No. 21-9509

UNITED STATES COURT OF APPEALS
FOR THE TENTH CIRCUIT

HEAL UTAH, et al.,
Petitioners,

v.

U.S. ENVIRONMENTAL PROTECTION AGENCY, et al.,
Respondents.

Petition for Review of Action of the U.S. Environmental Protection Agency

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RESPONSE BRIEF FOR U.S. ENVIRONMENTAL PROTECTION AGENCY (DEFERRED APPENDIX APPEAL)

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Oral argument is requested.

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PRIOR OR RELATED APPEALS

This petition for review is related to two prior sets of consolidated cases: *Utah v. EPA*, Case No. 13-9535 (and consol. case), and *Utah v. EPA*, Case No. 16-9541 (and consol. cases). Each of these cases and the present case involve EPA action on distinct Utah state implementation plan submissions to satisfy the State's regional haze obligations under the Clean Air Act. As explained *infra*, EPA's action at issue in this case is supported by its own distinct administrative record.

GLOSSARY

BART	Best available retrofit technology
BART Alternative	Utah's alternative to BART
BART Benchmark	BART, as implemented for Utah's BART sources
CAMx	Comprehensive Air Quality Model with Extensions
CSAPR	Cross-State Air Pollution Rule
EPA	Environmental Protection Agency
Final Rule	Approval and Promulgation of Air Quality Implementation Plans; Utah; Regional Haze State and Federal Implementation Plans, 85 Fed. Reg. 75860 (Nov. 27, 2020).
FIP	Federal implementation plan
MATS	Mercury and Air Toxics Standards
MMbtu	Metric Million British thermal unit
NO_X	Nitrogen oxide
PM	Particulate matter
SCR	Selective-catalytic reduction
SIP	State implementation plan
SMAT-CE	Software for Model Attainment Test–Community Edition
SO_2	Sulfur dioxide

INTRODUCTION

The issue before the Court is whether EPA reasonably approved Utah's regional haze State Implementation Plan (SIP) revision for the first regional haze implementation period under the Clean Air Act. The Clean Air Act's regional haze provisions and EPA's corresponding regulations are designed to address visibility impairment in national parks and wilderness areas, and to return visibility to natural conditions. This program is implemented through a system of "cooperative federalism" in which states develop their own implementation plans, subject to EPA's oversight. EPA has twice disapproved Utah's prior SIP submissions addressing nitrogen oxide (NO_X) pollution, and in 2016, issued a federal implementation plan (FIP) after finding Utah's 2015 SIP submission did not make the required demonstrations.

In 2017, Utah submitted a new plan. Instead of requiring the installation of the "best available retrofit technology," or BART, on certain sources that cause or contribute to haze, the new submission demonstrated with modeling conducted under EPA's regulations that Utah's alternative to BART (BART Alternative) would achieve "greater reasonable progress" in overall visibility improvement than would the implementation of BART (BART Benchmark). Accordingly, EPA approved the submission and simultaneously withdrew the FIP in a final rule, published at 85 Fed. Reg. 75860 (Nov. 27, 2020) (Final Rule). Contrary to

Petitioners' argument, the SIP revision is not a "rollback" of the FIP. The plans simply reflect different routes to comply with the regional haze requirements. As explained below, EPA's Final Rule approving the SIP revision is well reasoned and supported by both a plain reading of EPA's regulations and by a robust technical record. This Court should defer to EPA's technical expertise and deny the petition for review.

STATEMENT OF JURISDICTION

This Court has jurisdiction under 42 U.S.C. § 7607(b)(1). The petition for review was timely filed because the challenged EPA rule was published on November 27, 2020 in volume 85 of the Federal Register, beginning on page 75,860, and the petition for review was filed on January 19, 2021. Doc. No. 010110466985.

STATEMENT OF THE ISSUES

1. Whether EPA reasonably determined that Utah's BART Alternative demonstrates "greater reasonable progress" in overall visibility improvement under EPA's regulatory test when dispersion-modeling results showed an improvement in visibility compared with the implementation of BART.

2. Whether EPA reasonably determined that the modeling assumptions for the BART Benchmark scenario were appropriate when they included only emission reductions that were required by BART and held emissions at status-quo

levels for non-BART sources covered by the BART Alternative, consistent with EPA regulations and case law.

PERTINENT STATUTES AND REGULATIONS

EPA supplements the statutes and regulations filed with Petitioners' brief by including additional pertinent statutes and regulations in the Addendum following this brief.

STATEMENT OF THE CASE

A. Statutory and Regulatory Background

1. State Implementation Plans under Section 7410

The Clean Air Act controls air pollution through a system of shared federal and state responsibility. *See Gen. Motors Corp. v. United States*, 496 U.S. 530, 532 (1990). To implement, maintain, and enforce air quality standards set by EPA, the Act, broadly speaking, requires states to develop State Implementation Plans (SIPs). *See generally* 42 U.S.C. § 7410. These implementation plans must meet numerous requirements, including those for visibility protection described in Sections 7491-92 of the Act. *See* 42 U.S.C. § 7491(b)(2). Because the Clean Air Act is built upon a structure of cooperative federalism, states are generally charged with developing their own implementation plans, subject to EPA approval. *See* 42 U.S.C. § 7410(k)(3); *Oklahoma v. EPA*, 723 F.3d 1201, 1204 (10th Cir. 2013). States accordingly submit their SIPs (or revisions to their SIPs) to EPA, and EPA

reviews each submittal to determine whether it meets minimum statutory and regulatory requirements. 42 U.S.C. § 7410(k)(3). If it does, EPA must approve it. *Id.* If, on the other hand, a state fails to submit an adequate SIP, EPA must disapprove it in part or in full, and EPA then has two years to promulgate a Federal Implementation Plan (FIP). *Id.* §§ 7410(c)(1), 7602(y). Once a plan is approved, it becomes enforceable under federal law. 42 U.S.C. §§ 7413, 7604.

2. Visibility Protection under the Clean Air Act

In 1977, Congress amended the Clean Air Act to establish a visibility protection program in 42 U.S.C. § 7491 to prevent and remedy visibility impairment in numerous national parks and wilderness areas across the country, defined as Class I areas.[1] As part of that effort, Section 7491 directs EPA to adopt regulations requiring states to include in their SIPs "emission limits, schedules of compliance and other measures as may be necessary to make reasonable progress toward meeting the national [visibility] goal" of no anthropogenic impairment. *Id.* § 7491(b)(2). One of these measures includes a requirement that certain existing sources procure, install, and operate the Best Available Retrofit Technology—or BART—to control visibility-impairing emissions. *Id.* § 7491(b)(2)(A).

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[1] In 1979, EPA created a list of 156 mandatory Class I areas where visibility is an important value. 44 Fed. Reg. 69122 (Nov. 30, 1979). States and tribes may designate additional areas as Class I areas based on local visibility importance, but only those EPA has identified as "mandatory" fall within the reach of Section 7491's visibility requirements.

BART is defined as "an emission limitation based on the degree of reduction achievable through the application of the best system of continuous emission reduction for each pollutant which is emitted by an existing stationary facility." 40 C.F.R. § 51.301. States determine BART for each visibility-impairing pollutant on a case-by-case basis using five statutory factors. 42 U.S.C. § 7491(g)(2). Once BART has been decided for a pollutant and a source, the source must install and operate the necessary technology within five years. *Id.* § 7491(g)(4).

To focus national attention on regional haze—a type of visibility impairment caused by emissions from multiple sources located across a broad geographic area—Congress added Section 7492 to the Clean Air Act in 1990. *See* 42 U.S.C. § 7492; 40 C.F.R. § 51.301. Regional haze is produced by emissions of fine particles (*e.g.*, nitrates) and their precursors (*e.g.*, NO_X) from a variety of sources over a broad geographic area. 40 C.F.R. § 51.301. These fine particles scatter and absorb light, leading to reduced visual range and atmospheric discoloration. *See* 81 Fed. Reg. 2004, 2007 (Jan. 14, 2016). Following Congress's direction to regulate regional haze, EPA promulgated the Regional Haze Rule in 1999. 64 Fed. Reg. 35714 (July 1, 1999).[2]

[2] EPA has revised the Regional Haze Rule several times, including most recently in 2017. *See* 82 Fed. Reg. 3078 (Jan. 10, 2017). The 2017 revisions are generally relevant to the second regional haze implementation period, the SIP submissions for which were due July 31, 2021. 40 C.F.R. § 51.308(f). They did not revise the BART alternative provisions at issue in this case.

The Regional Haze Rule requires states "to develop programs to assure reasonable progress toward meeting the national goal of preventing any future, and remedying any existing, impairment of visibility in mandatory Class I Federal areas" that results from anthropogenic pollution. 40 C.F.R. § 51.300(a). Under the Regional Haze Rule, SIP submissions must achieve reasonable progress toward reaching natural visibility conditions within each Class I area and include a long-term strategy for addressing visibility impairment for each Class I area. 40 C.F.R. § 51.308(d)(1), (3). As a part of the first phase—or "implementation period"—of that program, they must also determine which sources are subject to BART and what constitutes BART for each of those sources. 40 C.F.R. § 51.308(e)(1).

3. BART Alternatives

The Regional Haze Rule provides two ways for states to address the Clean Air Act's BART requirement. First, states may determine BART for each source of haze pollutants and submit a SIP submission with "emission limitations representing BART and schedules for compliance . . . for each BART-eligible source that may reasonably be anticipated to cause or contribute to any impairment of visibility in any mandatory Class I Federal area." 40 C.F.R. § 51.308(e). Second, states may develop an alternative measure designed to be better than BART. More specifically, states "may opt to implement or require participation in an emissions trading program or other alternative measure" if they can demonstrate

that the alternative would result in "greater reasonable progress than would be achieved through the installation and operation of BART." 40 C.F.R. § 51.308(e)(2). Several courts, including this Court, have upheld the use of BART alternatives as consistent with the Clean Air Act's purpose and requirements. *See WildEarth Guardians v. EPA*, 770 F.3d 919, 927-28 (10th Cir. 2014); *Util. Air Regul. Grp. v. EPA*, 471 F.3d 1333, 1340 (D.C. Cir 2006) (*UARG I*); *Ctr. for Energy and Econ. Dev. v. EPA*, 398 F.3d 653, 659-60 (D.C. Cir. 2005). For instance, among the programs that have been upheld as permissible BART alternatives are EPA's rules addressing interstate transport of air pollution. *See* 40 C.F.R. § 51.308(e)(4); *Util. Air Regul. Grp. v. EPA*, 885 F.3d 714 (D.C. Cir 2018) (*UARG II*).

