.22.a.i.A–B, IX.H.22.b.i.A–B.
[123] 40 CFR 51.212(c).

commitment to submit specific measures to address the reporting requirement.[124] Utah's letter commits to adopt and submit rule language that would require sources to report any deviation from the requirements of the RH SIP provisions, which would include the PM10 emission limitations. The specific language is detailed in Utah's commitment letter.

Otherwise, the SIP includes adequate measures that pertain to operation of Hunter and Huntington and the closure of Carbon. EPA previously approved state rule provisions that Utah has also cross referenced in these new regional haze measures, including terms, conditions and definitions in R307-101-1, R307-101-2 and R307-170-4 as well as other continuous emission monitoring system (CEMS) requirements referenced in R307-107. These measures are consistent with similar monitoring, recordkeeping, and reporting requirements that EPA has approved in other states or that we have adopted in federal plans,[125] and in particular contain the requirements that were missing from Utah's prior regional haze submittals.[126] As described above in section IV.A.3, Utah has provided the emission limitations, work practice standards, monitoring, recordkeeping, and reporting requirements for all the units that are part of Utah's BART Alternative for the Hunter, Huntington, and Carbon plants.

If we finalize our proposed approval, the regulatory text contained in our final rule for 40 CFR 52 subpart TT will be consistent with the relevant provisions of Utah's regional haze submittals for making the emission limits and other requirements enforceable. If EPA finalizes the conditional approval of Utah's PM_{10} reporting provision, the State has one year from the date of EPA's final action on the June 4, 2015 SIP to submit the necessary SIP revisions. If the State fails to meet its commitment within the one-year period, the approval is treated as a disapproval.

[124] Letter from Department of Environmental Quality, State of Utah to EPA, DAQP-120-15 (Dec. 10, 2015).
[125] 77 FR 57864; 79 FR 5032
[126] 77 FR 74365-74366 (Dec. 14, 2012).

EPA proposes to find that the necessary SIP revisions meet EPA's criteria for conditional approvals[127] as the revisions appear to involve a limited amount of technical work, are anticipated to be non-controversial, and can reasonably be accomplished within the length of time for the State's adoption process.

E. Consultation with FLMs

As discussed above in section IV.G, Utah conducted FLM consultation during late 2014, providing over 60 days prior to the December 1, 2014 public hearing. Subsequently, the National Park Service provided extensive comments in response to a second public comment period in April 2015. Based on these considerations, we propose to find that Utah has met the requirements of 40 CFR 308(i)(2).

VI. EPA's Evaluation and Proposed Partial Approval and Partial Disapproval of Utah's Regional Haze SIP

In this section, we present the second of two alternative proposed actions on which EPA is soliciting comment. As explained above in sections II.A and V, EPA is soliciting comments on two alternative proposals: a proposal to approve the State SIP in its entirety, and a proposal to partially approve and partially disapprove the State SIP and to issue a FIP. The co-proposals detailed in this section and Section V represent different conclusions regarding Utah's NO_X BART Alternative and the metrics the State has proposed to support this alternative.

As described in this section, EPA is proposing to partially approve and partially disapprove Utah's June 2015 and October 2015 RH SIP revisions and propose a FIP. Alternatively, as discussed in section V, EPA is co-proposing in the alternative to approve Utah's June 2015 and October 2015 RH SIP revisions.

[127] See Memorandum from John Calcagni to EPA Regional Directors. "Processing of State Implementation Plan (SIP) Submittals" (July 1992), available at http://www3.epa.gov/ttn/oarpg/t1/memoranda/siproc.pdf.

This document is written as two separate proposals in order to clearly present the options and solicit comment on each. EPA intends to finalize only one of these co-proposals; however, we also acknowledge that additional information and comments may also lead the Agency to adopt final SIP and/or FIP regulations that differ somewhat from the co-proposals presented here regarding the BART Alternative, BART control technology option or emission limits, or impact other proposed regulatory provisions.

A. Basis for Proposed Partial Disapproval and Partial Approval

For the reasons described below, EPA proposes to partially approve and partially disapprove the two Utah 2015 RH SIP revisions. Our proposed action is based on an evaluation of Utah's regional haze SIP submittals against the regional haze requirements at 40 CFR 51.300–51.309 and CAA sections 169A and 169B, as well as the supplemental information EPA developed, such as EPA's calculations of the visibility improvements for each modeling scenario using consistent meteorological years in evaluating the 98th percentile modeling and referencing the topographical maps in evaluating whether distribution of emissions would be substantially different under the Utah BART Alternative. All general SIP requirements contained in CAA section 110, other provisions of the CAA, and our regulations applicable to this action were also evaluated. The purpose of this action is to ensure compliance with these requirements. As discussed in section V, EPA is also co-proposing to approve the Utah's June 2015 and October 2015 RH SIP revisions.

B. Utah BART Alternative

1. Summary of Utah BART Alternative

Utah has opted to establish an alternative measure (or program) for NO_X in accordance with 40 CFR 51.308(e)(2). A description of the Utah BART Alternative is provided above in

section IV.C. The RHR requires that a SIP revision establishing a BART alternative include three elements as listed below. We have evaluated the Utah BART Alternative with respect to each of these elements.

- A demonstration that the emissions trading program or other alternative measure will achieve greater reasonable progress than would have resulted from the installation and operation of BART at all sources subject to BART in the State and covered by the alternative program.[128]
- A requirement that all necessary emissions reductions take place during the period of the first long-term strategy for regional haze.[129]
- A demonstration that the emissions reductions resulting from the alternative measure will be surplus to those reductions resulting from measures adopted to meet requirements of the CAA as of the baseline date of the SIP.[130]

2. Demonstration of Greater Reasonable Progress for Alternative Measure

As discussed above in section III.E.1, pursuant to 40 CFR 51.308(e)(2)(i), Utah must demonstrate that the alternative measure will achieve greater reasonable progress than would have resulted from the installation and operation of BART at all sources subject to BART in the State and covered by the alternative program. This demonstration, primarily included in Chapter 1 of the TSD of the Utah RH SIP,[131] must be based on five criteria presented below.

a. A List of All BART-Eligible Sources Within the State

[128] 40 CFR 51.308(e)(2)(i).
[129] 40 CFR 51.308(e)(2)(iii).
[130] 40 CFR 51.308(e)(2)(iv).
[131] As presented in this proposal, while the majority of the State's demonstration is contained in Chapter 1, EPA has identified additional information regarding the demonstration and we include references to the additional information.

As discussed above in section IV.C.1, Utah included a list of BART-eligible sources and noted the following sources are all covered by the alternative program:

- PacifiCorp Hunter, Unit 1,
- PacifiCorp Hunter, Unit 2,
- PacifiCorp, Huntington, Unit 1, and
- PacifiCorp, Huntington, Unit 2.

EPA approved Utah's BART eligibility determinations in our 2012 rulemaking.[132]

b. A List of All BART-Eligible Sources and All BART Source Categories Covered by the Alternative Program

As discussed above in section IV.A.3, the Utah BART Alternative covers all the BART-eligible sources in the state, Hunter Units 1 and 2 and Huntington Units 1 and 2, in addition to three non-BART units, PacifiCorp's Hunter Unit 3 and Carbon Units 1 and 2. EPA previously approved Utah's BART eligibility determinations in our 2012 rulemaking.[133]

c. Analysis of BART and Associated Emission Reductions Achievable

As noted above in section IV.C.3, in the June 2015 Utah RH SIP, Utah compared the Utah BART Alternative to a BART Benchmark which included the most stringent NO_X BART controls, SCR plus new LNBs and SOFA, at the four BART units. This is consistent with the streamlined approach described in Step 1 of the BART Guidelines. The BART Guidelines note that a comprehensive BART analysis can be avoided if a source commits to a BART determination that consists of the most stringent controls available.[134]

[132] 77 FR 74357 (Dec. 14, 2012).
[133] 77 FR 74357 (Dec. 14, 2012).
[134] 40 CFR 51, appendix Y, section IV.D.1.9.

We propose to find that Utah has met the requirement for an analysis of BART and associated emission reductions achievable at Hunter and Huntington under 40 CFR 51.308(e)(2)(i)(C).

d. Analysis of Projected Emissions Reductions Achievable Through the BART Alternative

As discussed above in section IV.C.4, a summary of Utah's estimates of emissions for the Utah BART Alternative and the BART Benchmark is provided above in Table 3. We propose to find that Utah has met the requirement for an analysis of the projected emissions reductions achievable through the alternative measure under 40 CFR 51.308(e)(2)(i)(D).

e. A Determination That the Alternative Achieves Greater Reasonable Progress Than Would Be Achieved Through the Installation and Operation of BART

Greater Reasonable Progress Based on 40 CFR 51.308(e)(3)'s Greater Emission Reductions Test

As discussed above in section III.E.1, 40 CFR 51.308(e)(3) allows a state to satisfy the final step of the better-than-BART demonstration by showing that that "distribution of emissions is not substantially different than under BART" and that "the alternative measure results in greater emission reductions." EPA has explained that when the BART alternative "achieves greater emission reductions than each of the individual BART determinations"[135] for each of the pollutants, "as well as in the aggregate,"[136] "visibility modeling is not required to support a

[135] 79 FR 9318, 9335 (Feb. 18, 2014).
[136] 79 FR 9318, 9335 (Feb. 18, 2014). See, e.g., 77 FR 11827, 11837 (Feb. 28, 2012)(proposed approval of Maryland BART Alternative, which shows greater SO_2 and NO_X reductions from the Alternative than application of BART, the two pollutants covered by the Alternative); 77 FR 39938, 39940-1 (July 6, 2012)(final approval of Maryland BART Alternative, explaining in responding to comments that because the emission reductions are greater for the Alternative than BART and the distribution of emissions is not substantially different, the Alternative was found to meet 40 CFR 51.308(e)(2) and visibility dispersion modeling was not needed).

better-than-BART determination…."[137] However, as EPA explained in responding to comments in the final rule for the BART Alternative for the Apache Generating Station in Arizona's SIP, "where BART and the BART Alternative result in reduced emissions of one pollutant but increased emissions of another, it is not appropriate to use the 'greater emission reductions' test." Instead, the proper approach is to employ a clear weight-of-evidence approach under 40 CFR 51.308(e)(2) in order to demonstrate that the alternative achieves greater reasonable progress than BART."[138] We have not considered a total emissions profile that combines emissions of multiple pollutants to determine whether BART or the alternative is "better," except where every visibility impairing pollutant is reduced by a greater amount under the BART alternative.[139] A comparison of mass emissions from multiple pollutants (such as NO_X and SO_2) is not generally informative, particularly in assessing whether the alternative approach provides for greater reasonable progress towards improving visibility. Instead, when emissions of one or more pollutants increases under an alternative, EPA has "given the most weight to the visibility impacts based on air quality modeling" [140] and used modeling to determine whether or not a "BART Alternative measure that relies on interpollutant trading results in greater reasonable progress."[141]

[137] 79 FR 9318, 9335 (Feb. 18, 2014)(proposed approval of Arizona BART Alternative for Sundt Unit 4). See also, 79 FR 52420 (Sept. 3, 2014)(final approval of Arizona BART Alternative for Sundt Unit 4); 77 FR 18052, 18073-18075 (Mar. 26, 2012)(proposed approval of Colorado BART Alternative, no modeling required where the 40 CFR 51.308(e)(3) test was met); 77 FR 76871 (Dec. 31, 2012) (final approval of Colorado BART Alternative).
[138] 80 FR 19220, 19221 (Apr. 10, 2015). See, e.g., 79 FR 56322, 56327-28 (Sept. 19, 2014); 77 FR 18052, 18075 (Mar. 26. 2012).
[139] 77 FR 18052, 18075 (Mar. 26, 2012).
[140] 79 FR 56322, 56328 (Sept. 19, 2014)(proposed approval of Arizona Apache BART Alternative); 80 FR 19220 (Apr. 10, 2015)(final approval of Arizona Apache BART Alternative).
[141] 79 FR 33438, 33441 (June 11, 2014)(final rule, FIP for Tesoro Refining BART Alternative); See, e.g., 79 FR 56322, 56328 (Sept. 19, 2014)(proposed approval of Arizona Apache BART Alternative); 80 FR 19220 (Apr. 10, 2015)(final approval of Arizona Apache BART Alternative); 77 FR 11827, 11837 (Feb. 28, 2012)(proposed approval of Maryland BART Alternative); 77 FR 39938, 39940-1 (July 6, 2012)(final approval of Maryland BART Alternative).

The State's demonstration appears to satisfy the first part of the test under 40 CFR 51.308(e)(3) (the distribution of emissions may not be substantially different than under BART) since the Hunter, Huntington and Carbon plants are all located within close proximity of each other in central Utah, as discussed above in section IV.C.5. EPA's interpretation of the requirement under 40 CFR 51.308(e)(3) that the alternative measure "results in greater emission reductions" has been that the emission reduction comparisons are pollutant specific. We have not looked at a total emissions profile that combines emissions of multiple pollutants to determine whether a BART benchmark or a BART alternative is "better," except where every visibility impairing pollutant is reduced by a greater amount under the BART alternative.[142] Therefore, we propose to find that the State's demonstration does not meet the second part of the test. While in the aggregate there are fewer SO_2 and PM_{10} emissions for the BART Alternative, the total NO_X emissions are greater under the BART Alternative than the BART Benchmark. Therefore, we propose to disapprove Section XX.D.6.c of the Utah SIP under the test in 40 CFR 51.308(e)(3).

Greater Reasonable Progress Based on 40 CFR 51.308(e)(2)'s Weight-of-Evidence Test

Utah also chose to conduct a weight-of-evidence analysis under 40 CFR 51.308(e)(2) based on a BART Alternative involving certain units at the Hunter, Huntington, and Carbon power plants, which included the following nine categories of evidence.

i. Annual emissions comparison of all visibility-impairing pollutants

The emissions of visibility-impairing pollutants from both the Utah BART Alternative and the BART Benchmark, as estimated by Utah, are summarized above in Table 3 in section IV.C.4. Compared with the Utah BART Benchmark, the State projects that the Utah BART

[142] 79 FR 9318, 9335 (Feb. 18, 2014)(proposed approval of Arizona BART Alternative for Sundt Unit 4). 79 FR 52420 (Sept. 3, 2014)(final approval of Arizona BART Alternative for Sundt Unit 4); 77 FR 18052, 18073-18075 (Mar. 26, 2012)(proposed approval of Colorado BART Alternative, no modeling required where the 40 CFR 51.308(e)(3) test was met); 77 FR 76871 (Dec. 31, 2012) (final approval of Colorado BART Alternative).

Alternative will result in 5,721 tpy more NO_X emissions, 8,005 tpy fewer SO_2 emissions and 573 tpy fewer PM_{10} emissions than the BART Benchmark. As discussed above, Utah also noted that the combined emissions of NO_X, SO_2 and PM_{10} will be 2,856 tpy lower under the BART Alternative than the BART Benchmark.

While the total emission reductions under the Utah BART Alternative are less than those under the BART Benchmark, a comparison of emissions of multiple pollutant species of emissions is generally not informative, particularly when the Agency is assessing whether an approach provides for greater reasonable progress towards improving visibility. As explained in section VI.B.e, our interpretation of the language in 40 CFR 51.308(e)(3) ("results in greater emission reductions …may be deemed to achieve greater reasonable progress") has been pollutant specific. EPA has not relied on a total emissions profile that combines emissions of multiple pollutants together to determine that either BART or a BART alternative is "better," because visibility modeling is the most appropriate method to assess the overall improvements in visibility impacts from control scenarios where reductions of multiple pollutants are considered, except where every visibility impairing pollutant is reduced by a greater amount under the alternative.[143] As we have explained, "[e]ach of the five pollutants which cause or contribute to visibility impairment has a different impact on light extinction for a given particle mass, making it therefore extremely difficult to judge the equivalence of interpollutant trades in a manner that would be technically credible, yet convenient to implement in the timeframe needed for transactions to be efficient. This analysis is further complicated by the fact that the visibility impact that each pollutant can have varies with humidity, so that control of different pollutants

[143] 79 FR 9318, 9335 (Feb. 18, 2014)(proposed approval of Arizona BART Alternative for Sundt Unit 4). 79 FR 52420 (Sept. 3, 2014)(final approval of Arizona BART Alternative for Sundt Unit 4); 77 FR 18052, 18073-18075 (Mar. 26, 2012)(proposed approval of Colorado BART Alternative, no modeling required where the 40 CFR 51.308(e)(3) test was met); 77 FR 76871 (Dec. 31, 2012) (final approval of Colorado BART Alternative).

can have markedly different effects on visibility in different geographic areas and at different times of the year."[144] As other Agency actions on BART alternatives have explained, modeling assesses "both pollutants' chemical aerosol formation mechanisms and impacts on visibility,"[145] which allows evaluation of the "relative visibility impacts from the atmospheric formation of visibility impairing aerosols of sulfate and nitrate."[146] Since we find that Utah's BART Alternative provides greater emission reductions for two pollutants (SO_2 and PM_{10}), but find that NO_X emissions would be greater under the BART Alternative, we propose to find that it is not appropriate to combine all three pollutants in the annual emissions comparison test to support the BART Alternative as the State has done. While we acknowledge that two of the pollutants are less under the BART Alternative, one of the pollutants is greater, therefore we further propose to find that the annual emissions comparison of all three pollutants does not show that the BART Alternative is better than the BART Benchmark.

ii. Improvement in the number of days with significant visibility impairment

As discussed above in section IV.C.5, Utah provided modeling results to assess the improvement in the number of days with significant visibility impairment – that is, the improvement in the number of days with impacts that either cause (> 1.0 dv) or contribute (0.5 dv) to visibility impairment.

The BART Guidelines provide that, when making a BART determination, a State may consider the number of days or hours that a threshold was exceeded.[147] In developing the BART Guidelines, our example modeling analysis of a hypothetical source examined the number of

[144] 64 FR 35714, 35743 (July 1, 1999).
[145] 78 FR 79344, 79355 (Dec. 30, 2013).
[146] 79 FR 33438, 33440 (June 11, 2014).
[147] 40 CFR 51, appendix Y, section IV.D.5.

days that 1.0 dv and 0.5 dv thresholds were exceeded.[148] As detailed in section IV.C.5.b, we note the difference in the total number of days impacted – 18 fewer days greater than the causation threshold of 1.0 dv (775 days for the BART Alternative vs. 793 days for the BART Benchmark), and 175 fewer days greater than the contribution 0.5 dv threshold (1,323 days for the BART Alternative vs. 1,498 days for the BART Benchmark. Utah's results show that there are fewer days with impacts over 0.5 dv for the BART Alternative, which indicates greater improvement in visibility. Therefore, the results for the 0.5 dv threshold favor the BART Alternative.

However, Utah's results for the total number of days with impacts over 1.0 dv on a Class I area-by-area basis are not as clear in supporting the BART Alternative. The modeling results for the total number of days with impacts greater than 1.0 dv show that the BART Alternative would have more days with impacts greater than 1.0 dv at seven of the nine Class I areas, and that only two of the Class I areas, would have fewer days with impacts greater than 1.0 dv compared to the BART Benchmark. Therefore, the Class I area-by-area results do not show that the BART Alternative is better than the BART Benchmark. Similarly, the results for the average number of days with impacts over 1.0 dv show that most of the Class I areas have the same result under both the BART Alternative and Benchmark, or are within one day of having the same result. In this context, a difference of one day is not particularly significant. We therefore propose to find that these results do not show the BART Alternative is better.

Utah's results in applying the number of days with impacts greater than 1.0 dv show the BART Alternative is better "on average" across all nine Class I areas. We agree that use of average visibility impacts could be acceptable as part of assessing the multiple-area impacts and improvements. However, in this case the visibility results for the individual Class I areas do not

[148] 70 FR 39130 (July 6, 2005).

consistently support or undermine the BART Alternative; there is variation by Class I area. Here, averaging the visibility results has the effect of obscuring the impacts on the individual Class I areas. Additionally, we propose to not the give the difference in days significant weight because by itself it does not indicate whether benefits on those days were large or small. Therefore, while we note that the BART Alternative shows fewer days with impacts greater than 1.0 dv when looking at the average over all nine areas, we propose to find that averaging the number of days with impacts greater than 1.0 dv across all affected Class I areas is not a relevant metric under these circumstances. We therefore further propose to find that this metric does not show the BART Alternative is better.

iii. 98th percentile impact (dv)

As discussed above in section IV.C.5, Utah asserted that the only metric it evaluated that showed greater improvement for the BART Benchmark in comparison to the BART Alternative was the 98th percentile metric when averaged across all Class I areas and meteorological years modeled. Utah's comparison of the modeled visibility impacts on the 98th percentile day (8th highest impacted day in a given meteorological year) for the most impacted year shows that the BART Benchmark would result in greater visibility improvement at five of the nine Class I areas, and is better on average across all nine Class I areas (0.11 dv difference). At the most impacted Class I areas, Canyonlands and Capitol Reef, Utah found that the 98th percentile metric indicates the BART Benchmark has 0.76 dv and 0.57 dv, respectively, more improvement than the BART Alternative. At other Class I areas, such as Arches, Utah found that the 98th percentile metric indicates that the BART Alternative provides greater visibility improvement (for example, 0.44 dv at Flat Tops).

The 98th percentile visibility impact is a key metric recommended by the BART Guidelines when selecting BART controls.[149] As noted above, we described this metric as an appropriate measure for determining the degree of visibility improvement to be expected from controls.[150] In addition, this is one of the primary metrics that EPA has relied on in evaluating prior regional haze actions that have included BART alternatives.[151]

We note that when calculating visibility improvements for individual Class I areas, Utah mixed the impacts from different meteorological years between modeling scenarios (baseline, BART benchmark, and BART Alternative). As discussed in section V.B.2.e, the State's use of different meteorological years may introduce some error as the visibility improvements could be driven by year-to-year variability in meteorological conditions, as opposed to the differences in emission reductions between the BART Alternative and BART Benchmark. For this reason, in addition to the information from the State, EPA has also calculated the visibility improvements for each modeling scenario using paired-in-time meteorological and emissions data.[152] Using this method, whether the BART Alternative resulted in lower 98th percentile impacts depends on both the particular Class I area and meteorological year modeled. In some years and some Class I areas, particularly some of the most impacted Class I areas, the BART Benchmark shows better visibility improvement than the BART Alternative (for example, 0.93 dv greater improvement for Canyonlands and 0.75 in 2002 dv greater improvement for Capitol Reef in 2001).[153] At other

[149] 40 CFR 51, appendix Y, section IV.D.5.
[150] 70 FR at 39129.
[151] See, e.g., 78 FR 79344 (Dec. 30, 2012)(proposed rule, FIP for Tesoro Refining and Intalco Refinery BART Alternatives); 79 FR 33438 (June 11, 2014)(final rule, FIP for Tesoro Refining and Intalco Refinery BART Alternatives); 79 FR 56322, 56328 (Sept. 19, 2014)(proposed approval of Arizona Apache BART Alternative); 80 FR 19220 (Apr. 10, 2015)(final approval of Arizona Apache BART Alternative); 77 FR 11827, 11837 (Feb. 28, 2012)(proposed approval of Maryland BART Alternative); 77 FR 39938, 39940-1 (July 6, 2012)(final approval of Maryland BART Alternative).
[152] See EPA Calculation of 98th Percentile Improvement for Utah Bart Alternative spreadsheet (in docket).
[153] Id.

Class I areas, the 98th percentile metric indicates that the BART Alternative provides greater visibility improvement (for example, by 0.90 dv at Arches in 2003 and 0.43 dv at Flat Tops in 2002).[154] On the whole, when using this method, the BART Benchmark is slightly better on average across all years and nine Class I areas (0.14 dv difference).[155] We propose to find, consistent with the State's evaluation, that this metric favors the BART Benchmark.

iv. Annual average impact (dv)

As discussed above in section IV.C.5, Utah's modeling shows that the average annual dv impact at all Class I areas is better under the Utah BART Alternative at five of the nine Class I areas, and is better on average across all the Class I areas. The average impact was calculated by averaging all daily modeling results for each year and then calculating a three-year average from the annual average. Utah's information shows that the BART Alternative is better than the BART Benchmark by 0.009 dv on average across all nine Class I areas. While EPA has not considered this metric in the past,[156] since the State includes it,[157] we consider it here. Furthermore, the BART Guidelines state that, "in determining what, if any, emission controls should be required, the State will have the opportunity to consider the frequency, duration, and intensity of a source's predicted effect on visibility."[158] We note that the difference in the annual average metric of 0.009 dv only marginally supports the BART Alternative and that this metric shows less or equal visibility improvement at four of the nine Class I areas. Because the annual average metric averages over all days, it does not represent the benefits of the BART Alternative

[154] Id.
[155] Id.
[156] EPA final actions on BART Alternatives that evaluated CALPUFF modeling analysis, which did not include consideration of annual average dv impacts include: 80 FR 19220 (Apr. 10, 2015)(Region 9, Apache); 79 FR 33438 (June 11, 2014)(Region 10, Tesoro Refining and Alcoa Intalco Operations); 77 FR 39938 (July 6, 2012)(Region 3, Maryland HAA).
[157] See Utah Regional Haze State Implementation Plan, Technical Support Document, Ch. 1, p. 23 (2015).
[158] 70 FR 39121 (July 5, 2005).

on the maximum impact days. In previous evaluations of BART alternatives we have relied on either the 98th percentile metric or the average improvement for the worst 20% IMPROVE monitoring days to evaluate greater reasonable progress. Therefore, we propose to find that the information from the annual average metric does not support a conclusion that the BART Alternative achieves greater reasonable progress than the BART Benchmark.

v. 90th percentile impact (dv)

As discussed above in section IV.C.5, Utah's comparison of the modeled visibility impacts at the 90th percentile (the 110th highest day in a year) dv impact shows that the Utah BART Alternative is better at seven of the nine Class I areas and is slightly better averaged both across three years and across nine Class I areas (0.006 dv difference). We note that the use of the 90th percentile impacts to evaluate alternatives has not been EPA's practice for source-specific BART determinations; however, as discussed above for the average dv impact metric, the BART Guidelines allow states to consider other visibility metrics in addition to the 98th percentile. Yet, because of the small difference between the two scenarios (0.006 dv), we propose to find that it is questionable whether the 90th percentile supports a conclusion that the BART Alternative achieves greater reasonable progress.

vi. Timing for the emissions reductions

As discussed above in section IV.C.5, assuming the four BART units receive five years to come into compliance, Utah noted that reductions under the Utah BART Alternative will occur earlier than the BART Benchmark. The reductions under the Utah BART Alternative are required under the State SIP by August 2015, as noted in Table 5, and would provide an early and on-going visibility benefit as compared to BART. Also notable is that combustion control upgrades at the Hunter and Huntington facilities have been achieving significant NO_X reductions

since the time of their installation between 2006 and 2014, depending on the unit.[159] Finally, if, as proposed in section VI.C, BART for the four units is LNB/SOFA plus SCR, BART likely would be fully implemented sometime between 2019 and 2021.

Therefore, we recognize that the reductions from the BART Alternative would occur before the BART Benchmark.

vii. IMPROVE Monitoring Data

Utah's SIP presents sulfate and nitrate monitoring data at the Canyonlands IMPROVE monitor that show that "sulfates are the dominant visibility impairing pollutant"[160] and that sulfate levels have decreased,[161] and references similar results at other Class I areas in the TSD.[162] Utah also presents data on trends in emissions from EGUs showing substantial reductions in emissions of both SO_2 and NO_X.[163] Based on these data, Utah indicates it "has confidence that the SO_2 reductions will achieve meaningful visibility improvement", under the Utah BART Alternative,[164] while "the visibility improvement during the winter months due to NO_X reductions is much more uncertain,"[165] Utah makes this point even though nitrate concentrations are highest in the winter, explaining that while there has been a reduction in NO_X, the ammonium nitrate values do not show similar improvement in the winter months. Utah offers several possible explanations for the results, but does not provide any definitive conclusions.[166]

[159] Copies of Administrative Orders DAQE-AN0102370012-08 and DAQE-AN0102380021-10 are included in the docket, and include information regarding the schedule for installation of combustion controls at Hunter and Huntington.
[160] Utah Regional Haze State Implementation Plan, Technical Support Document, Ch. 1, p. 12 (2015).
[161] Id. at p. 15.
[162] Id. at p. 12.
[163] Id. at p.14.
[164] Id. at p.13.
[165] Id.
[166] Id. at pp. 16-19.

Utah also presents data on the seasonality of park visitation and monitoring data for nitrate and sulfates. These data show the highest measured nitrate concentrations occur in winter during the period of lowest park visitation, and that sulfates affect visibility throughout the year and are the dominant visibility impairing pollutant from anthropogenic sources during the high visitation period of March through November. Utah concludes that it has greater confidence that reductions in SO_2 will be reflected in improved visibility for visitors to the Class I areas, while reductions in NO_X will have a more uncertain benefit for visitors to Class I areas. We invite comment on the information and conclusions provided by Utah as summarized above.

We propose to concur with one of the State's findings. We propose to find that visibility benefits associated with NO_X reductions are much more likely to occur in the winter months because this is when aerosol thermodynamics favors nitrate formation.[167] By contrast, SO_2 emissions reductions should provide visibility benefits in all seasons.[168] We also propose to find that, as concluded by the GCVTC, and supported by the IMPROVE monitoring data presented by Utah, anthropogenic visibility impairment on the Colorado Plateau is dominated by sulfates. Therefore, we propose to concur with Utah's statement that sulfate is the largest contributor to visibility impairment at the affected Class I areas.

We propose to disagree with the State's findings related to park visitation. While the BART Guidelines do mention visitation as something that can inform a control decision,[169] EPA

[167] Fountoukis, C. & Nenes, A., ISORROPIA II: A Computationally Efficient Aerosol Thermodynamic Equilibrium Model for K^+, Ca_2^+, Mg_2^+, NH_4^+, Na^+, SO_4^{2-}, NO_3^-, Cl-, H_2O Aerosols, 7 ATMOS. CHEM. PHYS., 4639–4659 (2007).

[168] Seinfeld, John H., *Urban Air Pollution: State of the Science*, 243 SCIENCE MAGAZINE, no. 4892, 745, 750 (1989).

[169] 70 FR 39104, 39130 (July 6, 2005)("Other ways that visibility improvement may be assessed to inform the control decisions would be to examine distributions of the daily impacts, determine if the time of year is important (e.g. high impacts are occurring during tourist season), consideration of the cost-effectiveness of visibility improvements (i.e. the cost per change in deciview), using the measures of deciview improvement identified by

is proposing to place little weight on the State's correlation of emissions reductions and park visitation because nothing in the CAA suggests that visitors during busy time periods are entitled to experience better visibility than visitors during off-peak periods. On the contrary, in the Regional Haze provisions of the CAA, Congress declared a national goal of remedying all manmade visibility impairment in all class I areas, which includes both heavily-visited national parks and seldom-visited wilderness areas. We invite comment on our evaluation and the information and conclusions provided by Utah as summarized above.

viii. Energy and non-air quality benefits

EPA's evaluation of the State's information on energy and non-air quality benefits is located above in section V.B.2.e.viii.

ix. Cost

EPA's evaluation of the Utah's cost information is located above in section V.B.2.e.ix.

f. Evaluation of the Weight of Evidence

In this section we evaluate Utah's SIP under 40 CFR 51.308(e)(2), to determine whether the State met the final step of the better-than-BART analysis "based on the clear weight of evidence that the trading program or other alternative measure achieves greater reasonable progress than would be achieved through the installation and operation of BART at the covered sources." 40 CFR 51.308(e)(2)(i)(E).

As discussed above, we evaluated Utah's demonstration and all available information and data presented by the State, as well as additional information and data EPA developed and presented in this notice. We propose to find that this information and data do not meet the requirements of 40 CFR 51.308(e)(2)(i)(E). Specifically, we propose that Utah's demonstration

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the State, or simply compare the worst case days for the pre- and post-control runs. States may develop other methods as well.").

does not show by the "clear weight of evidence" that the BART alternative "measure achieves greater reasonable progress than would be achieved through the installation and operation of BART at the covered sources." 40 CFR 51.308(e)(2)(i)(E). We have evaluated the relative strengths and weakness of the information and propose to find that the State's analysis and conclusions do not clearly show that the BART Alternative results in greater reasonable progress than the BART Benchmark for the following reasons: (1) the key metric EPA has used in evaluating alternatives (98th percentile) on average across all the Class I areas favors the BART Benchmark by 0.14 dv and not the BART Alternative; (2) the majority of information and data that the State asserts favor the BART Alternative over BART show small differences; (3) the comparison of net emissions reductions across three pollutants, which the State relies on significantly is not appropriate because not all pollutants are reduced under the BART Alternative and each pollutant may have different effects on visibility; and (4) while some information may show the Alternative is better than BART, the information is not adequate to meet the "clear weight of evidence" test.

First, consistent with the Agency's practice, we have considered all information, but have given most weight to the visibility impacts based on air quality modeling.[170] Here, the 98th percentile impacts from the State's CALPUFF modeling show that the BART Alternative is not better than the BART Benchmark because the BART Benchmark would provide a 0.14 dv greater average improvement than the BART Alternative. In addition, Table 12 above lists a comparison of 2001-2003 three-year average 98th percentile visibility improvement for each of

[170] See, e.g., 78 FR 79344 (Dec. 30, 2012)(proposed rule, FIP for Tesoro Refining BART Alternative); 79 FR 33438, 33441 (June 11, 2014)(final rule, FIP for Tesoro Refining BART Alternative); 79 FR 56322, 56328 (Sept. 19, 2014)(proposed approval of Arizona Apache BART Alternative); 80 FR 19220 (Apr. 10, 2015)(final approval of Arizona Apache BART Alternative); 77 FR 11827, 11837 (Feb. 28, 2012)(proposed approval of Maryland BART Alternative); 77 FR 39938, 39940-1 (July 6, 2012)(final approval of Maryland BART Alternative).

the nine Class I areas; and the results for seven of the Class I areas favor BART over the Alternative (Black Canyon of the Gunnison (0.06 dv), Bryce Canyon (0.04 dv), Canyonlands (0.78 dv), Capitol Reef (0.59 dv), Grand Canyon (0.06 dv), Mesa Verde (0.12 dv), and Zion (0.02 dv)).