To determine whether an alternative achieves greater reasonable progress than BART, a regional haze SIP must compare the progress towards improving visibility under BART and the alternative. 40 C.F.R. § 51.308(e)(2)(i)(C)-(D). Accordingly, Section 51.308(e)(2) requires that a state proposing a BART alternative include seven components in its SIP. 40 C.F.R. § 51.308(e)(2)(i), (iii)-(iv). First, the state must list all of its BART-eligible sources.[3] Then it must list all

[3] A source is "BART eligible" if it is an existing stationary source in any of 26 categories listed in the statute and meets statutory criteria for startup dates and potential emissions. *See* 42 U.S.C. § 7491(g)(7); *see also* BART Guidelines, 40 C.F.R. pt. 51, app. Y § II. BART-eligible sources are considered "subject to

of its BART-eligible sources that its alternative covers. Next, the state is required to analyze BART and the associated emissions reductions achievable under a BART scenario, followed by an analysis of the projected emissions reductions achievable under the alternative.

Fifth, and especially relevant to this case, the state must include a demonstration that the alternative achieves "greater reasonable progress" toward attaining natural visibility than BART. 40 C.F.R. § 51.308(e)(2)(i)(E). As discussed below, the Regional Haze Rule provides states with the option to choose one of three paths for this showing.

Sixth, the state must include a demonstration that the emissions reductions occur "during the first long-term strategy period." 40 C.F.R. § 51.308(e)(2)(iii). States' first regional haze SIP submissions "were due in 2007 and covered the 2008-2018 planning period." 82 Fed. Reg. at 3080; *see* 64 Fed. Reg. at 35734. This timeframe for implementing the BART alternative program is also referred to as the first implementation period.

Finally, the SIP must demonstrate that the emissions reductions under the alternative will be "surplus" to reductions resulting from all Clean Air Act requirements at the time of the "baseline date of the SIP." 40 C.F.R. § 51.308(e)(2)(iv); *see* 64 Fed. Reg. at 35742 (reductions "must be surplus to other

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BART" if they are found to cause or contribute to visibility impairment in at least one Class I area. BART Guidelines, 40 C.F.R. pt. 51, app. Y § III.

Federal requirements as of the baseline date of the SIP, that is, the date of the emissions inventories on which the SIP relies"). EPA has defined the "baseline date of the SIP" as 2002. 70 Fed. Reg. 39104, 39143 (July 6, 2005). As EPA explained in the Final Rule, the SIP baseline date is "'the date of the emissions inventories on which the SIP relies,' which is defined as 2002 for regional haze purposes." 85 Fed. Reg. at 75862 (footnotes omitted). "Any measure adopted after 2002 is accordingly 'surplus' under 40 C.F.R. 51.308(e)(2)(iv)." *Id.* Thus, "[i]f 2002 is used as the base year for planning purposes, . . . States can take credit for emission reductions that are achieved before the 2007-2008 SIP due date." *Id.*; *see* 70 Fed. Reg. at 39143 (explaining that Clean Air Interstate Rule-associated emission reductions post-date the 2002 baseline). When read together, requirements six and seven allow states to credit BART alternatives for emissions reductions achieved by the end of 2018 so long as the reductions were not the result of measures adopted to meet Clean Air Act requirements in existence as of 2002.

For purposes of making the fifth demonstration—that the BART alternative achieves greater reasonable progress toward attaining natural visibility than BART—a state can choose one of three paths. It may choose to undertake one of two purely quantitative analyses prescribed by regulation or a more qualitative analysis under which a variety of evidence is assessed as a whole. 40 C.F.R.

§§ 51.308(e)(2)(i)(E), 51.308(e)(3); *WildEarth Guardians*, 770 F.3d at 934. The first quantitative test is available if the "distribution of emissions is not substantially different" under the alternative and under BART. In that case, the alternative "may be deemed to achieve greater reasonable progress" if the alternative "results in greater emissions reductions" than BART. 40 C.F.R. § 51.308(e)(3).

If, however, the distribution of emissions is significantly different, then under the second quantitative test (the one at issue in this case), the state must conduct dispersion modeling to make the requisite greater-reasonable-progress demonstration. *Id.* Dispersion modeling demonstrates greater reasonable progress under the alternative if, looking at the worst and best 20% of days with respect to visibility, the alternative satisfies both prongs of a two-pronged test. Specifically, the SIP submission must demonstrate that (1) visibility does not decline in any Class I area compared to the baseline, and (2) there is an overall improvement in visibility across all affected Class I areas compared to BART. *Id.*

Section 51.308(e)(2)(i)(E) provides a third test that allows states to demonstrate that an alternative will achieve greater reasonable progress "based on the clear weight of the evidence." In providing different paths for a state to use in its SIP, EPA recognizes that the "regulatory scheme allows for a situation in which certain evidence would not be sufficient to make a showing under one of the

'better-than-BART' tests but different evidence could support that showing under a separate test." 85 Fed. Reg. 3558, 3573 (Jan. 22, 2020) (Proposed Rule).

B. Factual Background

This case involves EPA's approval of Utah's regional haze SIP revision implementing a BART alternative for NO_X emissions from two BART sources, and EPA's simultaneous withdrawal of its previously-promulgated FIP for those sources. Specifically, Utah's BART Alternative covers the State's four subject-to-BART electric generating units at two coal-fired power plants, both operated by PacifiCorp. Huntington power plant and Hunter power plant each have two units subject to BART.[4] The plants are located in Central Utah within 40 miles of each other. Final Rule, 85 Fed. Reg. at 75867. Emissions from these sources have been determined to cause or contribute to visibility impairment in several Class I areas, including Grand Canyon, Arches, Black Canyon, Bryce Canyon, Canyonlands, Capitol Reef, Mesa Verde, and Zion National Parks, as well as Flat Tops Wilderness Area. *See* 81 Fed. Reg. 43894, 43894 (July 5, 2016). Between 2006 and 2014, Hunter Units 1 and 2 and Huntington Units 1 and 2 received combustion

[4] There is no dispute that these sources are subject to BART. Contrary to Petitioners' suggestion, Pets. Br. at 9-10, 15, neither Utah nor EPA has granted an exemption to Hunter and Huntington.

control upgrades, including upgraded low-NO_X burners and separated overfire air.[5] Final Rule, 85 Fed. Reg. at 75860.

In addition to the emissions reductions from these controls, and as further discussed below, Utah's BART Alternative also relies on emissions reductions at two non-BART sources. Incorporating reductions from non-BART sources as part of a BART alternative program is permissible under EPA's regional haze regulations. *See WildEarth Guardians*, 770 F.3d at 935-36 (discussing subsections under 40 C.F.R. § 51.308(e)(2)(i)). The first non-BART source included in the BART Alternative is a third Hunter unit (Hunter Unit 3), which also received combustion control upgrades between 2006 and 2014. Final Rule, 85 Fed. Reg. at 75860. These controls included upgraded low-NO_X burners and overfire air. *Id.* The second non-BART source is composed of two units at Carbon power plant, which is also located within 40 miles of the other two plants in Central Utah. Carbon shut down in 2015. Proposed Rule, 85 Fed. Reg. at 3565-66.

[5] Low-NO_X burners, overfire air, and separated overfire air are combustion controls that minimize the production of NO_X by controlling how air and fuel (coal) are mixed in the boiler.

C. Procedural Background

1. Utah's Prior Regional Haze SIP Submissions

Utah submitted its regional haze SIP revision to address NO_X and particulate matter (PM) to EPA for approval on September 9, 2008, and May 26, 2011.[6] *See* 77 Fed. Reg. 74355, 74356 (Dec. 14, 2012). EPA partially approved and partially disapproved Utah's SIP submittal on December 14, 2012. *Id.* at 74355. As relevant here, EPA disapproved the provisions establishing NO_X BART for Utah's four BART units (Hunter and Huntington Units 1 and 2). *Id.* at 74357. EPA found that the State did not conduct the five-factor BART analysis as required, nor did it include practically enforceable BART limits. *Id.* This Court dismissed a challenge to EPA's partial disapproval on jurisdictional grounds. *See Utah v. EPA*, 750 F.3d 1182 (10th Cir. 2014), *rehearing denied*, 765 F.3d 1257.

On June 4, 2015, Utah submitted a revised regional haze SIP to cure the deficiencies identified by EPA's disapproval. Instead of requiring the installation of NO_X BART at Hunter and Huntington, Utah proposed a BART Alternative. The Alternative proposed a combination of NO_X, PM, and sulfur dioxide (SO_2) reductions that Utah asserted would achieve greater reasonable progress toward

[6] Prior submissions were made on December 12, 2003 and August 8, 2004. These submittals, as well as much of the September 2008 submittal, were superseded and replaced by the May 2011 submission. *See* Proposed Rule, 85 Fed. Reg. at 3562-63.

natural visibility than BART. Proposed Rule, 85 Fed. Reg. at 3563. For each of its four BART sources, Utah set enforceable emissions limits for NO_X at 0.26 lb/MMBtu (30-day rolling average). *Id.* It also set an enforceable NO_X emission limit of 0.34 lb/MMBtu (30-day rolling average) for Hunter Unit 3. *Id.* These limits reflect NO_X reductions achievable with the combustion control upgrades installed at Hunter and Huntington in 2006-2014. To achieve greater emissions reductions, Utah's BART Alternative also took credit for the NO_X, SO_2, and PM reductions from the permanent closure of the Carbon power plant in August 2015. *Id.* at 3559. In this 2015 submission, Utah chose to submit its BART Alternative to EPA for approval under the clear-weight-of-the-evidence test established by Section 51.308(e)(2)(i)(E).

EPA stated in reviewing the submittal that it was a "close call" whether the BART Alternative was "better than BART," and it sought public comment on two alternative courses of action. 81 Fed. Reg. at 43895-96. EPA proposed to either (1) approve Utah's BART Alternative as meeting the clear-weight-of-the-evidence test under 40 C.F.R. 51.308(e)(2)(i)(E), or (2) disapprove it as falling short of satisfying this test and, instead, issue a FIP for NO_X BART. *Id.*

After considering public comment on the two proposals, EPA concluded in a 2016 final rule that, while some evidence indicated the BART Alternative may be better than BART, under the *clear* weight of the evidence, Utah's submittal did not

sufficiently demonstrate that the BART Alternative would achieve greater reasonable progress. *Id.* at 43896. EPA accordingly finalized the proposed disapproval and FIP. EPA required the four subject-to-BART units to meet a NO_X BART emission limit of 0.07 lb/MMBtu (30-day rolling average), achievable by adding selective-catalytic reduction (SCR) post-combustion controls to the previously upgraded combustion controls. *Id.* at 43907.