Second, several metrics that the State suggests favor the BART Alternative over BART show only small improvements as compared to BART. We propose to find that the slight comparative benefits in the annual average impacts are not compelling evidence that the BART Alternative will provide for greater reasonable progress than BART. Additionally, we propose to find that it is questionable whether the 90^{th} percentile supports a conclusion that the BART Alternative will provide for greater reasonable progress than BART.

Third, regarding the energy and non-air quality impacts, as well as cost, for the reasons presented above, we propose to find that because these metrics do not have a direct bearing on whether the Utah BART Alternative achieves greater reasonable progress, it is not material to our action whether we agree or disagree with Utah's assessment that they reduce energy and non-air quality impact.

As explained above in this section, in the aggregate the SO_2 and PM_{10} emissions are lower for the BART Alternative. However, the NO_X emissions are greater under the BART Alternative. Additionally, while Utah's results show that some of the metrics support the Alternative (e.g., there are fewer days with impacts over 0.5 dv for the Alternative indicating greater improvement in visibility under the BART Alternative; emission reductions would occur earlier under the Alternative; the Alternative will result in 8,005 tpy lower SO_2 emissions and 573 tpy lower PM_{10} emissions compared to the BART Benchmark; sulfate is the largest

contributor to visibility impairment at the affected Class I areas), we propose to find that these metrics are not enough by themselves to meet the "clear weight of evidence" test.

Thus, we propose to find that the BART Alternative does not meet the requirements in the RHR because it does not show the BART Alternative would achieve greater reasonable progress than the BART Benchmark, and therefore, we are proposing to disapprove the resultant BART Alternative SIP.

g. Evaluation That Emission Reductions Take Place During Period of First Long-Term Strategy

EPA's evaluation of Utah's information regarding the timing of implementation of controls is located above in section V.B.2.g.

h. Demonstration That Emission Reductions from Alternative Measure Will Be Surplus

EPA's evaluation of Utah's information regarding whether the emission reductions are surplus is located above in section V.B.2.h.

C. Monitoring, Recordkeeping and Reporting for Utah's BART Alternative

As discussed above in section IV.B.3, Utah's June 2015 RH SIP includes enforceable measures and monitoring, recordkeeping and reporting requirements for the Utah BART Alternative and the State's PM_{10} BART determinations. Because in this co-proposal we are proposing to disapprove Utah's BART Alternative, we are also proposing to disapprove (in other words, to not make federally enforceable as part of the SIP) the monitoring, recordkeeping and reporting requirements located in SIP Sections IX.H.22 associated with the BART Alternative. This includes SIP Section IX.H.22, subsections a.ii, a.iii, b.ii, and c.i.

Concurrently, as described above in section V.C, we are proposing to approve the remainder of the monitoring, recordkeeping and reporting requirements associated with Utah's PM_{10} BART determinations. This includes SIP Section IX.H.21 in its entirety and Section IX.H.22, subsections a.i and b.i.

D. Proposed Federal Implementation Plan

The following explanation details the support for EPA's FIP proposed in conjunction with the proposed partial approval and partial disapproval of Utah's SIP. This FIP constitutes EPA's proposed determination of NO_X BART for Utah's four subject-to-BART sources.

1. BART Evaluations

In determining BART, the state, or EPA if promulgating a FIP, must consider the five statutory factors in section 169A(g)(2) of the CAA: (1) the costs of compliance; (2) the energy and non-air quality environmental impacts of compliance; (3) any existing pollution control technology in use at the source; (4) the remaining useful life of the source; and (5) the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology. See also 40 CFR 51.308(e)(1)(ii)(A). Our evaluation of BART for Hunter and Huntington follows the Guidelines for BART Determinations Under the Regional Haze Rule.

Following the identification of subject-to-BART sources as described above in section IV.A.3, the next step of a BART evaluation is to perform the BART analysis. The BART Guidelines describe the BART analysis as consisting of the following five steps: [171]

- Step 1: Identify All Available Retrofit Control Technologies;
- Step 2: Eliminate Technically Infeasible Options;
- Step 3: Evaluate Control Effectiveness of Remaining Control Technologies;

[171] 40 CFR 51, appendix Y, section IV.D.

- Step 4: Evaluate Impacts and Document the Results; and
- Step 5: Evaluate Visibility Impacts.

The results of this five step analysis are then used to select BART, taking into consideration the five factors listed above.[172]

Immediately below, we provide background information that is common to our cost of compliance analysis (under Step 4) and visibility impacts analysis (step 5) for all BART sources. This is followed by the five step analysis and proposed selection of BART specific to each BART source.

a. Costs of Compliance

In accordance with the BART Guidelines, we have estimated the costs of compliance consistent with the EPA Air Pollution Control Cost Manual (CCM).[173] In addition, we have utilized portions of the draft 2015 revisions to the CCM chapters for the post-combustion NO_X control technologies, selective non-catalytic reduction (SNCR) and selective catalytic reduction (SCR).[174] In addition, we rely on the cost of compliance estimates supplied to EPA by Andover Technology Partners (ATP).[175] These estimates in turn rely on the cost estimates that PacifiCorp submitted to Utah in 2012 and 2014, but with those cost estimates adjusted in a number of cases for reasons described in the ATP report. All costs are presented in 2014 dollars. Refer to the ATP

[172] See id. section IV.E.
[173] EPA's CCM Sixth Edition, January 2002, EPA 452/B–02–001.
[174] Chapter 1, Selective Noncatalytic Reduction, —6/5/2015 – Draft for Public Comment ("the 2015 SNCR CCM"); Chapter 2 Selective Catalytic Reduction, —6/5/2015 – Draft for Public Comment ("the 2015 SCR CCM"). The draft CCM SNCR and SCR revisions were made available for public comment in a Notice of Data Availability (NODA) on June 12, 2015, 80 FR 33515, and on July 17, 2015, 80 FR 42491, the public comment period was extended to September 10, 2015. In this co-proposal for Utah's regional haze SIP, we are not taking comment on the revisions to the CCM. We are only taking comment on the application of those revisions of the CCM to the particular facts and circumstances for the two subject-to-BART sources, Hunter and Huntington, at issue in this action.
[175] Cost of NO_X BART Controls on Utah EGUs, from Andover Technology Partners, to EC/R, Inc., October 22, 2015 (ATP report). Andover Technology Partners is a subcontractor to EC/R Incorporated.

report and associated spread sheets for details on how the costs of compliance are calculated.

b. Visibility Impact Modeling

The BART Guidelines provide that states may use the CALPUFF modeling system or another appropriate model to determine the visibility improvement expected at affected Class I areas from potential BART control technologies. The BART Guidelines also recommend that states develop a modeling protocol for modeling visibility improvement, and suggest that states may want to consult with EPA and their RPO to address any issues prior to modeling. In consultation with EPA, Utah developed a CALPUFF modeling protocol titled "Air Quality Modeling Protocol: Utah Regional Haze State Implementation Plan", February 13, 2015, to support its BART Alternative analysis (see Chapter 6 of the State's TSD). The Utah protocol follows recommendations for long-range transport described in appendix W to 40 CFR part 51, Guideline on Air Quality Models, and in the federal Interagency Workgroup on Air Quality Modeling (IWAQM) Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts, as recommended by the BART Guidelines (40 CFR part 51, appendix Y, section III.D.5). Utah's protocol also follows Federal Land Managers' Air Quality Related Values Workgroup – Phase I Report (revised 2010). Above in section VI.B.e, we evaluate the State's modeling approach in consideration of the purpose for which it is intended (i.e., analyzing the BART Alternative). However, because Utah's modeling is not meant to support analysis of control options for individual BART sources under a five factor analysis, EPA developed separate CALPUFF modeling for this purpose. While the Utah modeling assesses the combined impacts of all of the BART and non-BART sources included in the BART Alternative – Carbon, Hunter, and Huntington – our modeling assesses the impacts of the individual BART sources. In addition, our modeling assesses the visibility impacts of all of the NO_X BART control

technologies found to be technologically feasible in Step 2 below: LNB and OFA, LNB and OFA with SNCR, and LNB and OFA with SCR. Beyond assessing impacts from individual BART sources and evaluating all technologically feasible control options, our modeling methodology is otherwise very similar to that employed by Utah. Our modeling protocol, and visibility impact results, can be found in the docket.[176] Also, the visibility impacts for each BART source are provided below in the respective five factor analyses.

EPA notes that, in considering the visibility improvements reflected in our revised modeling, EPA interprets the BART Guidelines to require consideration of the visibility improvement from BART applied to the entire BART-eligible source. The BART Guidelines explain that, "[i]f the emissions from the list of emissions units at a stationary source exceed a potential to emit of 250 tons per year for any visibility-impairing pollutant, then that collection of emissions units is a BART-eligible source." In other words, the BART-eligible source (the list of BART emissions units at a source) is the collection of units for which one must make a BART determination. The BART Guidelines state "you must conduct a visibility improvement determination for the source(s) as part of the BART determination." This requires consideration of the visibility improvement from BART applied to the subject-to-BART source as a whole.

We note, however, that while our regulations require states and EPA to assess visibility improvement on a source-wide basis, they provide flexibility to also consider unit-specific visibility improvement in order to more fully inform the reasonableness of a BART determination, but that does not replace the consideration of visibility benefit from the source (facility) as a whole. In making the BART determinations in this final action we have considered visibility improvements at the source, and then also at the units that comprise the source.

[176] Air Quality Modeling Protocol: Utah Regional Haze Federal Implementation Plan, EPA Region 8, November 2015.

2. Hunter Power Plant

As described above in section IV.A, Hunter Units 1 and 2 were determined to be subject to BART, while Unit 3 is not subject to BART. Hunter Units 1 and 2 have a nameplate generating capacity of 488.3 MW each.[177] The boilers are tangentially fired pulverized coal boilers, burning bituminous coal from the Deer Creek Mine in Utah.

Our evaluation of BART for Hunter Units 1 and 2 follows the BART Guidelines. For Hunter Units 1 and 2, the BART Guidelines are mandatory because the combined capacity for all three units at the Hunter facility is greater than 750 MW. See 40 CFR 51.302(e)(1)(ii)(B) ("The determination of BART for fossil-fuel fired power plants having a total generating capacity greater than 750 megawatts must be made pursuant to the guidelines in appendix Y of this part"). Under the Guidelines, cost estimates for control technologies should be based on the CCM, where possible.

The BART Guidelines establish presumptive NO_X limits for coal-fired EGUs greater than 200 MW located at greater than 750 MW power plants that are operating without post-combustion controls. For the tangential-fired boilers burning bituminous coal at Hunter, that presumptive limit is 0.28 lb/MMBtu.[178] The BART Guidelines provide that the five factor analysis may result in a limit that is different than the presumptive limit, and the presumptive limits do not obviate the need to determine BART on a case-by-case basis considering the five factors.[179]

PacifiCorp provided BART analyses for Hunter Unit 1 to Utah in 2012 and 2014 which

[177] U.S. Energy Information Administration, Electric Generating Capacity for 2011 taken from Form EIA-860. See spread sheet titled "EIA existing generating units 2011.xls" in the docket.
[178] 40 CFR part 51, appendix Y, IV.E.5, Table. 1.
[179] See 40 CFR 51.301 (definition of BART); 40 CFR 51.308(e).

we utilize in our proposed BART evaluation here.[180] Although we are using some information provided by Utah and PacifiCorp, we are independently evaluating all five statutory BART factors, as is appropriate for this co-proposed FIP.

a. Hunter Unit 1

The Hunter Unit 1 boiler is of tangential-fired design with newer generation low-NO_X burners and separated overfire air which were installed in 2014. Unit 1 currently achieves an annual emission rate of approximately 0.21 lb/MMBtu with these combustion controls. Under Utah's submitted regional haze SIP, Unit 1 is subject to a state-law NO_X emission limit of 0.26 lb/MMBtu on a 30-day rolling average. Prior to the installation of LNB and SOFA the unit operated with an actual annual emission rate of about 0.40 lb/MMBtu.

Step 1: Identify All Available NO_X Control Technologies

In its 2012 BART analysis for Hunter Unit 1, PacifiCorp identified several NO_X control technologies, both for combustion controls and post-combustion controls.[181] The combustion controls identified by PacifiCorp include: low-NO_X burners and separated overfire air (LNB and SOFA; already installed), rotating overfire air, neural network optimization system, flue gas recirculation, gas reburn, fuel lean gas reburn, coal switching, water injection, and others. Post-combustion control options identified by PacifiCorp include: SNCR, rich reagent injection (RRI), SCR, and others.

We note that the combustion controls, LNB and SOFA, have already been installed on Hunter Unit 1, and so we consider them here as "any existing controls" under the third statutory BART factor. In addition, the BART Guidelines recognize that "[c]ombinations of inherently

[180] PacifiCorp BART Analysis for Hunter Units 1(July 2, 2012); PacifiCorp BART Analysis for Hunter Unit 2 (June 7, 2012); Utah's Regional Haze BART Submittal, Chapter 2 of the Technical Support Document (2015); PacifiCorp's BART Analysis Update for Hunter Units 1 and 2 and Huntington Units 1 and 2 (Aug. 5, 2014).
[181] 2012 PacifiCorp BART analysis for Hunter Unit 1, page 2.a-106.

lower-emitting processes and add-on controls" are a category of retrofit controls which can be considered.[182] Accordingly, the inherently lower-emitting combustion controls, LNB and SOFA, are evaluated in combination with the add-on controls, SNCR and SCR.

We have reviewed PacifiCorp's review of NO_X control technologies and find it to be comprehensive. We propose to adopt it to satisfy Step 1 and we refer the reader to the 2012 PacifiCorp BART analysis for details on the available NO_X control technologies.

Step 2: Eliminate Technically Infeasible Options

In its 2012 BART analysis,[183] PacifiCorp eliminated available NO_X control technologies that PacifiCorp evaluated as technologically infeasible for Hunter Unit 1. The remaining technologically feasible control technologies are the combustion controls, LNB and SOFA, and the post-combustion controls, SNCR and SCR.

We agree with PacifiCorp's evaluation of technologically available controls for Hunter Unit 1 and propose to adopt it for Step 2.

Step 3: Evaluate Control Effectiveness of Remaining Control Technologies

As noted above, Hunter Unit 1 is currently achieving an actual annual emission rate of approximately 0.21 lb/MMBtu with LNB and SOFA. This represents a 48.4 percent reduction from the baseline emission rate of 0.40 lb/MMBtu.

The post-combustion control technologies, SNCR and SCR, have been evaluated in combination with combustion controls. That is, the inlet concentration to the post-combustion controls is assumed to be 0.21 lb/MMBtu (annual). This allows the equipment and operating and maintenance costs of the post-combustion controls to be minimized based on the lower inlet NO_X concentration.

[182] BART Guidelines, IV.D.1.
[183] 2012 PacifiCorp BART analysis for Hunter Unit 1, pages 2.a-106 through 2.a-123.

Typically, SNCR reduces NO_X an additional 20 to 30 percent above combustion controls without excessive NH_3 slip.[184] For this analysis, the control efficiency of SNCR has been calculated based on the formula in the 2015 draft CCM SNCR chapter,[185] which for Hunter Unit 1 yields an additional reduction of 21.4 percent after combustion controls. When combined with LNB and SOFA, SNCR is anticipated to achieve an annual emission rate of 0.16 lb/MMBtu, corresponding to an overall control efficiency of 59.4 percent.

SCR can achieve performance emission rates as low as 0.04 to 0.07 lb/MMBtu on an annual basis.[186] For this analysis, consistent with our actions elsewhere, as well with PacifiCorp's analysis, we use an annual emission rate of 0.05 lb/MMBtu for SCR, which when combined with LNB and SOFA achieves an overall control efficiency of 87.5 percent.

A summary of emissions projections for the control options evaluated is provided in Table 13 below.

Table 13. Summary of NO_X BART Analysis Control Technologies for Hunter Unit 1

Control Option	Control Effectiveness (%)	Annual Emission Rate (lb/MMBtu)	Emissions Reduction (tpy)	Remaining Emissions (tpy)
LNB/SOFA +SCR	87.5	0.05	5,500	784
LNB/SOFA +SNCR	59.4	0.16	3,735	2,549
LNB/SOFA	48.4	0.21	3,042	3,242
Baseline[1]	---	0.40	--	6,284

[1] Baseline emissions were determined by averaging the annual emissions from 2001 to 2003 as reported to EPA Air Markets Program Data, available at http://ampd.epa.gov/ampd/.The annual emissions data is presented in Chapter 4.a of Utah's June 2015 submittal.

Step 4: Evaluate Impacts and Document Results

[184] White Paper, SNCR for Controlling NO_X Emissions, Institute of Clean of Clean Air Companies, pp. 4 and 9, February 2008.
[185] 2015 SNCR CCM, Figure 1.1c: SNCR NO_X Reduction Efficiency Versus Baseline NO_X Levels for Coal-fired Utility Boilers.
[186] Srivastava, R., Hall, R., Khan, S., Lani, B., & Culligan, K., Nitrogen Oxides Emission Control Options for Coal-Fired Utility Boilers, 55 J. AIR & WASTE MGMT. ASSOC. 1367, 1367–88 (2005).

Under Step 4, the Guidelines list impact analyses in four parts: costs of compliance, energy impacts, non-air quality environmental impacts, and remaining useful life. For convenience, we combine energy and non-air quality environmental impacts below.

Part 1 - Costs of compliance

We obtained capital costs for LNB and SOFA from the 2014 PacifiCorp BART analysis. PacifiCorp did not report any operating and maintenance costs for LNB and SOFA. Similarly, we obtained capital cost estimates for LNB and SOFA with SNCR from the 2014 PacifiCorp BART analysis. However, for operating and maintenance costs we propose to rely on the draft 2015 draft SNCR chapter of the CCM. Refer to the ATP report for details. Capital costs for LNB and SOFA with SCR were also obtained from the 2014 PacifiCorp BART analysis. However, PacifiCorp's capital costs were adjusted to account for items that were double-counted or should not be allowed under the CCM, such as an allowance for funds used during construction (AFUDC).[187] In addition, the capital costs were adjusted to account for a significant overestimation of the catalyst volume and related costs. These adjustments are documented in the ATP report and associated spread sheet. A discussion of operating and maintenance costs of SCR is also included in the ATP report. For the reasons given in the report, we propose to adopt the cost estimates contained in it.

A summary of our proposed cost estimates for all control options is presented in Table 14 below.

Table 14. Summary of NOx BART Costs on Hunter Unit 1

Control Option	Total Capital Investment	Indirect Annual Costs	Direct Annual Costs	Total Annual Cost	Emissions Reductions (tpy)	Average Cost Effectiveness ($/ton)

[187] See 79 FR 5032, 5133 (Jan. 30, 2014) (discussing reasons for rejecting use of AFUDC).

LNB/SOFA	$11.6M	$1.2M	$0M	$1.2M	3,042	$382
LNB/SOFA/SNCR	$19.0M	$1.9M	$1.9M	$3.8M	3,735	$1,016
LNB/SOFA/SCR	$110.3M	$10.5M	$2.5M	$13.1M	5,500	$2,380

Parts 2 and 3 - Energy and non-air quality environmental impacts of compliance

SNCR slightly reduces the thermal efficiency of a boiler as the reduction reaction uses thermal energy from the boiler, decreasing the energy available for power generation.[188] Using the CCM, we have calculated the electrical power consumption of SNCR to be 326,000 kW-hr per year for Hunter Unit 1.

For SCR, the thermal efficiency is much more reduced because the new ductwork and the reactor's catalyst layers decrease the flue gas pressure. As a result, additional fan power is necessary to maintain the flue gas flow rate through the ductwork and reactor. Using the CCM, we have calculated the electrical power consumption of SCR to be approximately 18,541,000 kW-hr per year for Hunter Unit 1.

Both SCR and SNCR also require some minimal electricity to service pretreatment and injection equipment, pumps, compressors, and control systems. The energy requirements described above are not significant enough to warrant elimination of either SNCR or SCR as BART. In addition, the cost of the additional energy requirements has been included in our cost effectiveness calculations.

SNCR and SCR will slightly increase the quantity of ash that will need to be disposed. In addition, transportation and storage of chemical reagents may result in spills or releases. However, these non-air quality environmental impacts do not warrant elimination of either SNCR or SCR as BART.

[188] EPA Air Pollution Control Cost Manual p. 1–21(6th ed. 2002), available at http://www3.epa.gov/ttncatc1/dir1/c_allchs.pdf.

There are no additional energy requirements associated with the new LNB and SOFA, and no significant non-air quality environmental impacts.

In summary, we propose to determine that we have adequately considered these impacts by including cost of additional energy in cost effectiveness and assessing non-air quality environmental impacts as insufficient to eliminate or weigh against any of the BART options.

Part 4 - Remaining useful life

PacifiCorp assumes a remaining useful life of at least 20 years for Hunter Unit 1 in its BART analysis, and has not indicated any intention to retire, or curtail generation from, Hunter Unit 1. Therefore, this factor does not preclude any of the control options considered. In addition, this factor is consistent with our BART calculation of cost effectiveness because annualized costs have been calculated over a 20 year period for each of the control options considered. We propose that this gives adequate consideration to this factor.

Step 5: Evaluate visibility impacts.

Table 15 presents the highest of the 98th percentile visibility improvements at the affected Class I areas for the three meteorological years modeled, 2001 through 2003. Tables 16 and 17 present the number of days (summed across three years) with impacts greater than the contribution and causation thresholds – 0.5 dv and 1.0 dv, respectively.

Table 15. Hunter Unit 1 – Visibility Improvements

Class I Area	**LNB with SOFA (Δdv)**	**LNB with SOFA and SNCR (Δdv)**	**LNB with SOFA and SCR (Δdv)**
Arches NP	0.737	0.906	1.342
Black Canyon of the Gunnison NP	0.198	0.241	0.345
Bryce Canyon NP	0.306	0.372	0.534
Canyonlands NP	0.846	1.041	1.545
Capitol Reef NP	0.639	0.750	1.113

Flat Tops WA	0.231	0.280	0.404
Grand Canyon NP	0.349	0.426	0.618
Mesa Verde NP	0.235	0.286	0.426
Zion NP	0.184	0.224	0.323

Table 16. Hunter Unit 1 - Days Greater than 0.5 Deciview (Three Year Total)

Class I Area	Baseline (days)	LNB with SOFA (days)	LNB with SOFA and SNCR (days)	LNB with SOFA and SCR (days)
Arches NP	293	260	259	235
Black Canyon of the Gunnison NP	68	55	53	41
Bryce Canyon NP	42	37	36	28
Canyonlands NP	359	330	322	311
Capitol Reef NP	175	160	156	145
Flat Tops WA	77	63	59	50
Grand Canyon NP	49	43	42	37
Mesa Verde NP	82	66	63	55
Zion NP	29	23	23	22

Table 17. Hunter Unit 1 - Days Greater than 1.0 Deciview (Three Year Total)

Class I Area	Baseline (days)	LNB with SOFA (days)	LNB with SOFA and SNCR (days)	LNB with SOFA and SCR (days)
Arches NP	170	141	139	122
Black Canyon of the Gunnison NP	22	13	12	9
Bryce Canyon NP	22	19	18	16
Canyonlands NP	240	218	202	188
Capitol Reef NP	118	110	109	94
Flat Tops WA	31	20	18	10
Grand Canyon NP	32	25	23	18
Mesa Verde NP	32	20	19	13
Zion NP	14	9	8	7

Select BART.

A summary of our impacts analysis for Hunter Unit 1 is presented in Table 18 below.

Table 18. Summary of Hunter Unit 1 Impacts Analysis

Control Option	Annual Emission Rate (lb/MMBtu)	Emission Reduction (tpy)	Total Annual Costs (Million$)	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness ($/ton)	Visibility Impacts*		
						Improvement (dv)	Days > 0.5 dv	Days > 1.0 dv
LNB with SOFA	0.21	3,042	$1.2M	$382	---	0.846	330	218
LNB with SOFA and SNCR	0.16	3,735	$3.8M	$1,016	$3,796	1.041	322	202
LNB with SOFA and SCR	0.05	5,500	$13.1M	$2,380	$5,268 (compared to LNB with SOFA and SNCR) $4,853 (compared to LNB with SOFA)	1.545	311	188

*At the most impacted Class I area, Canyonlands National Park.

In determining what to co-propose as BART, we have taken into consideration all five of the statutory factors required by the CAA: the costs of compliance, the energy and non-air quality environmental impacts of compliance, any existing pollution control technology in use at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology. Below we provide a justification for our selection of BART, including an explanation of how each of the CAA factors was used in that selection.

As described in step 1 above, we have considered the existing pollution control technology in use at the source. We note that Hunter Unit 1 was equipped with LNB and SOFA in the spring of 2014 in order to meet state-law requirements in the 2011 Utah RH SIP submittal, which we did not approve. In this co-proposal we have to evaluate control technologies and baseline emissions from the correct starting point, that is, prior to the installation of the

combustion controls pursuant to state-law NO_X limitations.[189] As a result, we used the period 2001-2003 as the appropriate period for baseline emissions, in order to provide a realistic depiction of annual emissions for Hunter Unit 1 prior to installation of combustion controls.

We have considered the energy and non-air quality environmental impacts of compliance and propose to find that they do not appreciably favor one control option over another, or preclude a particular control option from selection. And finally, we have considered the remaining useful life of the source and find that it is sufficiently long (greater than 20 years) so as not to favor or preclude any of the control options. As a result, the remaining factors – the costs of compliance and visibility improvement – are the primary factors that lead us to our proposed BART selection for Hunter Unit 1.

In order to select BART we propose to consider the costs of compliance and visibility impacts by generally comparing them with BART determinations that have been made elsewhere. In the context of reasonable progress determinations, a comparison with another reasonable progress determination has been upheld by the Ninth Circuit Court of Appeals as a rational explanation for that determination.[190] If this were the first BART determination under the RHR and BART Guidelines, which it is not, it would obviously be difficult to employ this precise methodology.[191] At this point, however, the EPA thinks there are sufficient examples of reasonable determinations to make this methodology feasible.

[189] See 79 FR 5032, 5105 (Jan. 30, 2014).
[190] Nat'l Parks Conserv. Ass'n v. U.S. EPA, 788 F.3d 1134, 1148-49 (9th Cir. 2014).
[191] Even in that initial scenario, at least cost of compliance, as expressed in cost-effectiveness in dollars per ton, can be compared with what has been found reasonable for best available control technology (BACT) and reasonably available control technology (RACT), and visibility improvement can be compared with the 0.5 dv subject-to-BART threshold that determines whether a BART-eligible source causes or contributes to visibility impairment in Class I areas. The EPA notes that this alternate methodology would also support our proposed BART determinations in this action.

Specifically, we propose to compare the average cost-effectiveness, incremental cost-effectiveness, visibility improvement, and incremental visibility improvement for LNB and SOFA with SCR with BART determinations where the EPA and States have based their determination on the same metrics. The most comparable determination appears to be in EPA's final action for Wyoming's regional haze SIP, in which EPA promulgated a FIP for three units at Laramie River Station and determined NOx BART to be LNB and SOFA with SCR for the three units.[192] On a per-unit basis, the visibility improvement at the most impacted Class I area from this control option was 0.52 to 0.57 dv, and across all three units the sum of the improvement was 1.62 dv. Thus, the application of this control option to all three units of Laramie River Station was estimated to have a visibility benefit about the same as the application of this control option to Hunter Unit 1. The average cost-effectiveness ranged from $4,375/ton to $4,461/ton, considerably higher than the corresponding value for Hunter Unit 1, while the incremental cost-effectiveness ranged from $5,449 to $5,871/ton which is very close to the corresponding value for Hunter Unit 1. Finally, the incremental visibility improvement as compared to LNB and SOFA with SNCR was significant, as it is for Hunter Unit 1. On the other hand, at Dave Johnston Units 3 and 4 (for example), where EPA rejected LNB and SOFA with SCR, the incremental cost-effectiveness value of LNB and SOFA with SCR was much higher and incremental visibility benefit lower than at Laramie River Station and higher than the same metrics at Hunter Unit 1.[193]

There are other BART determinations in which SCR has been selected as BART (either alone or in conjunction with LNB and SOFA) based on similar metrics, although those determinations may not have explicitly discussed incremental cost-effectiveness and incremental

[192] 79 FR 5032, 5047 (Jan. 30, 2014).
[193] 79 FR 5032, 5049.

visibility benefits on a per-unit basis. First, the State of Colorado selected, and the EPA approved, SCR as NOx BART for Public Service Company's Hayden Station, Units 1 and 2.[194] Hayden Units 1 and 2 were equipped with first generation LNB and over-fire air (OFA) installed in 1999.[195] In its BART determination, Colorado considered these existing controls as given and analyzed as feasible controls upgraded LNB, SNCR, and SCR. Based on an average cost-effectiveness of $3,385/ton and $4,064/ton, incremental cost-effectiveness (as compared with LNB and OFA with SNCR) of $5,326/ton and $7,331/ton, and visibility improvement of 1.12 dv and 0.85 dv at the most impacted Class I area, respectively, Colorado selected SCR as BART for Units 1 and 2. In this case, due to the existing controls at Hayden Station, the cost-effectiveness values for SCR for Hayden Units 1 and 2 should be compared to the incremental cost-effectiveness values (as compared with LNB and SOFA, and with LNB and SOFA with SNCR) for SCR for Hunter Unit 1, and similarly for incremental visibility benefits. We think they are comparable, particularly for Hayden Unit 2, and considering that Hunter Unit 1 significantly impacts several Class I areas, while Colorado selected SCR for Hayden based solely on the visibility improvement at the most impacted Class I area, Mt. Zirkel Wilderness.

Another comparable determination can be found in EPA's FIP for Arizona Public Service's Cholla Power Plant, Units 2, 3, and 4, in which EPA determined that NOx BART was SCR.[196] Similarly to Colorado's determination for Hayden, EPA considered the existing controls, LNB and OFA, at the three units and estimated average cost-effectiveness values for SCR of $3,114/ton, $3,472/ton, and $3,395/ton, and incremental cost-effectiveness values (as compared

[194] 77 FR 18069 (Mar. 26, 2012) (proposal); 77 FR 76871 (Dec. 31, 2012) (final).
[195] Colorado Department of Health and Environment, Air Pollution Control Division, Best Available Retrofit Technology (BART) Analysis of Control Options For Public Service Company – Hayden Station, p. 5, available at https://www.colorado.gov/pacific/sites/default/files/AP_PO_Hayden-Power-Plant_0.pdf.
[196] 77 FR 42834 (July 20, 2012) (proposal); 77 FR 72512, 72514-15 (Dec. 5, 2012) (final).

to LNB and OFA with SNCR) of $3,257/ton, $3,811/ton, and $3,661/ton, respectively, for Units 2, 3, and 4. EPA's modeling showed a source-wide visibility improvement for SCR of 1.34 dv at the most impacted Class I area. Based on these metrics, EPA determined NOx BART to be SCR for the three units. In this case, as with Hayden, the average cost-effectiveness of SCR at Cholla should be compared with the incremental cost-effectiveness of SCR (as compared with just LNB and SOFA) at Hunter Unit 1. The cost-effectiveness values for Hunter Unit 1 are somewhat higher than at Cholla, but on the other hand the source-wide visibility improvement at Hunter Units 1 and 2 (as obtained by summing the per-unit improvements from Units 1 and 2)[197] from LNB and SOFA with SCR is 2.759 dv at the most impacted Class I area, with incremental visibility improvements of 1.29 dv and 0.932 dv over LNB and SOFA and LNB and SOFA with SNCR, respectively. These visibility improvements are very much in line with those at Cholla, and given that the incremental cost-effectiveness of SCR at Hunter Unit 1 is still reasonable, the comparison with Cholla also supports selection of SCR for Hunter Unit 1. We invite comment on other potentially relevant BART determinations and our methodology generally.

Based on these comparisons to Laramie River Station, Hayden Station, Dave Johnston Units 3 and 4, and Cholla Power Plant, we think that selection of LNB and SOFA with SCR as BART for Hunter Unit 1 would be fully consistent with these prior actions. For Hunter Unit 1, LNB and SOFA with SCR is very cost-effective, at $2,380/ton on an average basis (counting the costs and emission reductions from the combination of the three control technology elements) and at $5,268/ton on an incremental basis compared to LNB with SOFA and SNCR. Compared to LNB with SOFA, the incremental cost effectiveness is $4,813/ton, which also compares favorably to the incremental cost effectiveness that supported the selection of LNB with SOFA

[197] We use the source-wide number here to compare with the Cholla determination; in addition as explained above we must consider source-wide visibility improvements.

and SCR for Laramie River Station. For Hunter Unit 1, LNB and SOFA with SCR provides substantial visibility benefits at several Class I areas that are similar to those from Laramie River Station and larger than those from Dave Johnson Units 3 and 4. For example, the visibility improvement from that control option installed on a single unit is 1.342 dv at Arches NP, 1.545 dv at Canyonlands NP, and 1.113 at Capitol Reef NP. These comparisons show that costs are justified in light of the substantial visibility benefits, both total and incremental.

In the case of Hunter, the unit level visibility improvements justify the most stringent level of control, SCR, for each of the two Hunter units. Necessarily, when we consider the source-wide visibility improvements, they will be larger and also justify the most stringent level of control. In addition, the unit level visibility improvements and source-wide visibility improvements (as derived by summing the unit level visibility improvements) at other impacted Class I areas, particularly Arches NP and Capitol Reef NP, support the most stringent level of control. Accordingly, for Hunter Unit 1, we propose to find that BART for NO_X is LNB and SOFA with SCR, represented by an emission limit of 0.07 lb/MMBtu (30-day rolling average). The proposed BART emission limit of 0.07 lb/MMBtu allows for a sufficient margin of compliance for a 30-day rolling average limit that would apply at all times, including startup, shutdown, and malfunction.[198] We are also proposing monitoring, recordkeeping, and reporting requirements as described in our proposed regulatory text for 40 CFR 52.2336.

Under 40 CFR section 51.308(e)(1)(iv), "each source subject to BART [is] required to install and operate BART as expeditiously as practicable, but in no event later than five years after approval of the implementation plan revision." In light of the considerable effort involved

[198] Emission limits such as BART are required to be met on a continuous basis. See 70 FR 39104, 39172 (July 6, 2005) (stating that emissions limits including BART are to be met on a "continuous basis" in the BART Guidelines, section V); 42 U.S.C. 7602(k) (noting that emission limits are to be on "a continuous basis").

to retrofit SCR, we propose that five years is as expeditiously as practicable. Therefore, we propose a compliance deadline of five years from the date our final FIP becomes effective.

b. Hunter Unit 2

Generally speaking, Hunter Unit 2 is identical to Hunter Unit 1. The Hunter Unit 2 boiler is of tangential-fired design with newer generation low-NO_X burners and separated overfire air which were installed in spring 2011. Hunter Unit 2 currently achieves an annual emission rate of approximately 0.20 lb/MMBtu with these combustion controls. Under Utah's submitted regional haze SIP, Unit 1 is subject to a state-law NO_X emission limit of 0.26 lb/MMBtu on a 30-day rolling average. Prior to the installation of LNB and SOFA the unit operated with an actual annual emission rate of about 0.38 lb/MMBtu.