In issuing the FIP, EPA explained that it took very seriously its decision to disapprove Utah's SIP submission and stated that Utah retained its authority to submit a revised state plan consistent with the Clean Air Act and Regional Haze Rule. EPA further stated that if a new Utah SIP revision was approvable, EPA would propose to approve it and withdraw or modify the FIP "regardless of whether or not [the SIP revision's] terms match those of our final FIP." *Id.* at 43895.

Utah, PacifiCorp, and others challenged EPA's 2016 action in this Court. *See Utah v. EPA*, Case No. 16-9541 (10th Cir.). On June 30, 2017, the State and PacifiCorp also submitted letters to EPA that included new information and stated an intent to develop and submit additional technical analyses in support of the BART Alternative. App. at 0618-39; Proposed Rule, 85 Fed. Reg. at 3563-64. EPA responded by announcing its intent to reconsider the disapproval. App. at 0640-43; Proposed Rule, 85 Fed. Reg. at 3564. At EPA's request, the litigation was held in

abeyance, and at the petitioners' request, the challenged rule was stayed. The case was later dismissed after EPA promulgated the Final Rule at issue here. *Utah v. EPA*, Case No. 16-9541 (Doc. Nos. 01019868018; 010110462868).

2. Utah's Current SIP Revision BART Alternative

Utah submitted a new SIP revision on July 3, 2019 (supplemented on December 3, 2019) intended to replace EPA's FIP. Proposed Rule, 85 Fed. Reg. at 3564. Importantly, this SIP revision was submitted independently from the 2015 SIP. In other words, it did not purport to amend the prior submission, but instead, the 2019 submission was based on a new technical analysis and record. The new SIP revision proposed the same alternative to NO_X BART. This time, however, Utah chose a different path to demonstrate that its BART Alternative was better than BART: it submitted the SIP revision under the dispersion-modeling test in Section 51.308(e)(3). *Id.* Specifically, Utah's SIP revision relied on photochemical grid modeling performed by PacifiCorp, which followed EPA guidance to model and compare visibility improvement under BART and the BART Alternative. *Id.* at 3566; App. at 0731.

The photochemical grid model that Utah used to support its SIP revision, called the Comprehensive Air Quality Model with Extensions (CAMx), is one of the chemical transport "dispersion" models that EPA recommends for evaluating ozone, fine particulates, and regional haze pollutants. Proposed Rule, 85 Fed. Reg.

at 3566; App. at 0954. *See also* 82 Fed. Reg. 5182, 5194, 5196 (Jan. 17, 2017) (final rule revising EPA's Guideline on Air Quality Models to recommend use of photochemical models (like CAMx) to estimate visibility); 40 C.F.R. pt. 51, app. W § 2.1.d.iii. The CAMx model's inputs include meteorological data, emissions from all domestic anthropogenic and natural sources, and international pollutants derived from global-scale transport models. *See* Proposed Rule, 85 Fed. Reg. at 3567. Against this backdrop, the CAMx model simulates the creation of regional haze. PacifiCorp coordinated with Utah and EPA in developing the modeling and made adjustments to the CAMx model input data and configuration based on EPA's recommendations. *Id.* at 3567-68; App. at 0731.

PacifiCorp began its CAMx modeling process by adopting a pre-established modeling platform, which was developed by third-party Western Air Quality Study and is pre-loaded with location-specific information regarding meteorology, pollutant emissions, and other environmental variables. Proposed Rule, 85 Fed. Reg. at 3567-68. PacifiCorp then performed a series of modeling simulations. First, it modeled a CAMx "base case" (a test simulation where actual visibility data was available for comparison) to confirm that the model performed as expected. *Id.*

PacifiCorp then used the CAMx model to perform the pertinent model simulations in this case. To conduct this modeling, PacifiCorp used projected

anthropogenic emissions for the United States in calendar year 2025.[7] PacifiCorp also used EPA software, called Software for Model Attainment Test–Community Edition (SMAT-CE), to post-process CAMx model outputs along with measured visibility data on the 20% best and 20% worst visibility days collected for each applicable Class I area. *See* App. at 0671-74; Final Rule, 85 Fed. Reg. at 75870-71. SMAT-CE then adjusted the data to correct for model bias and estimated visibility impacts for each 2025 model scenario. App. at 0667-68, 0671-74; Proposed Rule, 85 Fed. Reg. at 3567-68. The three key scenarios represent 2025 baseline emissions (2025 Baseline), 2025 BART Benchmark emissions, and 2025 BART Alternative emissions. For the BART Benchmark, PacifiCorp used the reductions achievable through implementing the controls that would have been required by EPA's FIP (*i.e.*, adding SCR controls to the already-installed combustion controls at Hunter and Huntington Units 1 and 2). Proposed Rule, 85 Fed. Reg. at 3565. Visibility impacts were ultimately projected for the three model simulations at each of the affected Class I areas. *See id.* at 3569. The results demonstrated that, compared to the BART Benchmark, there was greater visibility

[7] The year 2025 was selected because estimates of United States anthropogenic emissions were already available from the Western Air Quality Study for that year. *See* Proposed Rule, 85 Fed. Reg. at 3567-68; *see also* App. at 0666.

improvement under the BART Alternative by 0.00494 deciviews[8] on the 20% best days and by 0.00058 deciviews on the 20% worst days across all affected Class I areas. Final Rule, 85 Fed. Reg. at 75871.

On January 22, 2020, EPA proposed to approve Utah's BART Alternative and withdraw the FIP. Proposed Rule, 85 Fed. Reg. 3558. In the proposed approval, EPA considered the first four BART alternative requirements and concluded that those requirements were satisfied by Utah's BART Alternative. *Id.* at 3571-73. EPA then reviewed PacifiCorp's dispersion modeling and Utah's determination that, under the BART Alternative, (1) visibility does not decline in any Class I area relative to the baseline, and (2) there is an overall improvement in visibility across all affected Class I areas compared to BART. EPA described PacifiCorp's approach in detail, including the steps that PacifiCorp took to ensure the modeling's accuracy. *See id.* at 3566-69, 3573. Next, EPA described the modeling results, which showed, that (compared to BART) overall visibility would improve under the BART Alternative by 0.00494 deciviews on the 20% best days, and by 0.00058 deciviews on the 20% worst days. *See id.* at 3568-69, 3572-73. EPA proposed to find that these improvements satisfied the regulatory test. *Id.* at 3572-73.

[8] The term "deciview" is used as a unit of measurement for changes in visibility. *See* 70 Fed. Reg. 39104, 39118 (July 6, 2005).

Next, EPA verified that Utah's SIP revision required the proposed reductions to take place during the first implementation period, *i.e.*, before the end of 2018. *Id.* at 3570, 3573. And, finally, EPA proposed to find that all reductions credited to the BART Alternative were surplus to reductions required by measures to implement Clean Air Act requirements in place as of the 2002 baseline date of the SIP.[9] *Id.* at 3570-71, 3573-74. Accordingly, EPA proposed to find that Utah's SIP revision satisfied each of the seven Section 51.308(e)(2) requirements and would achieve greater reasonable progress towards natural visibility conditions than BART. *Id.* at 3575. Because Utah's SIP revision met the Section 51.308(e)(2) requirements, as well as the other requirements of the Clean Air Act and Regional Haze Rule, EPA proposed to approve the submission.

Following a public hearing and public comment period, and after considering and responding to comments in a Federal Register notice and a separate Response-to-Comments document, EPA published the Final Rule on November 27, 2020. Final Rule, 85 Fed. Reg. 75860. EPA explained that, in relevant part, Utah's SIP submittal relied on appropriate modeling assumptions to compare the BART Benchmark and BART Alternative, *see id.* at 75861-63, and that the modeled visibility impacts were reliable, App. at 0954-55. After

[9] Utah's SIP used average emissions between 2001 and 2003 for modeling purposes, but the baseline date of the SIP is otherwise defined as 2002. *See* Final Rule, 85 Fed. Reg. at 75862.

addressing comments received, including those from Petitioners, EPA approved Utah's SIP submission and withdrew the FIP. Petitioners timely sought judicial review.

SUMMARY OF ARGUMENT

In challenging the Final Rule, Petitioners raise two primary arguments. First, they challenge the dispersion-modeling results that EPA relied on in determining that the BART Alternative would achieve greater reasonable progress than BART toward attaining natural visibility. Next, they challenge the modeling assumptions in the BART Benchmark scenario. Both arguments lack merit.

1. EPA's approval of Utah's BART Alternative is reasonable and well supported by the record. PacifiCorp's dispersion modeling demonstrates that on both the 20% best and 20% worst visibility days, visibility does not decline in any Class I area relative to the 2025 Baseline (prong one) and there is an overall improvement in visibility under the BART Alternative as compared to BART (prong two). Thus, Utah's BART Alternative met the applicable regulatory criteria. Petitioners take issue with the degree to which the modeling showed the visibility improvement under the BART Alternative would be better than the improvement under the BART Benchmark. While it is true that the modeling showed only a small visibility improvement for the BART Alternative scenario compared to the BART scenario (an average of 0.00494 and 0.00058 deciviews on the best and

worst days, respectively), EPA's regulations do not set a minimum level of improvement necessary to satisfy the two-prong test. Under the plain language of the regulation, any degree of improvement is sufficient.

Further, EPA carefully reviewed PacifiCorp's modeling and explained why it deemed the results reliable. EPA also thoroughly responded to Petitioners' comments on this point. Because the modeling demonstrated greater reasonable progress under the BART Alternative, and Utah's regional haze SIP revision otherwise complied with the regional haze requirements, EPA reasonably approved it. This Court should uphold EPA's well-reasoned decision.

2. EPA's Final Rule also reasonably determined that the dispersion-modeling assumptions on which Utah's SIP relies were sound. *See WildEarth Guardians*, 770 F.3d at 927 (stating that deference is appropriate for EPA's technical determinations). At the outset, PacifiCorp coordinated with Utah and EPA to ensure the modeling was technically sound. The scenarios PacifiCorp then modeled provided for accurate comparisons between the relative visibility benefits of BART, as reflected in the BART Benchmark, and the BART Alternative.

While Petitioners argue that the modeling of the BART Benchmark scenario should account for reductions taken to comply with a separate Clean Air Act program, their argument is both legally and technically flawed. The D.C. Circuit has rejected the same argument as a time-barred challenge to EPA's regulations

themselves. Moreover, incorporating any reductions appropriately credited to the BART Alternative in the BART Benchmark scenario, as Petitioners argue EPA should have done, would have frustrated the purpose of the modeling. That purpose is to compare visibility benefits between two different emissions-control scenarios: the implementation of BART in one scenario and the implementation of the BART Alternative in the other. Because PacifiCorp's modeling accomplished these goals and followed EPA's modeling guidance, EPA found it reliable for conducting the test under Section 51.308(e)(3). This Court should defer to EPA's sound technical judgment and well-reasoned decision.