Step 1: Identify All Available NO_X Control Technologies

For the same reasons as for Hunter Unit 1, we propose to adopt the identification of available NO_X control technologies in PacifiCorp's 2012 BART analysis to satisfy Step 1, and we refer the reader to the 2012 PacifiCorp BART analysis for details on those control technologies.

Step 2: Eliminate Technically Infeasible Options

In its 2012 BART analysis,[199] PacifiCorp eliminated available NO_X control technologies that PacifiCorp evaluated as technologically infeasible for Hunter Unit 2. The remaining technologically feasible control technologies are the combustion controls, LNB and SOFA, and the post-combustion controls, SNCR and SCR.

As with Hunter Unit 1, we agree with PacifiCorp's evaluation of technologically available controls for Hunter Unit 2 and propose to adopt it for Step 2.

[199] PacifiCorp BART Analysis for Hunter Unit 2, pp. 2.b-105 - 2.a-122 (2012).

Step 3: Evaluate Control Effectiveness of Remaining Control Technologies

As noted above, Hunter Unit 2 is currently achieving an actual annual emission rate of approximately 0.20 lb/MMBtu with LNB and SOFA. This represents a 48.2 percent reduction from the baseline emission rate of 0.38 lb/MMBtu.

SCR can achieve performance emission rates as low as 0.04 to 0.07 lb/MMBtu on an annual basis.[200] For this analysis, consistent with our actions elsewhere, as well with PacifiCorp's analysis, we use an annual emission rate of 0.05 lb/MMBtu for SCR, which when combined with LNB and SOFA achieves an overall control efficiency of 86.9 percent. For this analysis, consistent with our actions elsewhere, as well with PacifiCorp's analysis, we use an annual emission rate of 0.05 lb/MMBtu for SCR, which when combined with LNB and SOFA achieves an overall control efficiency of 86.9 percent.

As with Hunter Unit 1, we evaluated post-combustion control technologies, SNCR and SCR, in combination with combustion controls. Our evaluation is the same as for Hunter Unit 1. A summary of emissions projections for the control options evaluated is provided in Table 19 below.

Table 19. Summary of NO_X BART Analysis Control Technologies for Hunter Unit 2

Control Option	Control Effectiveness (%)	Annual Emission Rate (lb/MMBtu)	Emissions Reduction (tpy)	Remaining Emissions (tpy)
LNB/SOFA +SCR	86.9	0.05	5,230	788
LNB/SOFA +SNCR	59.2	0.16	3,562	2,457
LNB/SOFA	48.2	0.20	2,902	3,117
Baseline[1]	---	0.38	---	6,018

[1] Baseline emissions were determined by averaging the annual emissions from 2001 to 2003 as reported to EPA Air Markets Program Data available at http://ampd.epa.gov/ampd/.

[200] Srivastava, R., Hall, R., Khan, S., Lani, B., & Culligan, K., Nitrogen Oxides Emission Control Options for Coal-Fired Utility Boilers, 55 J. AIR & WASTE MGMT. ASSOC. 1367, 1385-86 (2005).

Step 4: Evaluate Impacts and Document Results

Part 1 - Costs of compliance

We obtained capital costs for LNB and SOFA from the 2014 PacifiCorp BART analysis. PacifiCorp did not report any operating and maintenance costs for LNB and SOFA. Similarly, we obtained capital cost estimates for LNB and SOFA with SNCR from the 2014 PacifiCorp BART analysis. However, for operating and maintenance costs we propose to rely on the draft 2015 draft SNCR chapter of the CCM. Refer to the ATP report for details. Capital costs for LNB and SOFA with SCR were also obtained from the 2014 PacifiCorp BART analysis. However, PacifiCorp's capital costs were adjusted to account for items that were double-counted or should not be allowed under the CCM, such as AFUDC.[201] In addition, the capital costs were adjusted to account for a significant overestimation of the catalyst volume and related costs. These adjustments are documented in the ATP report and associated spread sheet. A discussion of operating and maintenance costs of SCR is also included in the ATP report. For the reasons given in the report, we propose to adopt the cost estimates contained in it.

A summary of our proposed cost estimates for all control options is presented in Table 20 below.

Table 20. Summary of NOx BART Costs on Hunter Unit 2

Control Option	Total Capital Investment	Indirect Annual Cost	Direct Annual Cost	Total Annual Cost	Emissions Reductions (tpy)	Average Cost Effectiveness ($/ton)
LNB/SOFA	$8.6M	$0.9M	$0M	$0.9M	2,902	$298
LNB/SOFA /SNCR	$16.0M	$1.6M	$1.9M	$3.5M	3,562	$968
LNB/SOFA /SCR	$108.1M	$10.3	$2.4M	$12.7M	5,230	$2,432

Parts 2 and 3 - Energy and non-air quality environmental impacts of compliance

[201] See 79 FR 5032, 5133 (Jan. 30, 2014) (discussing reasons for rejecting use of AFUDC).

The energy and non-air quality impacts for Hunter Unit 2 are nearly identical to those for Hunter Unit 1 as discussed above. Accordingly, for the same reasons as for Hunter Unit 1, we propose to determine that we have adequately considered these impacts by including cost of additional energy in cost effectiveness and assessing non-air quality environmental impacts as insufficient to eliminate or weigh against any of the BART options.

Part 4 - Remaining useful life

PacifiCorp assumes a remaining useful life of at least 20 years for Hunter Unit 2 in its BART analysis, and has not indicated any intention to retire, or curtail generation from, Hunter Unit 2. Therefore, this factor does not preclude any of the control options considered. In addition, this factor is consistent with our BART calculation of cost effectiveness because annualized costs have been calculated over a 20 year period for each of the control options considered. We propose that this gives adequate consideration to this factor.

Step 5: Evaluate visibility impacts.

Table 21 presents the highest of the 98th percentile visibility improvements at the affected Class I areas for the three meteorological years modeled, 2001 through 2003. Tables 22 and 23 present the number of days (summed across three years) with impacts greater than the contribution and causation thresholds – 0.5 dv and 1.0 dv, respectively.

Table 21. Hunter Unit 2 – Visibility Improvements

Class I Area	**LNB with SOFA (Δdv)**	**LNB with SOFA and SNCR (Δdv)**	**LNB with SOFA and SCR (Δdv)**
Arches NP	0.569	0.711	1.080
Black Canyon of the Gunnison NP	0.153	0.189	0.279
Bryce Canyon NP	0.234	0.291	0.429
Canyonlands NP	0.658	0.822	1.250
Capitol Reef NP	0.491	0.623	0.879

Flat Tops WA	0.180	0.223	0.328
Grand Canyon NP	0.275	0.340	0.506
Mesa Verde NP	0.182	0.225	0.344
Zion NP	0.144	0.178	0.262

Table 22. Hunter Unit 2 - Days Greater than 0.5 Deciview (Three Year Total)

Class I Area	**Baseline (days)**	**LNB with SOFA (days)**	**LNB with SOFA and SNCR** (days)	**LNB with SOFA and SCR** (days)
Arches NP	293	276	268	245
Black Canyon of the Gunnison NP	68	57	55	49
Bryce Canyon NP	42	39	37	30
Canyonlands NP	359	336	331	317
Capitol Reef NP	175	163	161	152
Flat Tops WA	77	64	63	57
Grand Canyon NP	49	46	45	40
Mesa Verde NP	82	72	66	59
Zion NP	29	24	23	22

Table 23. Hunter Unit 2 - Days Greater than 1.0 Deciview (Three Year Total)

Class I Area	**Baseline (days)**	**LNB with SOFA (days)**	**LNB with SOFA and SNCR** (days)	**LNB with SOFA and SCR** (days)
Arches NP	170	151	145	131
Black Canyon of the Gunnison NP	22	16	13	11
Bryce Canyon NP	22	21	19	16
Canyonlands NP	240	221	218	198
Capitol Reef NP	118	113	111	105
Flat Tops WA	31	20	20	14
Grand Canyon NP	32	25	25	22
Mesa Verde NP	32	22	20	14
Zion NP	14	11	9	8

Select BART.

A summary of our impacts analysis for Hunter Unit 2 is presented in Table 24 below.

Table 24 – Summary of Hunter Unit 2 Impacts Analysis

Control Option	Annual Emission Rate (lb/MMBtu)	Emission Reduction (tpy)	Total Annual Costs (Million $)	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness ($/ton)	Visibility Impacts*		
						Improvement (dv)	Days > 0.5 dv	Days > 1.0 dv
LNB with SOFA	0.20	2,902	$0.9M	$298	---	0.658	336	221
LNB with SOFA and SNCR	0.16	3,562	$3.5M	$968	$3,913	0.822	331	218
LNB with SOFA and SCR	0.05	5,230	$12.7M	$2,432	$5,558 (compared to LNB with SOFA and SNCR) $5,092 (compared to LNB with SOFA)	1.250	317	198

*At the most impacted Class I area, Canyonlands National Park.

In determining what to co-propose as BART, we have taken into consideration all five of the statutory factors required by the CAA: the costs of compliance, the energy and non-air quality environmental impacts of compliance, any existing pollution control technology in use at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology. Below we provide a justification for our selection of BART, including an explanation of how each of the CAA factors was used in that selection.

We have considered the energy and non-air quality environmental impacts of compliance and propose to find that they do not appreciably favor one control option over another, or preclude a particular control option from selection. As explained for Hunter Unit 1, the existing pollution controls have been accounted for in our evaluation of BART, and also would not favor or preclude any of the control options considered. And finally, we have considered the remaining useful life of the source and find that it is sufficiently long (greater than 20 years) so as not to

favor or preclude any of the control options. As a result, the remaining factors – the costs of compliance and visibility improvement – are the primary factors that lead us to our proposed BART selection for Hunter Unit 2.

In order to select BART we propose (for the same reasons as for Hunter Unit 1) to weigh the costs of compliance against visibility impacts by generally comparing them with BART determinations that have been made elsewhere. Specifically, we propose to compare the average cost-effectiveness, incremental cost-effectiveness, visibility improvement, and incremental visibility improvement for LNB and SOFA with SCR with BART determinations where the EPA and States have based their determination on the same metrics. The most comparable determinations are the same as for Hunter Unit 1: Laramie River Station, Hayden Station, and Cholla Power Plant.

Based on these comparisons, we think LNB and SOFA with SCR for Hunter 2 is fully consistent with the other BART determinations. LNB and SOFA with SCR is very cost-effective at $2,432/ton, and provides substantial visibility benefits at several Class I areas. For example, the visibility improvement from that control option is 1.250 dv at Canyonlands NP and 1.080 dv at Arches NP. The incremental cost-effectiveness of SCR, $5,558/ton, is by comparison also reasonable. This comparison also shows that costs are justified in light of the substantial visibility benefits, both total and incremental.

In the case of Hunter, the unit level visibility improvements justify the most stringent level of control, SCR, for each of the two Hunter units. Necessarily, when we consider the source-wide visibility improvements, they will be larger and also justify the most stringent level of control. In addition, the unit level visibility improvements and source-wide visibility improvements (as derived by summing the unit level visibility improvements) at other impacted

Class I areas, particularly Arches NP and Capitol Reef NP, support the most stringent level of control.

Accordingly, for Hunter Unit 2, we propose to find that BART for NO_X is LNB and SOFA with SCR, represented by an emission limit of 0.07 lb/MMBtu (30-day rolling average). The proposed BART emission limit of 0.07 lb/MMBtu allows for a sufficient margin of compliance for a 30-day rolling average limit that would apply at all times, including startup, shutdown, and malfunction.[202] We are also proposing monitoring, recordkeeping, and reporting requirements as described in our proposed regulatory text for 40 CFR section 52.2336.

Under 40 CFR section 51.308(e)(1)(iv), "each source subject to BART [is] required to install and operate BART as expeditiously as practicable, but in no event later than 5 years after approval of the implementation plan revision." In light of the considerable effort involved to retrofit SCR, we propose that five years is as expeditiously as practicable. Therefore, we propose a compliance deadline of five years from the date our final FIP becomes effective.

3. Huntington Power Plant

As described above in section IV.A, Huntington Units 1 and 2 were determined to be subject to BART. PacifiCorp's Huntington Power Plant (Huntington), is located in Huntington City, Utah, and consists of a total of the two electric utility steam generating units. Huntington Units 1 and 2 have a nameplate generating capacity of 498 MW each.[203] The boilers are tangentially fired pulverized coal boilers, burning bituminous coal from the nearby Deer Creek Mine.

[202] Emission limits such as BART are required to be met on a continuous basis. See 70 FR 39104, 39172 (July 6, 2005) (stating that emissions limits including BART are to be met on a "continuous basis" in the BART Guidelines, section V); 42 U.S.C. 7602(k) (noting that emission limits are to be on "a continuous basis").

[203] See U.S. Energy Information Administration, Electric Generating Capacity for 2011 (taken from Form EIA-860). See "EIA existing generating units 2011.xls" spreadsheet in the docket.

Our evaluation of BART for Huntington Unit 1 and 2 follows the Guidelines for BART Determinations Under the Regional Haze Rule, which are found in appendix Y to 40 CFR part 51. For Huntington Units 1 and 2, the BART Guidelines are mandatory because the combined capacity for all units at the Huntington facility is greater than 750 MW.[204] Under the Guidelines, cost estimates for control technologies should be based on the CCM, where possible.

The BART Guidelines establish presumptive NO_X limits for coal-fired EGUs greater than 200 MW located at greater than 750 MW power plants that are operating without post-combustion controls. For the tangential-fired boilers burning bituminous coal at Huntington, that presumptive limit is 0.28 lb/MMBtu.[205] The BART Guidelines provide that the five factor analysis may result in a limit that is different than the presumptive limit, and the presumptive limits do not obviate the need to determine BART on a case-by-case basis considering the five factors.[206]

PacifiCorp provided BART analyses for Huntington 1 and 2 to Utah in 2012 and 2014 which we utilize in our proposed BART evaluation here.[207] Although we are using some information provided by Utah and PacifiCorp, we have independently evaluated all five statutory BART factors.

a. Huntington Unit 1

The Huntington Unit 1 boiler is of tangential-fired design with newer generation low-NO_X burners and separated overfire air which were installed in fall 2010. Huntington Unit 1

[204] See 40 CFR 51.302(e)(1)(ii)(B) ("The determination of BART for fossil-fuel fired power plants having a total generating capacity greater than 750 megawatts must be made pursuant to the guidelines in appendix Y of this part.").
[205] 40 CFR part 51, appendix Y, IV.E.5, Table. 1.
[206] See 40 CFR 51.301 (defining BART); 40 CFR 51.308(e).
[207] See PacifiCorp BART Analysis for Huntington Unit 1(2012);PacifiCorp BART Analysis for Huntington Unit 2 (2012);see also Chapter 2 of the Technical Support Document for Utah's Regional Haze BART Submittal; PacifiCorp's BART Analysis Update for Hunter Units 1 and 2 and Huntington Units 1 and 2 (2014).

currently achieves an annual emission rate of approximately 0.22 lb/MMBtu with these combustion controls. Under Utah's submitted regional haze SIP, Unit 1 is subject to a state-law NO_X emission limit of 0.26 lb/MMBtu on a 30-day rolling average. Prior to the installation of LNB and SOFA the unit operated with an actual annual emission rate of about 0.37 lb/MMBtu.

Step 1: Identify All Available NO_X Control Technologies

In its 2012 BART analysis for Huntington Unit 1, PacifiCorp identified several NO_X control technologies, both for combustion controls and post-combustion controls.[208] The combustion controls identified by PacifiCorp include: low-NO_X burners and separated overfire air (LNB and SOFA overfire air; already installed), rotating overfire air, neural network optimization system, flue gas recirculation, gas reburn, fuel lean gas reburn, coal switching, water injection, and others. Post-combustion control options identified by PacifiCorp include: SNCR, RRI, SCR, and others.

We note that the combustion controls, LNB and SOFA, have already been installed on Huntington Unit 1, and so we consider them here as "any existing controls" under the third statutory factor. In addition, the BART Guidelines recognize that "[c]ombinations of inherently lower-emitting processes and add-on controls" are a category of retrofit controls which can be considered.[209] Accordingly, the inherently lower-emitting combustion controls, LNB and SOFA, are evaluated in combination with the add-on controls, SNCR and SCR.

We have reviewed PacifiCorp's review of NO_X control technologies and find it to be comprehensive. We propose to adopt it to satisfy Step 1 and we refer to the 2012 PacifiCorp BART analysis for details on the available NO_X control technologies.

Step 2: Eliminate Technically Infeasible Options

[208] PacifiCorp BART Analysis for Huntington Unit 1, p. 2.c-60 (2012).
[209] 40 CFR part 51 appendix Y.