STANDARD OF REVIEW

The Clean Air Act provides the standard of review for this action. 42 U.S.C. § 7607(d)(1)(B), (V), (d)(9); *see also* Final Rule, 85 Fed. Reg. at 75872 (expressly determining that this rule is subject to Section 7607(d)). Under the Clean Air Act, which applies the same standard as the Administrative Procedure Act, *UARG II*, 885 F.3d at 718, the Court will "reverse agency action only if it is 'arbitrary, capricious, an abuse of discretion or otherwise not in accordance with the law.'" *WildEarth Guardians*, 770 F.3d at 927 (quoting 5 U.S.C. § 706(2)(A)). Where EPA has considered the relevant factors and articulated a rational connection between the facts found and the choices made, the Court must uphold the agency's

decision. *Id.*; *Motor Vehicle Mfrs. v. State Farm Mut. Auto Ins.*, 463 U.S. 29, 43 (1983).

EPA's factual determinations are also entitled to substantial deference; the Court should uphold them as long as they are supported by the administrative record, even if there are alternative findings that could be supported by the record. *Arkansas v. Oklahoma*, 503 U.S. 91, 112-13 (1992); *see Morgan v. Sec'y of Housing & Urban Dev.*, 985 F.2d 1451, 1457 (10th Cir. 1993). *See also San Juan Citizens All. v. Stiles*, 654 F.3d 1038, 1057 (10th Cir. 2011) ("When specialists express conflicting views, an agency must have discretion to rely on the reasonable opinions of its own qualified experts even if, as an original matter, a court might find contrary views more persuasive."). And deference is particularly appropriate "[w]hen an agency acts under an unwieldly and science-driven statutory scheme like the Clean Air Act." *WildEarth Guardians*, 770 F.3d at 927 (cleaned up).

ARGUMENT

I. EPA REASONABLY CONCLUDED THAT THE BART ALTERNATIVE ACHIEVES GREATER REASONABLE PROGRESS THAN BART.

Utah's revised SIP relies on the dispersion-modeling test under Section 51.308(e)(3) to demonstrate that the BART Alternative achieves greater reasonable progress toward natural visibility than BART. As stated above, a BART alternative passes this test if the modeling demonstrates that (1) visibility does not decline in

any Class I area compared to the SIP baseline, and (2) there is an overall improvement in visibility across all affected Class I areas compared to BART. 40 C.F.R. § 51.308(e)(3). To show an overall improvement in visibility, SIPs must compare the average difference between BART and the alternative over all affected Class I areas on the 20% best and 20% worst visibility days. *Id.*

Only prong two of the test is at issue in this case. Petitioners argue that EPA should have disapproved the Utah BART Alternative for failing to demonstrate an overall improvement in visibility on the 20% worst days. But this argument is unsupported by the record and the law. As explained below, there is no requirement that the modeled improvement pass a minimum threshold and the record plainly demonstrates an improvement in overall visibility under the BART Alternative. Moreover, EPA reasonably and thoroughly explained its reliance on PacifiCorp's modeling results, and EPA's judgment on such technical matters is entitled to deference.

A. The Dispersion Modeling Demonstrated that the BART Alternative Achieves Greater Visibility Improvement than BART.

First, PacifiCorp's modeling demonstrated a greater visibility improvement under the BART Alternative than the BART Benchmark. Utah's SIP revision relied on sophisticated, state-of-the-science CAMx modeling software, which uses a host of inputs to simulate the creation of regional haze. *See supra*, at 16-17

(describing CAMx inputs and modeling process); Proposed Rule, 85 Fed. Reg. at 3566-67. PacifiCorp modeled future anthropogenic emissions and associated visibility impacts under the three key scenarios: a 2025 Baseline, a BART Benchmark, and a BART Alternative. *See* Proposed Rule, 85 Fed. Reg. at 3569.

EPA carefully reviewed Utah's SIP submittal and reasonably determined that the BART Alternative would achieve greater reasonable progress than BART under 40 C.F.R. § 51.308(e)(3). The modeling showed that the BART Alternative resulted in an average of 0.00494 deciview improvement compared to BART on the 20% best days, and an average of 0.00058 deciview improvement compared to BART on the 20% worst days across all affected Class I areas. Final Rule, 85 Fed. Reg. at 75871; Proposed Rule, 85 Fed. Reg. at 3569 (Tables 4 and 5). Thus, as the results plainly indicate, the modeling predicted visibility improvement compared to BART on both the best and worst days under the BART Alternative.

Petitioners argue that the improvement for the 20% worst days was too small to count as an improvement under Section 51.308(e)(3)(ii). They suggest that EPA should have demonstrated that the BART Alternative would result in an overall improvement in visibility "in the real world." Pet. Br. at 28. But this argument misses the mark because, on its face, the regulation sets out a test based on modeling results to compare the predicted outcomes of two policy scenarios for visibility improvement. While the modeling scenarios necessarily make certain

assumptions for purposes of drawing that comparison (as described in Argument II below), the modeling nonetheless is reliable to represent the *relative* difference in visibility benefits under real-world atmospheric conditions. *See* 70 Fed. Reg. at 39129 ("We believe that modeling, which provides model concentration estimates that are readily converted to deciviews, is the most efficient way to determine expected visibility improvement."). Under the modeling required by Section 51.308(e)(3), Utah's BART Alternative was in fact shown to achieve greater visibility improvement comparted to the BART Benchmark.

EPA's reading of Section 51.308(e)(3)(ii) to allow small but positive modeled improvements is consistent with the plain language of the regulation. Petitioners do not grapple with the controlling regulatory text, which supports EPA's decision to approve Utah's BART Alternative on the record before it. Section 51.308(e)(3)(ii) allows EPA to approve a BART alternative under the dispersion-modeling test if, in relevant part, "[t]here is an overall improvement in visibility . . . ." Nothing in the language of the regulation specifies a quantum of improvement necessary for a BART Alternative to demonstrate an "overall improvement." Proposed Rule, 85 Fed. Reg. at 3573; Final Rule, 85 Fed. Reg. at 75867.[10] EPA's reading that the BART Alternative's demonstrated overall

[10] To the extent Petitioners argue that EPA should have set a minimum improvement threshold when EPA promulgated Section 51.308(e)(3), Petitioners' claim is time-barred. 42 U.S.C. § 7607(b) (allowing judicial review within 60 days

improvement is sufficient to qualify under the regulations—even though it is a small improvement—aligns with the plain meaning of "improvement."

Merriam-Webster defines "improvement" as "the state of being improved," meaning "to enhance in value or quality [or] make better." Merriam-Webster, www.merriam-webster.com (definition of "improvement" and "improve") (last visited Apr. 5, 2022). There is no qualifier in the definition to suggest that the enhancement must be of a certain size; any enhancement is an "improvement." And EPA's regulations only qualify improvement with "overall," meaning that the improvement must show that, on average, visibility is enhanced across all relevant Class I areas. *See* 40 C.F.R. § 51.308(e)(3)(ii) ("There is an overall improvement in visibility, determined by comparing the average differences between BART and the alternative over all affected Class I areas."). Here, PacifiCorp's modeling showed an improvement across all Class I areas of 0.00494 deciviews on the 20% best days, and 0.00058 deciviews on the 20% worst days. Final Rule, 85 Fed. Reg. at 75869. EPA's determination that these improvements satisfy Section 51.308(e)(3) aligns with the plain language of the regulation.

EPA's reading also comports with the purpose of the Regional Haze Rule and Clean Air Act. Congress enacted Section 7492 to address regional haze in

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of a rule's promulgation). If Petitioners take issue with 51.308(e)(3), the proper course is for them to file a petition for rulemaking with EPA. *Oljato Chapter of the Navajo Tribe v. Train*, 515 F.2d 654, 661, 666 (D.C. Cir. 1975).

Class I areas. *See* 42 U.S.C. § 7492. EPA's regulations allow states to use BART alternatives only if the alternative proves to be better than BART. 40 C.F.R. § 51.308(e)(2). And in promulgating Section 51.308(e)(3), EPA considered this issue and explained that it had confidence that the two-pronged approach of the dispersion-modeling test "properly defines 'greater reasonable progress.'" 70 Fed. Reg. at 39137. In other words, EPA believed that if the test was met, then the BART alternative would be demonstrated to achieve greater reasonable progress. Thus, any BART alternative that achieves better visibility improvement than BART, even if that improvement is small, is squarely in line with Congress' goal of protecting visibility.

Moreover, EPA's approach is consistent with how it considers visibility improvements in other aspects of the regional haze program. While many of those provisions address visibility impacts in an absolute sense (as opposed to comparative visibility differences between two proposed courses of action, as here[11]), they are illustrative of the scale of deciview changes that EPA often considers in addressing regional haze. For example, in promulgating the Regional

[11] The absolute benefit from the BART Alternative over the SIP baseline is larger than its incremental improvement over the BART Benchmark. While not aggregated for all Class I areas (because the dispersion-modeling test does not require it), the visibility benefit of the BART Alternative relative to the SIP baseline is as high as 0.13156 deciviews at Arches and Canyonlands National Parks. *See* Proposed Rule, 85 Fed. Reg. at 3569 (Tables 4 and 5, column D).

Haze Rule, EPA stated that imperceptible improvements in visibility should be considered as part of a BART analysis. 70 Fed. Reg. at 39129; *see Arizona v. EPA*, 815 F.3d 519, 536, 539 (9th Cir. 2016) (quoting 70 Fed. Reg. at 39129 with approval). One deciview marks a perceptible difference in visibility. *See* 70 Fed. Reg. at 39120 n.32. However, as EPA has explained, sources may be found to "contribute" to regional haze at 0.5 deciviews (or even lower values), which is less than perceptible. *Id.*[12] *See* 40 CFR pt. 51, app. Y, § III.

Further, in determining what constitutes BART for those sources, EPA and states have imposed BART controls or BART alternatives projected to produce incremental benefits far smaller than 0.5 deciviews. *See*, 83 Fed. Reg. 51403, 51410-11 (Table 7) (Oct. 11, 2018) (finalized at 84 Fed. Reg. 22711 (May 20, 2019)) (demonstrating 0.00054 visibility improvement under BART alternative relative to BART benchmark); 86 Fed. Reg. 15104, 15111, 15113 (Mar. 22, 2021) (relying on a 0.004 deciview difference between BART and the BART alternative as the key evidence in approving a state's submittal under the clear-weight-of-the-evidence test); *see also Arizona*, 815 F.3d at 539 (upholding an EPA BART

[12] The 0.5 deciview threshold, moreover, was premised on the use of a much more conservative modeling methodology (*i.e.*, more likely to return much higher numerical results) than the photochemical model relied on by Utah in this case. *See* EPA, Guidance on Regional Haze State Implementation Plans for the Second Implementation Period, at 19 n.41 (Aug. 20, 2019), *available at* https://www.epa.gov/visibility/guidance-regional-haze-state-implementation-plans-second-implementation-period.

determination that projected imperceptible visibility benefits). Thus, imperceptible visibility improvements are sufficient to trigger regulation under the Regional Haze Rule and even smaller improvements may be considered when determining BART for regulated sources or evaluating a BART alternative.[13] EPA's determination that the 0.00058 deciview improvement qualifies as an improvement in this case is therefore consistent with its understanding of visibility improvements in analogous situations.

In sum, EPA's determination that 0.00058 deciviews is an "overall improvement" aligns with the plain language of the regulation, the overall purposes of the regional haze program, and EPA's implementation of the regional haze program, and it should be upheld.

B. EPA Adequately Explained Its Rationale for Finding that Utah's BART Alternative Achieves Greater Improvement in Overall Visibility.

Petitioners argue that EPA did not adequately explain why a modeled visibility improvement of 0.00058 deciviews is sufficient as a technical matter.

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[13] This is consistent with the 2017 Regional Haze Rule indicating that regulation of sources with relatively small visibility impacts is necessary under the regional haze program. "Regional haze is visibility impairment that is caused by the emission of air pollutants from numerous sources located over a wide geographic area. At any given Class I area, hundreds or even thousands of individual sources may contribute to regional haze. Thus, it would not be appropriate for a state to reject a control measure (or measures) because its effect on the reasonable progress goals is subjectively assessed as not "meaningful." *See* 82 Fed. Reg. at 3093.

Pets. Br. at 29. Their arguments lack merit. EPA fully addressed comments submitted by Petitioners' air quality specialist, Howard Gebhart. Moreover, EPA was not required to support the Final Rule with an example of another BART alternative approved under similar factual circumstances.[14]

As illustrated in the Response-to-Comments document, EPA thoroughly addressed Mr. Gebhart's comments. In an attachment to Petitioners' comment letter, Gebhart asserts that the CAMx modeling results demonstrating greater visibility across all Class I areas "were based on concentration estimates which are so small that, in [Gebhart's] professional experience, they should be interpreted as essentially zero." App. at 0872. Gebhart further stated that "potential errors" in the modeling "are based on factors besides distance . . . ." *Id.* at 0872, 0885-87.

EPA provided a thorough response to Gebhart's comments in the Response-to-Comments document issued with the Final Rule. EPA stated that CAMx is a relatively advanced modeling tool, but acknowledged that it still "has inherent uncertainties" and "is still an approximation of physical processes in the

[14] Petitioners also argue that EPA cannot support the BART Alternative's approval under the clear-weight-of-the-evidence test. This argument is misplaced. As EPA and this Court have explained, the clear-weight-of-the-evidence test is an entirely separate route for demonstrating reasonable further progress from the dispersion-modeling test, and Utah (and, consequently, EPA) did not employ it here. *See* Proposed Rule, 85 Fed. Reg. at 3573. *Compare* 40 C.F.R. § 51.308(e)(3), *with* 40 C.F.R. § 51.308(e)(2)(i)(E). *See also WildEarth Guardians*, 770 F.3d at 934.

atmosphere." App. at 0954. Nevertheless, EPA determined the modeling results in this case were reliable for two reasons.

First, EPA explained that the modeling followed EPA's guidance and included measures to address uncertainties or biases. *Id.*; *see also* App. at 0949. Specifically, EPA explained that PacifiCorp used EPA's SMAT-CE software analysis to correct for model bias in individual components of pollutants that contribute to haze, including sulfate and nitrate. App. at 0949; *see also* Proposed Rule, 85 Fed. Reg. at 3567. SMAT-CE is software designed to implement EPA's recommended modeling approach. *See supra*, at 18. In the recommended approach, "the model-simulated future concentrations of sulfate and nitrate are weighted by the amount that the model over- or underestimated observed sulfate and nitrate concentrations in the base year simulation." App. at 0949; *see also* Proposed Rule, 85 Fed. Reg. at 3567. Thus, EPA explained, that PacifiCorp used SMAT-CE "to reduce the model-simulated future sulfate benefits for each emissions scenario, proportional to the extent that the model overestimated sulfate in the baseline simulation, and to increase the model-simulated future nitrate benefits for each emissions scenario, proportional to the extent that the model underestimated nitrate in the baseline simulation." App. at 0949-50. EPA concluded that, "[w]hile no model can perfectly simulate the measured concentrations, . . . this is a reasonable approach to correct for systemic bias in model simulations of individual $PM_{2.5}$

species," and this approach is commonly used in photochemical air quality models like CAMx. *Id.* at 0950.

Second, EPA emphasized that other uncertainties like wind speed and direction, and atmospheric turbulence "apply to both the BART Benchmark and BART Alternative modeling scenarios." *Id.* at 0954-55. EPA used the modeled results for comparison, not as demonstrations of absolute visibility impacts under each scenario. Accordingly, any such uncertainties in the model would not jeopardize the relative results of the comparison because they would apply to each scenario equally. *Id.* at 0955. For these reasons, EPA explained that it "has confidence in the finding of relatively greater visibility benefit in the NO_X BART Alternative scenario even when the absolute visibility benefits are small." *Id.* This response to Gebhart's comment was thoughtful and adequate. Moreover, "[w]hen specialists express conflicting views, an agency must have discretion to rely on the reasonable opinions of its own qualified experts even if, as an original matter, a court might find contrary views more persuasive." *San Juan Citizens All.*, 654 F.3d at 1057 (internal quotations omitted). Thus, the Court should defer to EPA's well-explained confidence in the modeling results.

Citing *National Parks Conservation Association v. EPA*, 788 F.3d 1134 (9th Cir. 2015) (*NPCA*), Petitioners allude to an argument regarding an alleged "margin of error" applicable to the CAMx model. *See* Pets. Br. at 30. As an initial matter,

this argument fails because the issue was not raised during the public comment period. To the extent Petitioners raise issues regarding the reliability of the CAMx modeling in this case beyond those articulated in the Gebhart report or elsewhere in public comments, those issues were not "raised with reasonable specificity" to put EPA on notice of Petitioners' concerns, and therefore, may not be raised on judicial review. 42 U.S.C. § 7607(d)(7)(B). *See Oklahoma*, 723 F.3d at 1214-15; *WildEarth Guardians*, 770 F.3d at 929-930. Indeed, there is no mention of a "margin of error" in Petitioners' comment letter or in Gebhart's report. *See* App. at 0840-93. Thus, Petitioners did not submit any evidence of a potential "margin of error" for EPA to consider. *Contrast NPCA*, 788 F.3d at 1146 (reviewing margin-of-error argument that the petitioner raised during rule's notice and comment period); *see also Sierra Club v. EPA*, 939 F.3d 649, 684-86 (5th Cir. 2019) (same).

If Petitioners had raised the margin-of-error argument in their comments, EPA would have responded that such an argument is irrelevant to the Final Rule challenged here. EPA recommends certain types of models for use in developing SIP submissions. *See* 40 C.F.R. pt. 51, app. W § 2.1.d; 82 Fed. Reg. at 5183-84. After a model is thoroughly evaluated, EPA and states may use it in accordance with EPA's modeling guidance. *See* App. at 0919-20. The specific guidance varies depending on the type of model. Here, EPA reviewed PacifiCorp's CAMx modeling and determined that it was consistent with EPA's modeling guidance and

reliable to support Utah's BART Alternative analysis. Proposed Rule, 85 Fed. Reg. at 3567-68, 3573.

Moreover, Petitioners' reliance on *NPCA* is misplaced because it does not support their argument on the merits that small increases in visibility improvement are insufficient to satisfy Section 51.308(e)(3). *See* Pets. Br. at 28. In that case, the Ninth Circuit did not conclude that EPA's decision was invalid because it rested on a small amount of visibility improvement; rather, the court remanded because it found EPA had not sufficiently explained why the modeling results were reliable enough to support EPA's selection of controls.[15] *NPCA*, 788 F.3d at 1146-47; *see id.* at 1150 (Berzon, J., concurring). EPA's approval here does not suffer from the same flaw. EPA thoroughly supported the reliability of its modeling predictions in responding to Gebhart. *See Sierra Club*, 939 F.3d at 684-86 (contrasting EPA's failure to "meaningfully address" the margin-of-error comment in *NPCA* with EPA's "fulsome" explanation in *Sierra Club*).

NPCA is further distinguishable because, in that case, EPA was determining BART, which requires a different analysis than the one used to evaluate a BART alternative. *See NPCA*, 788 F.3d at 1147. Specifically, the modeling in that case

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[15] In *NPCA*, EPA relied on a completely different dispersion model called CALPUFF, which is a more basic model that uses simplified chemistry and analyzes only a single source's emissions. *See* 70 Fed. Reg. at 39123. CALPUFF has limitations that do not apply to CAMx. *See* 70 Fed. Reg. at 39121-24; *see also Sierra Club*, 939 F.3d at 683-84 (discussing CALPUFF).

was evaluating an absolute visibility improvement under a BART statutory factor. *Id.* at 1140-42. In other words, the modeling in *NPCA* did not involve the *comparison* of two alternative courses of action. Here, however, EPA is evaluating the relative visibility improvement between applying a BART alternative versus applying a BART benchmark. As explained, in that type of comparison, modeling uncertainties would affect one scenario as much as the other. EPA considered the modeling uncertainties in the Final Rule, and explained that the uncertainties were addressed to the extent possible and that any remaining uncertainties applied to both the BART Alternative and BART Benchmark. *See supra*, at 33-34. This approach yielded a meaningful relative comparison between the two options. Thus, EPA reasonably determined that PacifiCorp's modeling was sufficiently reliable. App. at 0954-55; App. at 0667-68, 0671. EPA's determination is both rational and well supported, and this Court should defer to EPA's technical judgment. *See WildEarth Guardians*, 770 F.3d at 927. *Cf. Sierra Club*, 939 F.3d at 686-87 ("EPA's selection of modeling methods to measure visibility impacts is exactly the type of decision for which 'significant deference' is appropriate.") (footnote omitted).