In its 2012 BART analysis,[210] PacifiCorp eliminated available NO_X control technologies that PacifiCorp evaluated as technologically infeasible for Huntington Unit 1. The remaining technologically feasible control technologies are the combustion controls, LNB and SOFA, and the post-combustion controls, SNCR and SCR.

We agree with PacifiCorp's evaluation of technologically available controls for Huntington Unit 1 and propose to adopt it for Step 2.

Step 3: Evaluate Control Effectiveness of Remaining Control Technologies

As noted above, Huntington Unit 1 is currently achieving an actual annual emission rate of approximately 0.22 lb/MMBtu with LNB and SOFA. This represents a 41.5 percent reduction from the baseline emission rate of 0.37 lb/MMBtu.

The post-combustion control technologies, SNCR and SCR, have been evaluated in combination with combustion controls. That is, the inlet concentration to the post-combustion controls is assumed to be 0.22 lb/MMBtu (annual). This allows the equipment and operating and maintenance costs of the post-combustion controls to be minimized based on the lower inlet NO_X concentration.

Typically, SNCR reduces NO_X an additional 20 to 30 percent above combustion controls without excessive NH_3 slip.[211] For this analysis, the control efficiency of SNCR has been calculated based on the formula in the 2015 draft CCM SNCR chapter[212], which for Huntington Unit 1 yields an additional reduction of 21.7 percent after combustion controls. When combined with LNB and SOFA, SNCR is anticipated to achieve an annual emission rate of 0.17 lb/MMBtu, corresponding to an overall control efficiency of 54.2 percent.

[210] PacifiCorp BART Analysis for Huntington Unit 1, pp. 2.c-61 - 2.c-77 (2012).
[211] Institute of Clean Air Companies, White Paper, SNCR for Controlling NO_X Emissions, pp. 4, 9 (Feb. 2008).
[212] See [DRAFT] 2015 SNCR CCM (July 2015), Figure 1.1c: SNCR NO_X Reduction Efficiency Versus Baseline NO_X Levels for Coal-fired Utility Boilers.

SCR can achieve performance emission rates as low as 0.04 to 0.07 lb/MMBtu on an annual basis.[213] For this analysis, consistent with our actions elsewhere, as well with PacifiCorp's analysis, we use an annual emission rate of 0.05 lb/MMBtu for SCR, which when combined with LNB and SOFA achieves an overall control efficiency of 86.7 percent.

A summary of emissions projections for the control options evaluated is provided in Table 25 below.

Table 25. Summary of NOx BART Analysis Control Technologies for Huntington Unit 1

Control Option	Control Effectiveness (%)	Annual Emission Rate (lb/MMBtu)	Emissions Reduction (tpy)	Remaining Emissions (tpy)
LNB/SOFA +SCR	86.7	0.05	5,092	784
LNB/SOFA +SNCR	54.2	0.17	3,185	2,692
LNB/SOFA	41.5	0.22	2,440	3,436
Baseline[1]	---	0.37	---	5,876

[1] Baseline emissions were determined by averaging the annual emissions from 2001 to 2003 as reported to EPA Air Markets Program Data available at http://ampd.epa.gov/ampd/.

Step 4: Evaluate Impacts and Document Results

Part 1 - Costs of compliance

We obtained capital costs for LNB and SOFA from the 2014 PacifiCorp BART analysis. PacifiCorp did not report any operating and maintenance costs for LNB and SOFA. Similarly, we obtained capital cost estimates for LNB and SOFA with SNCR from the 2014 PacifiCorp BART analysis. However, for operating and maintenance costs we propose to rely on the draft 2015 draft SNCR chapter of the CCM. Refer to the ATP report for details. Capital costs for LNB and SOFA with SCR were also obtained from the 2014 PacifiCorp BART analysis. However, PacifiCorp's capital costs were adjusted to account for items that were double-counted or should

[213] Srivastava, R., Hall, R., Khan, S., Lani, B., & Culligan, K., Nitrogen Oxides Emission Control Options for Coal-Fired Utility Boilers, 55 J. AIR & WASTE MGMT. ASSOC. 1367, 1367–88 (2005).

not be allowed under the CCM, such as AFUDC.[214] In addition, the capital costs were adjusted to account for a significant overestimation of the catalyst volume and related costs. These adjustments are documented in the ATP report and associated spread sheet. A discussion of operating and maintenance costs of SCR is also included in the ATP report. For the reasons given in the report, we propose to adopt the cost estimates contained in it.

A summary of our proposed cost estimates for all control options is presented in Table 26 below.

Table 26. Summary of NOx BART Costs on Huntington Unit 1

Control Option	Total Capital Investment	Indirect Annual Cost	Direct Annual Cost	Total Annual Cost	Emissions Reductions (tpy)	Average Cost Effectiveness ($/ton)
LNB/SOFA	$8.1M	$0.8M	$0M	$0.8M	2,440	$332
LNB/SOFA /SNCR	$15.5M	$1.5M	$2.0M	$3.5M	3,185	$1,098
LNB/SOFA /SCR	$107.8M	$10.3M	$2.5M	$12.8M	5,092	$2,515

Parts 2 and 3 - Energy and non-air quality environmental impacts of compliance

SNCR slightly reduces the thermal efficiency of a boiler as the reduction reaction uses thermal energy from the boiler, decreasing the energy available for power generation.[215] Using the CCM, we have calculated the electrical power consumption of SNCR to be 361,000 kW-hr per year for Huntington Unit 1.

For SCR, the thermal efficiency is much more reduced because the new ductwork and the reactor's catalyst layers decrease the flue gas pressure. As a result, additional fan power is necessary to maintain the flue gas flow rate through the ductwork and reactor. Using the CCM, we have calculated the electrical power consumption of SCR to be approximately 18,617,000 kW-hr per year for Huntington Unit 1.

[214] See 79 FR 5032, 5133 (Jan. 30, 2014) (discussing reasons for rejecting use of AFUDC).
[215] EPA Air Pollution Control Cost Manual, pp. 1–21 (6th ed. 2002).

Both SCR and SNCR require some minimal electricity to service pretreatment and injection equipment, pumps, compressors, and control systems. The energy requirements described above are not significant enough to warrant elimination of either SNCR or SCR as BART. In addition, the cost of the additional energy requirements has been included in our cost effectiveness calculations.

SNCR and SCR will slightly increase the quantity of ash that will need to be disposed. In addition, transportation and storage of chemical reagents may result in spills or releases. However, these non-air quality environmental impacts do not warrant elimination of either SNCR or SCR as BART.

There are no additional energy requirements associated with the new LNB and SOFA, and no significant non-air quality environmental impacts.

In summary, we propose to determine that we have adequately considered these impacts by including cost of additional energy in cost effectiveness and assessing non-air quality environmental impacts as insufficient to eliminate or weigh against any of the BART options.

Part 4 - Remaining useful life

PacifiCorp assumes a remaining useful life of at least 20 years for Huntington Unit 1 in its BART analysis, and has not indicated any intention to retire, or curtail generation from, Huntington Unit 1. Therefore, this factor does not preclude any of the control options considered. In addition, this factor does not impact our BART calculation of cost effectiveness because annualized costs have been calculated over a 20 year period for each of the control options considered. We propose that this gives adequate consideration to this factor.

Step 5: Evaluate visibility impacts.

Table 27 presents the highest of the 98th percentile visibility improvements at the affected Class I areas for the three meteorological years modeled, 2001 through 2003. Tables 28 and 29 present the number of days (summed across three years) with impacts greater than the contribution and causation thresholds – 0.5 dv and 1.0 dv, respectively.

Table 27. Huntington Unit 1 – Visibility Improvements

Class I Area	LNB with SOFA (Δdv)	LNB with SOFA and SNCR (Δdv)	LNB with SOFA and SCR (Δdv)
Arches NP	0.684	0.907	1.488
Black Canyon of the Gunnison NP	0.156	0.205	0.328
Bryce Canyon NP	0.222	0.292	0.473
Canyonlands NP	0.851	1.133	1.881
Capitol Reef NP	0.493	0.651	1.108
Flat Tops WA	0.181	0.239	0.383
Grand Canyon NP	0.200	0.262	0.419
Mesa Verde NP	0.215	0.284	0.462
Zion NP	0.150	0.198	0.320

Table 28. Huntington Unit 1 - Days Greater than 0.5 Deciview (Three Year Total)

Class I Area	Baseline (days)	LNB with SOFA (days)	LNB with SOFA and SNCR (days)	LNB with SOFA and SCR (days)
Arches NP	237	221	210	180
Black Canyon of the Gunnison NP	45	33	30	23
Bryce Canyon NP	36	26	25	19
Canyonlands NP	277	249	244	210
Capitol Reef NP	131	117	116	99
Flat Tops WA	64	41	37	27
Grand Canyon NP	40	35	34	27
Mesa Verde NP	63	46	41	30
Zion NP	21	16	16	14

Table 29. Huntington Unit 1 - Days Greater than 1.0 Deciview (Three Year Total)

Class I Area	Baseline (days)	LNB with SOFA (days)	LNB with SOFA and SNCR (days)	LNB with SOFA and SCR (days)
Arches NP	146	121	117	86
Black Canyon of the Gunnison NP	16	7	7	3
Bryce Canyon NP	19	13	9	5
Canyonlands NP	175	153	143	117
Capitol Reef NP	91	74	69	55
Flat Tops WA	17	9	8	3
Grand Canyon NP	19	13	12	9
Mesa Verde NP	22	13	10	4
Zion NP	11	8	6	4

Select BART.

A summary of our impacts analysis for Huntington Unit 1 is presented in Table 30 below.

Table 30. Summary of Huntington Unit 1 Impacts Analysis

Control Option	Annual Emission Rate (lb/MMBtu)	Emission Reduction (tpy)	Total Annual Costs (Million$)	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness ($/ton)	Visibility Impacts*		
						Improvement (dv)	Days > 0.5 dv	Days > 1.0 dv
LNB with SOFA	0.22	2,440	$0.8M	$332	---	0.851	249	153
LNB with SOFA and SNCR	0.17	3,185	$3.5M	$1098	$3,609	1.113	244	143
LNB with SOFA and SCR	0.05	5,092	$12.8M	$2,515	$4,879 (compared to LNB with SOFA and SNCR) $4,522 (compared to LNB with SOFA)	1.881	210	117

*At the most impacted Class I area, Canyonlands National Park.

In determining what to co-propose as BART, we have taken into consideration all five of the statutory factors required by the CAA: the costs of compliance, the energy and non-air quality environmental impacts of compliance, any existing pollution control technology in use at

the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology. Below we provide a justification for our selection of BART, including an explanation of how each of the CAA factors was used in that selection.

As described in step 1 above, we have considered the existing pollution control technology in use at the source. We note that Huntington Unit 1 was equipped with LNB and SOFA in the fall of 2010 in order to meet state-law requirements in the 2011 Utah RH SIP submittal, which we did not approve. In this co-proposal we have to evaluate control technologies and baseline emissions from the correct starting point, that is, prior to the installation of the combustion controls pursuant to state-law NO_X limitations.[216] As a result, we used the period 2001-2003 as the appropriate period for baseline emissions, in order to provide a realistic depiction of annual emissions for Huntington Unit 1 prior to installation of combustion controls.

We have considered the energy and non-air quality environmental impacts of compliance and propose to find that they do not appreciably favor one control option over another, or preclude a particular control option from selection. And finally, we have considered the remaining useful life of the source and find that it is sufficiently long (greater than 20 years) so as not to favor or preclude any of the control options. As a result, the remaining factors – the costs of compliance and visibility improvement – are the primary factors that lead us to our proposed BART selection for Huntington Unit 1.

Having already considered the other factors, in order to select BART we propose to weigh the costs of compliance against visibility impacts by generally comparing them with

[216] See 79 FR 5032, 5105-1 (Jan. 30, 2012).

BART determinations that have been made elsewhere. Specifically, we propose to compare the average cost-effectiveness, incremental cost-effectiveness, visibility improvement, and incremental visibility improvement for LNB and SOFA with SCR with BART determinations where the EPA and States have based their determination on the same metrics. The most comparable determinations are the same as for Hunter Unit 1. The most comparable determination appears to be in EPA's final action for Wyoming's regional haze SIP, in which EPA promulgated a FIP for three units at Laramie River Station and determined BART to be LNB and SOFA with SCR for the three units.[217] On a per-unit basis, the visibility improvement from that control option was 0.52 to 0.57 dv, and across all three units the sum of the improvement was 1.62 dv. The average cost-effectiveness ranged from $4,375/ton to $4,461/ton, while the incremental cost-effectiveness ranged from $5,449 to $5,871/ton. Finally, the incremental visibility improvement as compared to LNB and SOFA with SNCR was significant. On the other hand, at Dave Johnston Units 3 and 4 (for example), where EPA rejected LNB and SOFA with SCR, the incremental cost-effectiveness value of LNB and SOFA with SCR was much higher and incremental visibility benefit lower than at Laramie River Station.[218]

There are other BART determinations in which SCR has been selected as BART (either alone or in conjunction with LNB and SOFA) based on similar metrics, although those determinations may not have explicitly discussed incremental cost-effectiveness and incremental visibility benefits on a per-unit basis. First, the State of Colorado selected, and the EPA approved, SCR as NOx BART for Public Service Company's Hayden Station, Units 1 and 2.[219] Hayden Units 1 and 2 were equipped with first generation LNB and over-fire air (OFA) installed

[217] 79 FR 5032, 5047 (Jan. 30, 2014).
[218] 79 FR 5032, 5049.
[219] 77 FR 18069 (Mar. 26, 2012) (proposal); 77 FR 76871 (Dec. 31, 2012) (final).

in 1999.[220] In its BART determination, Colorado considered these existing controls as given and analyzed as feasible controls upgraded LNB, SNCR, and SCR. Based on an average cost-effectiveness of $3,385/ton and $4,064/ton, incremental cost-effectiveness (as compared with LNB and OFA with SNCR) of $5,326/ton and $7,331/ton, and visibility improvement of 1.12 dv and 0.85 dv at the most impacted Class I area, respectively, Colorado selected SCR as BART for Units 1 and 2. In this case, due to the existing controls at Hayden Station, the cost-effectiveness values for SCR for Hayden Units 1 and 2 should be compared to the incremental cost-effectiveness values (as compared with LNB and SOFA, and with LNB and SOFA with SNCR) for SCR for Huntington Unit 1, and similarly for incremental visibility benefits. We think they are comparable, particularly for Hayden Unit 2, and considering that Huntington Unit 1 significantly impacts several Class I areas, while Colorado selected SCR for Hayden based solely on the visibility improvement at the most impacted Class I area, Mt. Zirkel Wilderness.

Another comparable determination can be found in EPA's FIP for Arizona Public Service's Cholla Power Plant, Units 2, 3, and 4, in which EPA determined that NOx BART was SCR.[221] Similarly to Colorado's determination for Hayden, EPA considered the existing controls, LNB and OFA, at the three units and estimated average cost-effectiveness values for SCR of $3,114/ton, $3,472/ton, and $3,395/ton, and incremental cost-effectiveness values (as compared to LNB and OFA with SNCR) of $3,257/ton, $3,811/ton, and $3,661/ton, respectively, for Units 2, 3, and 4. EPA's modeling showed a source-wide visibility improvement for SCR of 1.34 dv at the most impacted Class I area. Based on these metrics, EPA determined NOx BART to be SCR for the three units. In this case, as with Hayden, the average cost-effectiveness of SCR at Cholla

[220] Colorado Department of Health and Environment, Air Pollution Control Division, Best Available Retrofit Technology (BART) Analysis of Control Options For Public Service Company – Hayden Station, p. 5, available at https://www.colorado.gov/pacific/sites/default/files/AP_PO_Hayden-Power-Plant_0.pdf.
[221] 77 FR 42834 (July 20, 2012) (proposal); 77 FR 72512, 72514-15 (Dec. 5, 2012) (final).

should be compared with the incremental cost-effectiveness of SCR (as compared with just LNB and SOFA) at Huntington Unit 1. The cost-effectiveness values for Huntington Unit 1 are somewhat higher than at Cholla, but on the other hand the source-wide visibility improvement at Huntington Units 1 and 2 (as obtained by summing the per-unit improvements from Units 1 and 2)[222] from LNB and SOFA with SCR is 2.759 dv at the most impacted Class I area, with incremental visibility improvements of 1.29 dv and 0.932 dv over LNB and SOFA and LNB and SOFA with SNCR, respectively. These visibility improvements are very much in line with those at Cholla, and given that the incremental cost-effectiveness of SCR at Huntington Unit 1 is still reasonable, the comparison with Cholla also supports selection of SCR for Huntington Unit 1. We invite comment on other potentially relevant BART determinations and our methodology generally.

Based on these comparisons, we think LNB and SOFA with SCR is very cost-effective at $2,515/ton, and provides substantial visibility benefits at several Class I areas. For example, the visibility improvement from that control option is 1.488 dv at Arches NP, 1.881 dv at Canyonlands NP, and 1.108 dv at Capitol Reef NP. The incremental cost-effectiveness of SCR, $4,879/ton, is by comparison with the Laramie River Station BART determination also reasonable. This comparison also shows that costs are justified in light of the substantial visibility benefits, both total and incremental.

In the case of Huntington, the unit level visibility improvements justify the most stringent level of control, SCR, for each of the two Huntington Hunter units. Necessarily, when we consider the source-wide visibility improvements, they will be larger and also justify the most stringent level of control.