Finally, contrary to Petitioners argument, EPA is not required to support its decision in this case with an example of another similar approval of a BART alternative. As explained, EPA's regulations do not specify a minimum

improvement threshold to qualify a BART alternative. The Regional Haze Rule contemplates case-specific analyses when evaluating both BART determinations and BART alternatives. And each EPA action approving or disapproving such a SIP submission is supported by its own administrative record, often entailing unique circumstances and considerations. *See* 70 Fed. Reg. at 39138 ("[W]e believe States and Tribes should retain the discretion to reasonably interpret and apply these terms [of Section 51.308(e)(3)] as appropriate to the context of the particular program at issue."). In any event, EPA has in fact promulgated a BART alternative under a FIP based on an average visibility improvement of 0.00054 deciviews. *See* 83 Fed. Reg. at 51410-11 (Table 7); 84 Fed. Reg. at 22718. While no party challenged that action, EPA's consideration of small and imperceptible visibility improvements in other contexts has been upheld, as noted above. *See Arizona*, 815 F.3d at 539.

EPA reasonably determined that the Utah SIP submission's modeling results were sufficient and reliable to conclude that the BART Alternative achieves greater reasonable progress than BART. This Court should defer to EPA's plain-language application of its regulation and its technical expertise, and uphold the Final Rule.

II. EPA REASONABLY DETERMINED THAT PACIFICORP MADE APPROPRIATE EMISSIONS ASSUMPTIONS IN THE MODELING SCENARIOS.

Petitioners next argue that the modeling assumptions in the BART Benchmark scenario overstated the Carbon plant's emissions, thus skewing the results of the comparison in favor of the BART Alternative. Pet. Br. at 32-40. This argument, however, is both legally and technically flawed. First, Petitioners' challenge is time barred for the same reasons that the D.C. Circuit found a similar argument untimely in *UARG II*. Second, Petitioners misunderstand the modeling requirements for BART alternatives under the Regional Haze Rule, and therefore, their argument fails as a technical matter.

A. PacifiCorp Appropriately Modeled All Relevant Scenarios.

As explained, PacifiCorp modeled a series of projected scenarios to compare the visibility improvements of the BART Benchmark and the BART Alternative to demonstrate that the BART Alternative achieves greater reasonable progress toward attaining natural visibility. Proposed Rule, 85 Fed. Reg. at 3568. To review, the first scenario, called the 2025 Baseline, represents the pre-BART status quo using the average emissions baseline data from 2001-2003 for each source covered in the BART Alternative or the BART Benchmark. *Id.;* Final Rule, 85 Fed. Reg. at 75870. In other words, it projects visibility in 2025 assuming neither BART nor the BART Alternative is applied. The next scenario, called the BART Benchmark,

represents projected emissions in 2025 if BART is required. As a result, only the emissions reductions from BART are applied; the other inputs remain unchanged from the 2025 Baseline scenario. Proposed Rule, 85 Fed. Reg. at 3568; Final Rule, 85 Fed. Reg. at 75870. Finally, the BART Alternative scenario represents projected emissions in 2025 if only the emissions reductions required under the BART Alternative are applied. Proposed Rule, 85 Fed. Reg. at 3568. All other inputs remained unchanged from the 2025 Baseline scenario.

For each of these scenarios, the CAMx model estimated visibility impacts in 2025 on the 20% best and 20% worst visibility days. *Id.* at 3569 (Tables 4 and 5). The results relevant to comparing overall visibility across all Class I areas are listed in the tables below. The visibility impacts under each scenario are listed in the first three columns, and the last column of each table compares the overall visibility difference between the BART Alternative and the BART Benchmark across all Class I areas. The negative numbers indicate that the BART Alternative results in less visibility impairment (or greater visibility improvement) on both the best and worst visibility days. *See id.* at 3569. Accordingly, EPA found that the modeling demonstrated an overall improvement in visibility under the BART Alternative as compared to the BART Benchmark. Final Rule, 85 Fed. Reg. at 75871.

Visibility impacts in 2025 on the 20% best days, averaged across all Class I areas (expressed in deciviews):

2025 Baseline	BART Benchmark	BART Alternative	BART Alternative minus BART Benchmark
0.04940	0.02602	0.02108	-0.00494

Visibility impacts in 2025 on the 20% worst days, averaged across all Class I areas (expressed in deciviews):

2025 Baseline	BART Benchmark	BART Alternative	BART Alternative minus BART Benchmark
0.06957	0.03471	0.03413	-0.00058

As intended, these scenarios provide Utah and EPA with a tool to evaluate whether the BART Alternative results in greater visibility benefits than BART. *See id.* EPA emphasized in the Final Rule that "[t]he modeling does not, and need not, purport to establish actual, absolute improvements in visibility under the two scenarios." *Id.* Instead, it provides a mechanism to compare relative visibility impacts. And EPA concluded that PacifiCorp's modeling does just that: it creates a status-quo scenario, a BART Benchmark scenario that applies only BART reductions, and a BART Alternative scenario that applies only the BART Alternative reductions. EPA determined that this modeling was consistent with the regulation, and it is entitled to deference in that technical determination. *See id.* at 75870.

B. PacifiCorp Appropriately Assumed Carbon's Emissions in Modeling the BART Benchmark and BART Alternative Scenarios.

Petitioners do not take issue with any of the inputs in the 2025 Baseline or BART Alternative modeling scenarios. Instead, they make several arguments to support their view that PacifiCorp's treatment of Carbon's emissions under the BART Benchmark scenario was flawed, and thus EPA's reliance on the modeling was also defective.[16] But Petitioners' arguments reflect a time-barred challenge to the regulation itself. Even if this argument is not barred, however, it fails as a technical matter because it demonstrates a misunderstanding of the regulatory requirements for BART alternatives, as reflected in the modeling process.

1. Petitioners' Challenge to 40 C.F.R. 51.308(e)(2) and (3) Is Time Barred.

As a preliminary matter, Petitioners' challenge to Section 51.308(e)(2)(iv) or (3) (promulgated in 1999 and 2005, respectively) is a time-barred challenge to EPA's BART alternative regulations themselves. Petitioners argue that, because the MATS rule contains a legally enforceable obligation to reduce SO_2, any MATS-associated reductions that would have occurred at Carbon had it not shut

[16] Petitioners also contend that taking the Carbon reductions under MATS into account would prove that BART results in greater reasonable progress than the BART Alternative. Pets. Br. at 32. However, Petitioners did not support this hypothesis with the modeling necessary to make such a demonstration.

down should be accounted for under the BART Benchmark scenario. Pets. Br. at 37. The D.C. Circuit has twice rejected this same argument.

In *UARG I* and *UARG II*, the D.C. Circuit considered and rejected the argument that BART alternatives cannot include emissions reductions resulting from other Clean Air Act requirements. In *UARG I*, the D.C. Circuit upheld that the Clean Air Interstate Rule (a predecessor to the Cross-State Air Pollution Rule (CSAPR), which is an emissions trading program under a separate provision of the Clean Air Act) could function as a BART alternative, even though it was promulgated to implement other Clean Air Act statutory requirements. *See* 471 F.3d at 1341 ("[P]etitioner identifies no language requiring EPA to impose a separate technology mandate for sources whose emissions affect Class I areas, rather than piggybacking on solutions devised under other statutory categories . . . .").

The D.C. Circuit reiterated this holding in *UARG II*, finding the petitioners there were raising a time-barred challenge to Section 51.308(e)(3) itself. 885 F.3d at 720-21. The petitioners in *UARG II* challenged EPA's determination that states could use CSAPR as a BART alternative. 885 F.3d at 717. Like here, EPA relied on dispersion modeling to determine that the BART alternative—the CSAPR program—was better than BART. The environmental petitioners argued that the BART benchmark scenario should have included reductions required by CSAPR:

"[Petitioners'] reasoning is that CSAPR is implemented under a separate provision of the Clean Air Act unrelated to BART and will thus go into effect regardless of BART. That is, *the status quo for a better-than-BART alternative to improve must be a world that already includes CSAPR in operation*." *UARG II*, 885 F.3d at 720 (citations omitted) (emphasis added). But the court rejected this argument. *Id.* ("This is the same argument that we rejected in *UARG I*, where we held that an emissions control program in place to satisfy an unrelated statutory provision is not disqualified from serving as a better-than-BART alternative."). Further, the court there concluded that the petitioners were effectively challenging the validity of Section 51.308(e)(3), and because the regulation was promulgated several years earlier in 2005, their challenge was untimely under the Clean Air Act. *Id.* at 720-21.

Petitioners make essentially the same argument here by claiming that EPA should have considered the MATS rule reductions under the BART Benchmark. Pets. Br. at 37. This argument can be construed as challenging Section 51.308(e)(2)(iv) or (3), but fails in either case. While the D.C. Circuit analyzed the issue under Section 51.308(e)(3), the court's analysis is implicitly applicable to Section 51.308(e)(2)(iv) because the latter works with the dispersion-modeling test in Section 51.308(e)(3) to specifically allow states (or EPA) to take credit for other Clean Air Act program emission reductions as BART alternatives in their regional

haze SIPs, so long as the reductions are surplus to measures adopted to meet Clean Air Act requirements as of the SIP baseline date. 40 C.F.R. § 51.308(e)(2)(iv); 40 C.F.R. § 51.308(e)(3).

Moreover, EPA responded to Petitioners' comments on this issue by explaining how this was essentially the same as the issue raised in *UARG II*. *See* Final Rule, 85 Fed. Reg. at 75862 ("The D.C. Circuit rejected the petitioners' argument as effectively requiring more of BART alternatives than the EPA's rule requires."). Given that the D.C. Circuit already rejected this argument in *UARG I*, 471 F.3d 1333, 1341, and rejected it again as time-barred in *UARG II*, 885 F.3d at 720, Petitioners' latest attempt to litigate this question clearly exceeds the Clean Air Act's 60-day period for seeking judicial review. 42 U.S.C. § 7607(b). Accordingly, Petitioners' claim here is barred.

2. Carbon Is Not a BART Source.

Even if this Court considers Petitioners' claims on the merits, however, they fail for several reasons. To start, Carbon is not a BART source. Therefore, as EPA explained in the Final Rule, it would have been incongruous with the Regional Haze Rule requirements to reduce Carbon's emissions in the BART Benchmark scenario. Final Rule, 85 Fed. Reg. at 75862.

Under the Regional Haze Rule, the BART Benchmark accounts for reductions resulting from BART controls at BART sources. 40 C.F.R.

§ 51.308(e)(2)(i)(c). In projecting visibility impacts under BART, therefore, the BART Benchmark scenario inputs include the same overall emissions projections used for the 2025 Baseline, plus adjustments based on BART controls. In other words, PacifiCorp applied emissions reductions associated with implementing BART for BART sources (Hunter and Huntington Units 1 and 2), while holding all other inputs at 2025 Baseline levels. Final Rule, 85 Fed. Reg. at 75862, 75870. This approach is reasonable and consistent with the regulatory approach of comparing the BART alternative to the BART benchmark.