[222] We use the source-wide number here to compare with the Cholla determination; in addition as explained above we must consider source-wide visibility improvements.

Accordingly, for Huntington Unit 1, we propose to find that BART for NO_X is LNB and SOFA with SCR, represented by an emission limit of 0.07 lb/MMBtu (30-day rolling average). The proposed BART emission limit of 0.07 lb/MMBtu allows for a sufficient margin of compliance for a 30-day rolling average limit that would apply at all times, including startup, shutdown, and malfunction.[223] We are also proposing monitoring, recordkeeping, and reporting requirements as described in our proposed regulatory text for 40 CFR 52.2336.

Under 40 CFR section 51.308(e)(1)(iv), "each source subject to BART [is] required to install and operate BART as expeditiously as practicable, but in no event later than 5 years after approval of the implementation plan revision." In light of the considerable effort involved to retrofit SCR, we propose that five years is as expeditiously as practicable. Therefore, we propose a compliance deadline of five years from the date our final FIP becomes effective.

b. Huntington Unit 2

Generally, Huntington Unit 2 is identical to Unit 1. The Huntington Unit 2 boiler is of tangential-fired design with newer generation low-NO_X burners and separated overfire air which were installed in winter 2006. Huntington Unit 2 currently achieves an annual emission rate of approximately 0.21 lb/MMBtu with these combustion controls. Under Utah's submitted regional haze SIP, Unit 2 is subject to a state-law NO_X emission limit of 0.26 lb/MMBtu on a 30-day rolling average. Prior to the installation of LNB and SOFA the unit operated with an actual annual emission rate of about 0.39 lb/MMBtu.

Step 1: Identify All Available NO_X Control Technologies

[223] Emission limits such as BART are required to be met on a continuous basis. See 70 FR 39104, 39172 (July 6, 2005) (stating that emissions limits including BART are to be met on a "continuous basis" in the BART Guidelines, section V); 42 U.S.C. 7602(k) (noting that emission limits are to be on "a continuous basis").

For the same reasons as for Huntington Unit 1, we propose to adopt the identification of available NO_X control technologies in PacifiCorp's 2012 BART analysis to satisfy Step 1, and we refer the reader to the 2012 PacifiCorp BART analysis for details on the available NO_X control technologies.

Step 2: Eliminate Technically Infeasible Options

In its 2012 BART analysis,[224] PacifiCorp eliminated available NO_X control technologies that PacifiCorp evaluated as technologically infeasible for Huntington Unit 2. The remaining technologically feasible control technologies are the combustion controls, LNB and SOFA, and the post-combustion controls, SNCR and SCR.

We agree with PacifiCorp's evaluation of technologically available controls for Huntington Unit 2 and propose to adopt it for Step 2.

Step 3: Evaluate Control Effectiveness of Remaining Control Technologies

As noted above, Huntington Unit 2 is currently achieving an actual annual emission rate of approximately 0.21 lb/MMBtu with LNB and SOFA. This represents a 44.6 percent reduction from the baseline emission rate of 0.39 lb/MMBtu.

The post-combustion control technologies, SNCR and SCR, have been evaluated in combination with combustion controls. That is, the inlet concentration to the post-combustion controls is assumed to be 0.21 lb/MMBtu (annual). This allows the equipment and operating and maintenance costs of the post-combustion controls to be minimized based on the lower inlet NO_X concentration.

Typically, SNCR reduces NO_X an additional 20 to 30 percent above combustion controls

[224] PacifiCorp BART Analysis for Huntington Unit 2, pp. 2.a-106 - 2.a-124 (2012).

without excessive NH_3 slip.[225] For this analysis, the control efficiency of SNCR has been calculated based on the formula in the 2015 draft CCM SNCR chapter,[226] which for Huntington Unit 2 yields an additional reduction of 21.5 percent after combustion controls. When combined with LNB and SOFA, SNCR is anticipated to achieve an annual emission rate of 0.17 lb/MMBtu, corresponding to an overall control efficiency of 56.6 percent.

SCR can achieve performance emission rates as low as 0.04 to 0.07 lb/MMBtu on an annual basis.[227] For this analysis, consistent with our actions elsewhere, as well with PacifiCorp's analysis, we use an annual emission rate of 0.05 lb/MMBtu for SCR, which when combined with LNB and SOFA achieves an overall control efficiency of 87.0 percent.

A summary of emissions projections for the control options evaluated is provided in Table 31 below.

Table 31. Summary of NO_X BART Analysis Control Technologies for Huntington Unit 2

Control Option	Control Effectiveness (%)	Annual Emission Rate (lb/MMBtu)	Emissions Reduction (tpy)	Remaining Emissions (tpy)
LNB/SOFA +SCR	87.0	0.05	5,023	747
LNB/SOFA +SNCR	56.6	0.17	3,264	2,506
LNB/SOFA	44.6	0.21	2,576	3,194
Baseline[1]	---	0.39	---	5,770

[1] Baseline emissions were determined by averaging the annual emissions from 2001 to 2003 as reported to EPA Air Markets Program Data available at http://ampd.epa.gov/ampd/.

Step 4: Evaluate Impacts and Document Results

Part 1 - Costs of compliance

[225] Institute of Clean Air Companies, White Paper, SNCR for Controlling NO_X Emissions, pp. 4 and 9 (Feb. 2008).
[226] EPA Selective Noncatalytic, Reduction Cost Manual Draft for Public Comment, p. 1-6 (Figure 1.1c: SNCR NO_X Reduction Efficiency Versus Baseline NO_X Levels for Coal-fired Utility Boilers) (June 5, 2015).
[227] Srivastava, R., Hall, R., Khan, S., Lani, B., & Culligan, K., Nitrogen Oxides Emission Control Options for Coal-Fired Utility Boilers, 55 J. AIR & WASTE MGMT ASSOC. 55, 1367, 1367–88 (2005).

We obtained capital costs for LNB and SOFA from the 2014 PacifiCorp BART analysis. PacifiCorp did not report any operating and maintenance costs for LNB and SOFA. Similarly, we obtained capital cost estimates for LNB and SOFA with SNCR from the 2014 PacifiCorp BART analysis. However, for operating and maintenance costs we propose to rely on the draft 2015 draft SNCR chapter of the CCM. Refer to the ATP report for details. Capital costs for LNB and SOFA with SCR were also obtained from the 2014 PacifiCorp BART analysis. However, PacifiCorp's capital costs were adjusted to account for items that were double-counted or should not be allowed under the CCM, such as AFUDC.[228] In addition, the capital costs were adjusted to account for a significant overestimation of the catalyst volume and related costs. These adjustments are documented in the ATP report and associated spread sheet. A discussion of operating and maintenance costs of SCR is also included in the ATP report. For the reasons given in the report, we propose to adopt the cost estimates contained in it.

A summary of our proposed cost estimates for all control options is presented in Table 32 below.

Table 32. Summary of NO_X BART Costs on Huntington Unit 2

Control Option	Total Capital Investment	Indirect Annual Costs	Direct Annual Costs	Total Annual Cost	Emissions Reductions (tpy)	Average Cost Effectiveness ($/ton)
LNB/SOFA	$9.4M	$0.9M	$0M	$0.9M	2,576	$365
LNB/SOFA /SNCR	$16.7M	$1.6M	$1.9M	$3.5M	3,264	$1,075
LNB/SOFA /SCR	$109.4M	$10.4M	$2.4M	$12.9M	5,023	$2,563

Parts 2 and 3 - Energy and non-air quality environmental impacts of compliance

The energy and non-air quality impacts for Huntington Unit 2 are nearly identical to those for Huntington Unit 1 as discussed above. Accordingly, for the same reasons as for

[228] See 79 FR 5032, 5133 (discussing reasons for rejecting use of AFUDC).

Huntington Unit 1, we propose to determine that we have adequately considered these impacts by including cost of additional energy in cost effectiveness and assessing non-air quality environmental impacts as insufficient to eliminate or weigh against any of the BART options.

Part 4 - Remaining useful life

PacifiCorp assumes a remaining useful life of at least 20 years for Huntington Unit 2 in its BART analysis, and has not indicated any intention to retire, or curtail generation from, Huntington Unit 2. Therefore, this factor does not preclude any of the control options considered. In addition, this factor does not impact our BART calculation of cost effectiveness because annualized costs have been calculated over a 20 year period for each of the control options considered. We propose that this gives adequate consideration to this factor.

Step 5: Evaluate visibility impacts.

Table 33 presents the highest of the 98th percentile visibility improvements at the affected Class I areas for the three meteorological years modeled, 2001 through 2003. Tables 34 and 35 present the number of days (summed across three years) with impacts greater than the contribution and causation thresholds – 0.5 dv and 1.0 dv, respectively.

Table 33. Huntington Unit 2 – Visibility Improvements

Class I Area	**LNB with SOFA (Δdv)**	**LNB with SOFA and SNCR** (Δdv)	**LNB with SOFA and SCR** (Δdv)
Arches NP	0.625	0.816	1.316
Black Canyon of the Gunnison NP	0.143	0.184	0.292
Bryce Canyon NP	0.205	0.266	0.424
Canyonlands NP	0.776	1.016	1.657
Capitol Reef NP	0.449	0.584	0.955
Flat Tops WA	0.168	0.217	0.343
Grand Canyon NP	0.183	0.236	0.371
Mesa Verde NP	0.199	0.258	0.414

Zion NP	0.136	0.176	0.281

Table 34. Huntington Unit 2 - Days Greater than 0.5 Deciview (Three Year Total)

Class I Area	Baseline (days)	LNB with SOFA (days)	LNB with SOFA and SNCR (days)	LNB with SOFA and SCR (days)
Arches NP	237	223	214	186
Black Canyon of the Gunnison NP	45	35	32	26
Bryce Canyon NP	36	26	26	23
Canyonlands NP	277	254	244	220
Capitol Reef NP	131	119	116	104
Flat Tops WA	64	44	39	31
Grand Canyon NP	40	36	35	30
Mesa Verde NP	63	48	43	31
Zion NP	21	17	16	15

Table 35. Huntington Unit 2 - Days Greater than 1.0 Deciview (Three Year Total)

Class I Area	Baseline (days)	LNB with SOFA (days)	LNB with SOFA and SNCR (days)	LNB with SOFA and SCR (days)
Arches NP	146	122	118	98
Black Canyon of the Gunnison NP	16	8	7	4
Bryce Canyon NP	19	15	13	6
Canyonlands NP	175	153	149	126
Capitol Reef NP	91	75	70	59
Flat Tops WA	17	9	8	4
Grand Canyon NP	19	13	13	9
Mesa Verde NP	22	13	13	6
Zion NP	11	8	6	4

Select BART.

A summary of our impacts analysis for Huntington Unit 2 is presented in Table 36 below.

Table 36. Summary of Huntington Unit 2 Impacts Analysis

Control Option	Annual Emission Rate	Emission Reduction	Total Annual Costs ($)	Average Cost Effectiveness	Incremental Cost Effectiveness ($/ton)	Visibility Impacts*		
						Improvement (dv)	Days > 0.5 dv	Days > 1.0 dv

	(lb/MMBtu)	(tpy)		($/ton)				
LNB with SOFA	0.21	2,576	$0.9M	$365	---	0.776	254	153
LNB with SOFA and SNCR	0.17	3,264	$3.5M	$1,075	$3,730	1.016	244	149
LNB with SOFA and SCR	0.05	5,023	$12.9M	$2,563	$5,326 (compared to LNB with SOFA and SNCR) $4,877 (compared to LNB with SOFA)	1.657	220	126

*At the most impacted Class I area, Canyonlands National Park.

In determining what to co-propose as BART, we have taken into consideration all five of the statutory factors required by the CAA: the costs of compliance, the energy and non-air quality environmental impacts of compliance, any existing pollution control technology in use at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology. Below we provide a justification for our selection of BART, including an explanation of how each of the CAA factors was used in that selection.

We have considered the energy and non-air quality environmental impacts of compliance and propose to find that they do not appreciably favor one control option over another, or preclude a particular control option from selection. The existing pollution controls have been accounted for in our evaluation of BART, and also would not favor or preclude any of the control options considered. And finally, we have considered the remaining useful life of the source and find that it is sufficiently long (greater than 20 years) so as not to favor or preclude any of the control options. As a result, the remaining factors – the costs of compliance and visibility improvement – are the primary factors that lead us to our proposed BART selection for

Huntington Unit 2.

In order to select BART we propose to weigh the costs of compliance against visibility impacts by generally comparing them with BART determinations that have been made elsewhere. Specifically, we propose to compare the average cost-effectiveness, incremental cost-effectiveness, visibility improvement, and incremental visibility improvement for LNB and SOFA with SCR with BART determinations where the EPA and States have based their determination on the same metrics. The most comparable determinations are the same as for Huntington Unit 1: the Laramie River Station, Hayden Station, and Cholla Power Plant determinations.

Based on these comparisons, we think LNB and SOFA with SCR is very cost-effective at $2,563/ton, and provides substantial visibility benefits at several Class I areas. For example, the visibility improvement from that control option is 1.316 at Arches NP and 1.657 dv Canyonlands NP. The incremental cost-effectiveness of SCR, $5,326/ton, is by comparison also reasonable. This comparison also shows that costs are justified in light of the substantial visibility benefits, both total and incremental.

In the case of Huntington, the unit level visibility improvements justify the most stringent level of control, SCR, for each of the two Huntington units. Necessarily, when we consider the source-wide visibility improvements, they will be larger and also justify the most stringent level of control. In addition, the unit level visibility improvements and source-wide visibility improvements at other impacted Class I areas, particularly Arches NP and Capitol Reef NP, support the most stringent level of control.

Accordingly, for Huntington Unit 2, we propose to find that BART for NO_X is LNB and SOFA with SCR, represented by an emission limit of 0.07 lb/MMBtu (30-day rolling average).

The proposed BART emission limit of 0.07 lb/MMBtu allows for a sufficient margin of compliance for a 30-day rolling average limit that would apply at all times, including startup, shutdown, and malfunction.[229] We are also proposing monitoring, recordkeeping, and reporting requirements as described in our proposed regulatory text for 40 CFR 52.2336.

Under section 51.308(e)(1)(iv), "each source subject to BART [is] required to install and operate BART as expeditiously as practicable, but in no event later than 5 years after approval of the implementation plan revision." In light of the considerable effort involved to retrofit SCR, we propose that five years is as expeditiously as practicable. Therefore, we propose a compliance deadline of five years from the date our final FIP becomes effective.

4. Federal Monitoring, Recordkeeping, and Reporting

We have explained above in section III.C.4 that the CAA and 40 CFR part 51, subpart K require that SIPs, including the regional haze SIP, contain certain elements sufficient to ensure emission limits are practically enforceable. EPA is proposing to disapprove Utah's NO_X BART Alternative along with the associated monitoring, recordkeeping and reporting requirements in SIP sections IX.H.21 and H.22. EPA is proposing regulatory language as part of our FIP that specifies monitoring, recordkeeping, and reporting requirements for all BART sources. For purposes of consistency, EPA is proposing to adopt language that is the same as we have adopted for other states in Region 8.

E. PM_{10} BART Determinations

As discussed above in section IV.B.2, Utah determined that the PM_{10} BART emission limit for Hunter Units 1 and 2 and Huntington Units 1 and 2 was 0.015 lb/MMBtu based on a

[229] Emission limits such as BART are required to be met on a continuous basis. See 70 FR 39104, 39172 (July 6, 2005) (stating that emissions limits including BART are to be met on a "continuous basis" in the BART Guidelines, section V); 42 U.S.C. 7602(k) (noting that emission limits are to be on "a continuous basis").

three-run test average. Utah noted that because the most stringent technology is in place at these units and that the PM_{10} emission limits have been made enforceable in the SIP, no further analysis was required.

EPA has reviewed Utah's PM_{10} BART streamlined five-factor analysis and PM_{10} BART determinations for Hunter Units 1 and 2 and Huntington Units 1 and 2 and proposes to find that these determinations meet the requirements of 40 CFR 51.309(d)(4)(vii). The fabric filter baghouses installed at these BART units are considered the most stringent technology available. The emission limit of 0.015 lb/MMBtu at these units represents the most stringent emission limit for PM_{10} and is within the range of PM_{10} BART limits that EPA has approved in other states.[230] Utah's use of a streamlined approach to the five-factor analysis is reasonable as the BART Guidelines provide that a comprehensive BART analysis can be avoided if a source commits to a BART determination that consists of the most stringent controls available.[231]

Utah's regulatory text provides, "[e]missions of particulate (PM) shall not exceed 0.015 lb/MMBtu heat input from each boiler based on a 3-run test average."[232] It further states that "[s]tack testing for the emission limitation shall be performed each year on each boiler."[233] We note that BART limits must apply at all times.[234] Furthermore, EPA's credible evidence rule states:

> For the purpose of submitting compliance certifications or establishing whether or not a person has violated or is in violation of any standard in this part, the plan must not preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source would have been in compliance with applicable

[230] For example, Wyoming, Naughton Unit 3, Jim Bridger Units 1 through 4, Dave Johnston Units 3 and 4, and Wyodak Unit 1. See 40 CFR 52.2636; 79 FR 5220, (Jan.30, 2014).
[231] 40 CFR 51, appendix Y, section IV.D.1.9.
[232] Utah Regional Haze State Implementation Plan: Emission Limits & Operating Practices, Sections IX.H.22.a.i.A–B, IX.H.22.b.i.A–B (2015).
[233] Id.
[234] See 42 U.S.C. 7602(k); 40 CFR Part 51, Appendix Y, Section V.

requirements if the appropriate performance or compliance test or procedure had been performed.[235]

Consistent with these requirements, we propose to interpret Utah's regulatory text as imposing a PM_{10} limit of 0.015 lb/MMBtu that applies at all times and does not preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source is in compliance with the limit.