Moreover, Petitioners' argument mischaracterizes the record. In explaining why it would be inappropriate to apply emissions reductions due to MATS to Carbon under the BART Benchmark scenario, EPA stated that "there would have been no enforceable obligation that they occur under that scenario." Final Rule, 85 Fed. Reg. at 75862. Petitioners mischaracterize EPA's explanation as asserting that *the MATS rule* does not "create[] a legally 'enforceable obligation.'" Pets. Br. at 37. But it is irrelevant whether the MATS rule contains legally enforceable obligations. What is relevant to the BART Benchmark scenario is whether the reduction was enforceable *under the regional haze program* as BART, or otherwise required before the 2002 baseline date of the regional haze SIP. No other reductions are applied to the BART Benchmark.

Here, Carbon, as a non-BART source, could never be required to close or reduce its emissions *under the BART requirements*, so it is not appropriate to apply reductions to its emissions in the BART Benchmark scenario. Thus, it was logical for PacifiCorp to exclude from the BART Benchmark scenario any emissions reductions at Carbon due to the MATS rule.

3. Carbon's Emission Reductions Are Fully Creditable Under the BART Alternative, and the Modeling So Reflects.

Further, as Carbon is not a BART source, Utah could properly include Carbon's emissions reductions in the BART Alternative. This inclusion is permissible under the regional haze program, *WildEarth Guardians*, 770 F.3d at 935-36, but it has implications for how Carbon's emissions are treated in the modeling scenarios, including the BART Benchmark scenario that Petitioners challenge. Specifically, because Carbon's emissions reductions are *fully* creditable under the BART Alternative, it would be improper to reduce the credited emissions based on a separate Clean Air Act program's requirements, as Petitioners suggest.

To produce a useful BART benchmark and BART alternative comparison, the modeling uses a baseline and scenarios that adjust the baseline to reflect potential policy choices, as described above. *See supra*, at 40-42. States may take credit in a BART Alternative for any reductions achieved during the first implementation period—including those achieved to comply with other Clean Air

Act programs—so long as the reductions are surplus to the SIP baseline period. *See* 64 Fed. Reg. at 35742; Final Rule, 85 Fed. Reg. at 75861; 40 C.F.R. § 51.308(e)(2)(iv); *see also UARG II*, 885 F.3d at 720 (upholding EPA's use of CSAPR to function as a BART alternative). As discussed, the SIP baseline date is 2002. And the first implementation period ended in 2018. Thus, any emissions reductions that took place between 2002 and 2018 that were not the result of measures to meet Clean Air Act requirements in place as of 2002 are *fully creditable* to a BART alternative. *See* Final Rule, 85 Fed. Reg. at 75860.

Here, Carbon's closure falls squarely within the bounds of that permission. Carbon opted to close in 2015 to comply with EPA's MATS rule, which was promulgated in 2012 and required compliance (in relevant part) in 2015. 77 Fed. Reg. 9304, 9407 (Feb. 16, 2012) (stating that existing sources have three years after the effective date to comply with the rule). Carbon's closure in 2015 is, therefore, surplus to requirements as of the baseline date of the SIP, and it took place before the end of the first implementation period. *See* Final Rule, 85 Fed. Reg. at 75861-62. Accordingly, Utah can take full credit for Carbon's reductions in the BART Alternative.

To accurately model the relative visibility benefits between the BART Benchmark and the BART Alternative, then, the modeled comparison necessarily assumes pre-BART (and pre-MATS) status quo emissions levels for Carbon. *See*

Final Rule, 85 Fed. Reg. at 75862, 75870. Thus, PacifiCorp appropriately used 2001-2003 baseline emissions data for Carbon in the BART Benchmark, as it did with Hunter Unit 3.[17] This approach is consistent with the Regional Haze Rule and logic. Assuming Carbon reductions in the BART Benchmark scenario would inappropriately discount the difference in reductions creditable under the BART Alternative. In other words, the modeling would not reflect full credit to the BART Alternative for Carbon's closure. Petitioners' desired approach would render a comparison infeasible. As EPA stated in the Final Rule: "[A]ssuming continued emissions from sources that would not be subject to BART controls in the BART Benchmark scenario, when such emissions would be eliminated under the BART Alternative, is simply a necessary analytical step for making a proper comparison . . . ." 85 Fed. Reg. at 75861. The treatment of Carbon's emissions in the modeling is consistent with the regulations, so EPA was correct to rely on it.

Petitioners contend that without applying MATS reductions to Carbon's emissions, Utah's BART Benchmark scenario does not provide for a proper comparison in visibility improvement between the BART Benchmark and the BART Alternative. They claim that only modeled scenarios projecting actual

[17] Petitioners notably do not challenge the use of 2001-2003 emissions data for Hunter Unit 3 in the BART Benchmark, despite that Hunter Unit 3 received combustion controls in 2007 that reduced its actual emissions. *See* Final Rule, 85 Fed. Reg. 75860-62.

emissions can provide for the proper comparison. Pets. Br. at 38. As explained above, this argument fails to understand the purpose of the modeling exercise.

The BART Benchmark scenario is merely applying BART, and BART alone, to the 2025 Baseline to compare visibility improvement under the BART Benchmark versus the BART Alternative. EPA and states do not assume "real anticipated [] emissions" from non-BART sources in the BART Benchmark scenario where those emissions reflect reductions creditable to the BART alternative, including those obtained by a separate Clean Air Act program creditable to the BART alternative. Final Rule, 85 Fed. Reg. at 75862. *See also*, 70 Fed. Reg. at 39138 (affirming that the purpose of the modeling exercise is to make a comparison between two programs). Petitioners' treatment of Carbon would not reflect the full amount of creditable emissions under the BART Alternative. EPA's approach is reasonable.

EPA's approach is also consistent with caselaw. *See Yazzie v. EPA*, 851 F.3d 960, 974 (9th Cir. 2017) (upholding EPA's BART alternative analysis where certain emission reductions were credited in the BART alternative scenario but not the BART benchmark scenario). *Cf. UARG II*, 885 F.3d at 720-21 (rejecting the petitioners' interpretation of Section 51.308(e)(3) that would have required EPA to consider the CSAPR reductions under both the BART benchmark and the BART alternative scenarios). In *Yazzie v. EPA*, EPA credited a BART alternative for

reductions resulting from the early installation of emissions controls, but it did not attribute these known reductions to BART. 851 F.3d at 974. The petitioners in that case argued that EPA should have included the voluntary emissions reductions in the BART benchmark scenario when comparing emissions reductions between BART and the BART alternative. The court disagreed, upholding EPA's analysis as reasonable because it rewarded a power plant for voluntarily installing emissions control upgrades years before it was required to do so. *Id.* at 974.

Moreover, *UARG II* lends further support to EPA's approach of not applying known, programmatic reductions to a BART benchmark when comparing relative visibility benefits between BART and a BART alternative. There, as explained above, the D.C. Circuit rejected the petitioners' contention that the BART benchmark should have taken CSAPR reductions into account. *UARG II*, 885 F.3d at 720. The Court had previously rejected this argument in *UARG I*, where it approved EPA's comparison between BART and a BART alternative that takes credit for reductions achieved under a separate Clean Air Act program. *Id.* That comparison included only BART controls in the BART benchmark (without assuming reductions based on the implementation of the other program) and only the BART alternative reductions (*i.e.*, the reductions achieved under the separate program) in the BART alternative. *Id.* It is not surprising that the courts in *Yazzie*

and *UARG II* would have reached these conclusions, since this approach is essential to providing a fair comparison between BART and a BART alternative.

In summary, EPA reasonably concluded that the modeling appropriately did not include any emission reductions from Carbon post-dating the SIP baseline period in the BART Benchmark scenario, and this technical, well-supported determination is consistent with the regulations, prior agency actions, and caselaw. EPA's decisions on these technical matters is entitled to the highest degree of deference. *See WildEarth Guardians*, 770 F.3d at 927.

C. Future Emissions Reductions Are Not Required.

Petitioners also argue that Utah's BART Alternative is invalid because it does not require future emissions reductions. Pets. Br. at 40. But Petitioners raise this argument in their brief for the first time, so the Court should not consider it. *See Oklahoma*, 723 F.3d at 1214-15; *WildEarth Guardians*, 770 F.3d at 929-930. Even if this issue were sufficiently raised during public comment, however, Petitioners' argument fails on the merits.

Nothing in the Regional Haze Rule or caselaw requires BART alternatives to include future emissions reductions. Sections 51.308(e)(2)(iii) and (iv) identify the only applicable timing requirements for when BART-alternative emissions reductions must occur: after the baseline date of the SIP, and before the end of the first implementation period. As this brief has explained, the reductions covered in

Utah's BART Alternative take place during the relevant timeframe—*i.e.*, after 2002 and before 2018.[18] Contrary to Petitioners' suggestion, neither *UARG II* nor *Yazzie* is in tension with this case. Neither contradicts the relevant implementation period established by Section 51.308(e)(2)(iii) and (iv) for BART alternatives in regional haze SIPs.[19] *See Yazzie*, 851 F.3d at 970 (citing Section 51.508(e)(2)(iii) for states implementing BART alternatives); *UARG II*, 885 F.3d at 717, 724 (upholding EPA determination allowing states to rely on CSAPR reductions as a BART alternative, which was promulgated and went into effect during the first implementation period).

Accordingly, Petitioners have failed to demonstrate that EPA unreasonably determined that PacifiCorp made appropriate emissions assumptions.

III. THE COURT SHOULD NOT GRANT VACATUR.

Petitioners ask the Court to vacate EPA's Final Rule and reinstate the 2016 final rule requiring the installation of additional controls on Hunter and Huntington if their petition is granted. However, vacatur is not appropriate in all situations

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[18] Utah was required to submit a SIP revision to address the second regional haze implementation period by July 31, 2021. Additional reductions may be required in the second regional haze implementation period. *See* 40 C.F.R. § 51.308(f).

[19] In *Yazzie*, the court held that the deadline in Section 51.308(e)(2)(iii) does not apply to BART alternatives established in FIPs promulgated in place of a tribal implementation plan (TIP). *Yazzie*, 851 F.3d at 970-72. That holding is not at issue here since this case involves a SIP, not a TIP, and there is no dispute that the Carbon shutdown occurred before the end of 2018.

where a rule is remanded to an agency. *See, e.g.*, *WildEarth Guardians v. U.S. Bureau Land Mgmt.*, 870 F.3d 1222, 1239-40 (10th Cir. 2010) (listing several considerations when an agency action has been found to be arbitrary or capricious and deciding not to vacate the actions in that case).