F. Consultation with FLMs

As discussed above in section IV.G, Utah conducted FLM consultation during late 2014, providing over 60 days prior to the December 1, 2014 public hearing. Subsequently, the National Park Service provided extensive comments in response to a second public comment period in April 2015. Based on these considerations, we propose to find that Utah has met the requirements of 40 CFR 308(i)(2).

VII. EPA's Proposed Actions

EPA is proceeding with co-proposals on Utah's June 3, 2015 and October 20, 2015 regional haze SIP revisions. Below is a summary of our proposed actions. As noted above, EPA intends to finalize only one proposal, although it may differ from what is presented here based on any comments and additional information we receive.

A. Proposed Approval

We are proposing to approve the regional haze SIP revisions submitted by the State of Utah on June 3, 2015 and October 20, 2015:

1. We are proposing to approve these aspects of the State's June 4, 2015, which rely on elements from prior approvals[236]:

[235] 40 CFR 51.212(c).

- NO_X BART Alternative that includes NO_X, and SO_2, emission reductions from Hunter Units 1 through 3, Huntington 1 and 2, and Carbon Units 1 and 2, and PM_{10} emission reductions from Carbon Units 1 and 2.
- BART determinations and emission limits for PM_{10} at Hunter Units 1 and 2 and Huntington Units 1 and 2.
- Monitoring, recordkeeping and reporting requirements for units subject to the BART Alternative and the PM_{10} emission limits, including conditional approval of the recordkeeping requirements for the PM_{10} emission limits.

2. We are proposing to approve these elements of the State's October 20, 2015 SIP submittal:
   - Enforceable commitments to revise, at a minimum, SIP Section XX.D.3.c and State rule R307-150 by March 2018 to clarify emission inventory requirements for tracking compliance with the SO_2 milestone and properly accounting for the SO_2 emission reductions due to the closure of the Carbon plant.

B. Proposed Partial Disapproval/Approval and Federal Implementation Plan

1. We are proposing to approve these elements of the State's SIP submittals, which rely on elements from prior approvals[237]:
   - BART determinations and emission limits for PM_{10} at Hunter Units 1 and 2 and Huntington Units 1 and 2.

[236] As necessary for our proposed approval, we propose to fill gaps in the 2015 Utah RH SIP submittals with the following already-approved sections from the 2011 Utah RH SIP: Section XX.B.8, Figures 1 and 2, Affected Class I Areas, pp. 8-9; Section XX.D.6.b, Table 3, BART-Eligible Sources in Utah, p. 21; Section. XX.D.6.c, Sources Subject to BART, pp. 21-23.
[237] Id.

- Monitoring, recordkeeping, and reporting requirements for units subject to the PM_{10} emission limits, including conditional approval of the recordkeeping requirements for the PM_{10} emission limits.

2. We are proposing to disapprove these aspects of the State's June 4, 2015 SIP:
   - NO_X BART Alternative that includes NO_X, and SO_2, emission reductions from Hunter Units 1 through 3, Huntington 1 and 2, and Carbon Units 1 and 2, and PM_{10} emission reductions from Carbon Units 1 and 2.
   - Monitoring, recordkeeping and reporting requirements for units subject to the BART Alternative.
   - The enforceable commitments to revise, at a minimum, SIP Section XX.D.3.c and State rule R307-150 by March 2018.
3. We are proposing that if we finalize our co-proposal to disapprove the NO_X BART Alternative, we will promulgate a FIP to address the deficiencies in the Utah regional haze SIPs. The proposed FIP includes the following elements:
   - NO_X BART determinations and limits for Hunter Units 1 and 2, Huntington Units 1 and 2.
   - Monitoring, recordkeeping, and reporting requirements applicable to Hunter Units 1 and 2, and Huntington Units 1 and 2.

VIII. Statutory and Executive Order Reviews

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

This action is not a "significant regulatory action" under the terms of Executive Order 12866[238] and was therefore not submitted to the Office of Management and Budget (OMB) for review. This proposed rule applies to only two facilities containing four BART units. It is therefore not a rule of general applicability.

B. Paperwork Reduction Act

This proposed action does not impose an information collection burden under the provisions of the Paperwork Reduction Act (PRA).[239] A "collection of information" under the PRA means "the obtaining, causing to be obtained, soliciting, or requiring the disclosure to an agency, third parties or the public of information by or for an agency by means of identical questions posed to, or identical reporting, recordkeeping, or disclosure requirements imposed on, ten or more persons, whether such collection of information is mandatory, voluntary, or required to obtain or retain a benefit."[240] Because this proposed rule applies to just two facilities, the PRA does not apply.

C. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

[238] 58 FR 51735, 51738 (Oct. 4, 1993).
[239] 44 U.S.C. 3501 et seq.
[240] 5 CFR 1320.3(c) (emphasis added).

For purposes of assessing the impacts of this proposed rule on small entities, small entity is defined as: (1) A small business as defined by the Small Business Administration's (SBA) regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of this proposed rule on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. This rule does not impose any requirements or create impacts on small entities as small entities are not subject to the requirements of this rule. Under the full approval approach in this proposed rule, EPA would approve all elements of the State's submittals as meeting the federal regional haze requirements and therefore EPA's action does not impose any requirements.[241] Under the partial approval approach, EPA would disapprove the state's SIP submittal and promulgate a FIP that consists of imposing federal controls to meet the BART requirement for emissions on four specific BART units at two facilities in Utah. The net result of this action is that EPA is proposing direct emission controls on selected units at only two sources, and those sources are large electric generating plants that are not owned by small entities, and therefore the owners are not a small entities under the RFA.

D. Unfunded Mandates Reform Act (UMRA)

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104-4, establishes requirements for federal agencies to assess the effects of their regulatory actions on State, local, and Tribal governments and the private sector. Under section 202 of UMRA, EPA

[241] See, e.g., Mid-Tex Elec. Coop., Inc. v. FERC, 773 F.2d 327 (D.C. Cir. 1985) (hereinafter Mid-Tex).

generally must prepare a written statement, including a cost-benefit analysis, for final rules with "Federal mandates" that may result in expenditures to State, local, and Tribal governments, in the aggregate, or to the private sector, of $100 million or more (adjusted for inflation) in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 of UMRA do not apply when they are inconsistent with applicable law. Moreover, section 205 of UMRA allows EPA to adopt an alternative other than the least costly, most cost-effective, or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including Tribal governments, it must have developed under section 203 of UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory actions with significant federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

Under Title II of UMRA, EPA has determined that this proposed rule does not contain a federal mandate that may result in expenditures that exceed the inflation-adjusted UMRA threshold of $100 million[242] by State, local, or Tribal governments or the private sector in any one year. The private sector expenditures that would result from the approach to promulgate a FIP would include BART controls for all four units at the Hunter and Huntington plants would

[242] Adjusted to 2014 dollars, the UMRA threshold becomes $152 million.

be $51.5 million[243] per year. Additionally, we do not foresee significant costs (if any) for state and local governments. Thus, because the annual expenditures associated with the approach to promulgate a FIP are less than the threshold of $100 million in any one year, this proposed rule is not subject to the requirements of sections 202 or 205 of UMRA. This proposed rule is also not subject to the requirements of section 203 of UMRA because it contains no regulatory requirements that might significantly or uniquely affect small governments.

E. Executive Order 13132: Federalism

Executive Order 13132, Federalism,[244] revokes and replaces Executive Orders 12612 (Federalism) and 12875 (Enhancing the Intergovernmental Partnership). Executive Order 13132 requires EPA to develop an accountable process to ensure "meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications."[245] "Policies that have federalism implications" is defined in the Executive Order to include regulations that have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government."[246] Under Executive Order 13132, EPA may not issue a regulation "that has federalism implications, that imposes substantial direct compliance costs, . . . and that is not required by statute, unless [the federal government provides the] funds necessary to pay the direct [compliance] costs incurred by the State and local governments," or EPA consults with state and local officials early in the process of developing

[243] Andover Technology Partners, Cost of NO_X BART Controls on Utah EGUs, to EC/R, Inc. (Oct. 22, 2015).Andover Technology Partners is a subcontractor to EC/R Incorporated.
[244] 64 FR 43255, 43255-43257 (Aug. 10, 1999).
[245] 64 FR 43255, 43257.
[246] Id.

the final regulation.[247] EPA also may not issue a regulation that has federalism implications and that preempts state law unless the Agency consults with state and local officials early in the process of developing the final regulation.

This action does not have federalism implications. Neither of the two approaches presented in this proposed rule will have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. Under the full approval approach, this proposed action would merely approve the state SIP as federally enforceable. Under the partial approval approach, this proposed action would merely address the State not fully meeting its obligation under the CAA to adequately address the visibility requirements of Part C of Title I of the CAA in its SIP and to prohibit emissions from interfering with other states measures to protect visibility. Thus, Executive Order 13132 does not apply to this action.

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

Executive Order 13175, entitled "Consultation and Coordination with Indian Tribal Governments", requires EPA to develop an accountable process to ensure "meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications."[248] This proposed rule does not have tribal implications, as specified in Executive Order 13175. It will not have substantial direct effects on tribal governments. Thus, Executive Order 13175 does not apply to this rule.

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

[247] Id.
[248] 65 FR 67249, 67250 (Nov. 9, 2000).

This action is not subject to Executive Order 13045 (62 FR 19885, April 23, 1997) because the environmental health or safety risks addressed by this action do not present a disproportionate risk to children. Note, however, that emissions reductions achieved as a result of this rule, under either proposal, will have a positive benefit on children's health, as they are especially vulnerable to impacts from emissions.

H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

This action is not subject to Executive Order 13211 (66 FR 28355 (May 22, 2001)), because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act

Section 12 of the National Technology Transfer and Advancement Act (NTTAA) of 1995 requires Federal agencies to evaluate existing technical standards when developing a new regulation. Section 12(d) of NTTAA, Public Law 104-113, 12(d) (15 U.S.C. 272 note) directs EPA to consider and use "voluntary consensus standards" in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

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

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order 12898, establishes federal executive policy on environmental justice.[249] Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

I certify that the approaches under this proposed rule will not have potential disproportionately high and adverse human health or environmental effects on minority, low-income or indigenous/tribal populations. The results of this evaluation are available in the docket. Both approaches would result in overall emission reductions for NO_X, SO_2 and PM_{10} and therefore an increase in the level of environmental protection for all affected populations. EPA, however, will consider any input received during the public comment period regarding environmental justice considerations.

List of Subjects in 40 CFR Part 52

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

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

Dated: 12/16/2015

Shaun L. McGrath,
Regional Administrator,
Region 8.

[249] 59 FR 7629, 7629 (Feb. 16, 1994).

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 TT—Utah

2. Add § 52.2336 to read as follows:

§ 52.2336 Federal implementation plan for regional haze.

(a) Applicability.

(1) This section applies to each owner and operator of the following emissions units in the State of Utah:

(i) PacifiCorp Hunter Plant Units 1 and 2; and

(ii) PacifiCorp Huntington Plant Units 1 and 2;

(b) Definitions. Terms not defined below shall have the meaning given them in the Clean Air Act or EPA's regulations implementing the Clean Air Act. For purposes of this section:

(1) BART means Best Available Retrofit Technology.

(2) BART unit means any unit subject to a Regional Haze emission limit in Table 1 of this section.

(3) Continuous emission monitoring system or CEMS means the equipment required by this section to sample, analyze, measure, and provide, by means of readings recorded at least once every 15 minutes (using an automated data acquisition and handling system (DAHS)), a permanent record of NO_X emissions, diluent, or stack gas volumetric flow rate.

(4) FIP means Federal Implementation Plan.

(5) The term lb/MMBtu means pounds per million British thermal units of heat input to the fuel-burning unit.

(6) NO_X means nitrogen oxides.

(7) Operating day means a 24-hour period between 12 midnight and the following midnight during which any fuel is combusted at any time in the BART unit. It is not necessary for fuel to be combusted for the entire 24-hour period.

(8) The owner/operator means any person who owns or who operates, controls, or supervises a unit identified in paragraph (a) of this section.

(9) Unit means any of the units identified in paragraph (a) of this section.

(c) Emissions limitations. (1) The owners/operators of emissions units subject to this section shall not emit, or cause to be emitted, NO_X in excess of the following limitations:

TABLE 1 TO § 52.2336, Emission limits for BART units

Source name/BART unit	NO_X emission limit—lb/MMBtu (30-day rolling average)
PacifiCorp Hunter Plant/Unit 1[1]	0.07
PacifiCorp Hunter Plant/Unit 2[1]	0.07
PacifiCorp Huntington Plant/Unit 1[1]	0.07
PacifiCorp Huntington Plant/Unit 2[1]	0.07

[1]The owners and operators of PacifiCorp Hunter Units 1 and 2 and Huntington Units 1 and 2, shall comply with the NO_X emission limit for BART of 0.07 lb/MMBtu and other requirements of this section by five years from the effective date of the final rule.

(2) These emission limitations shall apply at all times, including startups, shutdowns, emergencies, and malfunctions.

(d) Compliance date.

(1) The owners and operators of PacifiCorp Hunter Units 1 and 2 shall comply with the NO_X emission limit of 0.07 lb/MMBtu and other requirements of this section by five years from the effective date of the final rule. The owners and operators of PacifiCorp Huntington Units 1 and 2 shall comply with the NO_X emission limit of 0.07 lb/MMBtu and other requirements of this section by five years from the effective date of the final rule.

(e) Compliance determinations for NO_X.

(1) For all BART units:

(i) CEMS. At all times after the earliest compliance date specified in paragraph (d) of this section, the owner/operator of each unit shall maintain, calibrate, and operate a CEMS, in full compliance with the requirements found at 40 CFR part 75, to accurately measure NO_X, diluent, and stack gas volumetric flow rate from each unit. The CEMS shall be used to determine compliance with the emission limitations in paragraph (c) of this section for each unit.

(ii) Method. (A) For any hour in which fuel is combusted in a unit, the owner/operator of each unit shall calculate the hourly average NO_X emission rate in lb/MMBtu at the CEMS in accordance with the requirements of 40 CFR part 75. At the end of each operating day, the owner/operator shall calculate and record a new 30-day rolling average emission rate in lb/MMBtu from the arithmetic average of all valid hourly emission rates from the CEMS for the current operating day and the previous 29 successive operating days.

(B) An hourly average NO_X emission rate in lb/MMBtu is valid only if the minimum number of data points, as specified in 40 CFR part 75, is acquired by both the pollutant concentration monitor (NO_X) and the diluent monitor (O_2 or CO_2).

(C) Data reported to meet the requirements of this section shall not include data substituted using the missing data substitution procedures of subpart D of 40 CFR part 75, nor shall the data have been bias adjusted according to the procedures of 40 CFR part 75.

(f) Recordkeeping. The owner/operator shall maintain the following records for at least five years:

(1) All CEMS data, including the date, place, and time of sampling or measurement; parameters sampled or measured; and results.

(2) Records of quality assurance and quality control activities for emissions measuring systems including, but not limited to, any records required by 40 CFR part 75.

(3) Records of all major maintenance activities conducted on emission units, air pollution control equipment, and CEMS.

(4) Any other CEMS records required by 40 CFR part 75.

(g) Reporting. All reports under this section shall be submitted to the Director, Office of Enforcement, Compliance and Environmental Justice, U.S. Environmental Protection Agency, Region 8, Mail Code 8ENF–AT, 1595 Wynkoop Street, Denver, Colorado 80202–1129.

(1) The owner/operator of each unit shall submit quarterly excess emissions reports for NO_X BART units no later than the 30th day following the end of each calendar quarter. Excess emissions means emissions that exceed the emissions limits specified in paragraph (c) of this section. The reports shall include the magnitude, date(s), and duration of each period of excess emissions, specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the unit, the nature and cause of any malfunction (if known), and the corrective action taken or preventative measures adopted.

(2) The owner/operator of each unit shall submit quarterly CEMS performance reports, to include dates and duration of each period during which the CEMS was inoperative (except for zero and span adjustments and calibration checks), reason(s) why the CEMS was inoperative and steps taken to prevent recurrence, and any CEMS repairs or adjustments. The owner/operator of each unit shall also submit results of any CEMS performance tests required by 40 CFR part 75.

(3) When no excess emissions have occurred or the CEMS has not been inoperative, repaired, or adjusted during the reporting period, such information shall be stated in the quarterly reports required by paragraphs (g)(1) and (2) of this section.

(h) Notifications. (1) The owner/operator shall promptly submit notification of commencement of construction of any equipment which is being constructed to comply with the NO_X emission limits in paragraph (c) of this section.

(2) The owner/operator shall promptly submit semi-annual progress reports on construction of any such equipment.

(3) The owner/operator shall promptly submit notification of initial startup of any such equipment.

(i) Equipment operation. At all times, the owner/operator shall maintain each unit, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions.

(j) Credible evidence. Nothing in this section shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source would have been in compliance with requirements of this section if the appropriate performance or compliance test procedures or method had been performed.