Courts generally analyze the factors set out by the D.C. Circuit in *Allied-Signal v. Nuclear Regulatory Commission*, including "the seriousness of the [rule's] deficiencies (and thus the extent of doubt whether the agency chose correctly) and the disruptive consequences of an interim change that may itself be changed." 988 F.2d 146, 150-51 (D.C. Cir. 1993) (citations and quotations omitted). Thus, the appropriate remedy depends on the deficiencies identified by the Court. For instance, where an agency's rationale could benefit from additional support, but it could reach the same result on remand, vacatur may not be appropriate. Here, if the Court were to find that EPA failed to sufficiently explain its reliance on the modeling results or demonstration that PacifiCorp made appropriate assumptions in the modeling (which it should not), such record-based deficiencies would not be so serious that EPA would be unable to cure them on remand. *See id.* at 151.

Further, if the Court grants the petition for review (which it should not), an automatic reinstatement of the FIP, which Petitioners request, would create an impossibility in terms of the compliance deadlines set. The BART units at Hunter

and Huntington would have been subject to the BART emissions limits promulgated in the FIP starting on August 4, 2021. 81 Fed. Reg. at 43924. That date is in the past, and thus, on this basis alone, reinstatement of the FIP would clearly have "disruptive consequences." *See Allied Signal*, 988 F.2d at 151. Therefore, if the Court does not deny the petition in all respects, EPA respectfully requests that the Court allow the parties to submit briefs regarding the appropriate remedy in light of the Court's opinion.

CONCLUSION

For the foregoing reasons, EPA's Final Rule approving Utah's revised NO_X BART SIP and concurrently withdrawing the FIP is reasonable and well supported by the record. The Court should defer to EPA's technical judgments and deny the petition for review.

Respectfully submitted,

s/ *Miranda M. Jensen*

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90-5-2-3-21898

STATEMENT REGARDING ORAL ARGUMENT

While we defer to the Court's judgment on the matter, EPA believes that oral argument would be useful to the Court because this case involves technically and legally complex issues.

CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME LIMIT

I hereby certify:

1. This document complies with the type-volume limitation of Federal Rule of Appellate Procedure 32(a)(7)(B)(i) because, excluding the parts of the document exempted by Rule 32(f), this document contains 12,560 words.

2. This document complies with the typeface requirements of Federal Rule of Appellate Procedure 32(a)(5) and the type-style requirements of Rule 32(a)(6) because this document has been prepared in a proportionally spaced typeface using Microsoft Word in 14-point Times New Roman font.

Date: June 16, 2022.

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CERTIFICATE OF DIGITAL SUBMISSION

I hereby certify that with respect to the foregoing:

(1) all required privacy redactions have been made per 10th Cir. R. 25.5;

(2) if required to file additional hard copies, that the ECF submission is an exact copy of those documents; and

(3) the digital submissions have been scanned for viruses with the native Microsoft Windows 10 Virus and Threat Protection service, last updated June 16, 2022, and, according to the program, they are free of viruses.

s/ *Miranda M. Jensen*
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ADDENDUM

STATUTORY AND REGULATORY ADDENDUM

Statutes:

42 U.S.C. § 7492 ..... ADD-0003

Regulations:

40 C.F.R. § 51.301 ..... ADD-0008

40 C.F.R. pt. 51, app. W § 2.1 ..... ADD-0015

40 C.F.R. pt. 51, app. Y § III ADD-0018

42 U.S.C. § 7492

KeyCite Yellow Flag - Negative Treatment
Proposed Legislation

United States Code Annotated
Title 42. The Public Health and Welfare
Chapter 85. Air Pollution Prevention and Control (Refs & Annos)
Subchapter I. Programs and Activities
Part C. Prevention of Significant Deterioration of Air Quality
Subpart II. Visibility Protection (Refs & Annos)

42 U.S.C.A. § 7492

§ 7492. Visibility

Currentness

(a) Studies

(1) The Administrator, in conjunction with the National Park Service and other appropriate Federal agencies, shall conduct research to identify and evaluate sources and source regions of both visibility impairment and regions that provide predominantly clean air in class I areas. A total of $8,000,000 per year for 5 years is authorized to be appropriated for the Environmental Protection Agency and the other Federal agencies to conduct this research. The research shall include--

(A) expansion of current visibility related monitoring in class I areas;

(B) assessment of current sources of visibility impairing pollution and clean air corridors;

(C) adaptation of regional air quality models for the assessment of visibility;

(D) studies of atmospheric chemistry and physics of visibility.

(2) Based on the findings available from the research required in subsection (a)(1) as well as other available scientific and technical data, studies, and other available information pertaining to visibility source-receptor relationships, the Administrator shall conduct an assessment and evaluation that identifies, to the extent possible, sources and source regions of visibility impairment including natural sources as well as source regions of clear air for class I areas. The Administrator shall produce interim findings from this study within 3 years after November 15, 1990.

(b) Impacts of other provisions

Within 24 months after November 15, 1990, the Administrator shall conduct an assessment of the progress and improvements in visibility in class I areas that are likely to result from the implementation of the provisions of the Clean Air Act Amendments of 1990 other than the provisions of this section. Every 5 years thereafter the Administrator shall conduct an assessment of actual

progress and improvement in visibility in class I areas. The Administrator shall prepare a written report on each assessment and transmit copies of these reports to the appropriate committees of Congress.

(c) Establishment of visibility transport regions and commissions

(1) Authority to establish visibility transport regions

Whenever, upon the Administrator's motion or by petition from the Governors of at least two affected States, the Administrator has reason to believe that the current or projected interstate transport of air pollutants from one or more States contributes significantly to visibility impairment in class I areas located in the affected States, the Administrator may establish a transport region for such pollutants that includes such States. The Administrator, upon the Administrator's own motion or upon petition from the Governor of any affected State, or upon the recommendations of a transport commission established under subsection (b) of this section [1] may--

(A) add any State or portion of a State to a visibility transport region when the Administrator determines that the interstate transport of air pollutants from such State significantly contributes to visibility impairment in a class I area located within the transport region, or

(B) remove any State or portion of a State from the region whenever the Administrator has reason to believe that the control of emissions in that State or portion of the State pursuant to this section will not significantly contribute to the protection or enhancement of visibility in any class I area in the region.

(2) Visibility transport commissions

Whenever the Administrator establishes a transport region under subsection (c)(1), the Administrator shall establish a transport commission comprised of (as a minimum) each of the following members:

(A) the Governor of each State in the Visibility Transport Region, or the Governor's designee;

(B) The [2] Administrator or the Administrator's designee; and

(C) A [2] representative of each Federal agency charged with the direct management of each class I area or areas within the Visibility Transport Region.

(3) Ex officio members

All representatives of the Federal Government shall be ex officio members.

(4) Federal Advisory Committee Act

The visibility transport commissions shall be exempt from the requirements of the Federal Advisory Committee Act.

(d) Duties of visibility transport commissions

A Visibility Transport Commission--

(1) shall assess the scientific and technical data, studies, and other currently available information, including studies conducted pursuant to subsection (a)(1), pertaining to adverse impacts on visibility from potential or projected growth in emissions from sources located in the Visibility Transport Region; and

(2) shall, within 4 years of establishment, issue a report to the Administrator recommending what measures, if any, should be taken under this chapter to remedy such adverse impacts. The report required by this subsection shall address at least the following measures:

(A) the establishment of clean air corridors, in which additional restrictions on increases in emissions may be appropriate to protect visibility in affected class I areas;

(B) the imposition of the requirements of part D of this subchapter affecting the construction of new major stationary sources or major modifications to existing sources in such clean air corridors specifically including the alternative siting analysis provisions of section 7503(a)(5) of this title; and

(C) the promulgation of regulations under section 7491 of this title to address long range strategies for addressing regional haze which impairs visibility in affected class I areas.

(e) Duties of Administrator

(1) The Administrator shall, taking into account the studies pursuant to subsection (a)(1) and the reports pursuant to subsection (d)(2) and any other relevant information, within eighteen months of receipt of the report referred to in subsection (d)(2) of this section, carry out the Administrator's regulatory responsibilities under section 7491 of this title, including criteria for measuring "reasonable progress" toward the national goal.

(2) Any regulations promulgated under section 7491 of this title pursuant to this subsection shall require affected States to revise within 12 months their implementation plans under section 7410 of this title to contain such emission limits, schedules of compliance, and other measures as may be necessary to carry out regulations promulgated pursuant to this subsection.

(f) Grand Canyon visibility transport commission

The Administrator pursuant to subsection (c)(1) shall, within 12 months, establish a visibility transport commission for the region affecting the visibility of the Grand Canyon National Park.

CREDIT(S)

(July 14, 1955, c. 360, Title I, § 169B, as added Pub.L. 101-549, Title VIII, § 816, Nov. 15, 1990, 104 Stat. 2695.)

Notes of Decisions (2)

Footnotes

1 So in original. Words “subsection (b) of this section” probably should be “paragraph (2)”.
2 So in original. Probably should not be capitalized.

42 U.S.C.A. § 7492, 42 USCA § 7492
Current through P.L. 117-102. Some statute sections may be more current, see credits for details.

End of Document

40 C.F.R. § 51.301

Code of Federal Regulations
Title 40. Protection of Environment
Chapter I. Environmental Protection Agency (Refs & Annos)
Subchapter C. Air Programs
Part 51. Requirements for Preparation, Adoption, and Submittal of Implementation Plans (Refs & Annos)
Subpart P. Protection of Visibility (Refs & Annos)

40 C.F.R. § 51.301

§ 51.301 Definitions.

Effective: January 10, 2017
Currentness

For purposes of this subpart:

Adverse impact on visibility means, for purposes of section 307, visibility impairment which interferes with the management, protection, preservation, or enjoyment of the visitor's visual experience of the Federal Class I area. This determination must be made on a case-by-case basis taking into account the geographic extent, intensity, duration, frequency and time of visibility impairments, and how these factors correlate with (1) times of visitor use of the Federal Class I area, and (2) the frequency and timing of natural conditions that reduce visibility. This term does not include effects on integral vistas.

Agency means the U.S. Environmental Protection Agency.

BART–eligible source means an existing stationary facility as defined in this section.

Baseline visibility condition means the average of the five annual averages of the individual values of daily visibility for the period 2000–2004 unique to each Class I area for either the most impaired days or the clearest days.

Best Available Retrofit Technology (BART) means an emission limitation based on the degree of reduction achievable through the application of the best system of continuous emission reduction for each pollutant which is emitted by an existing stationary facility. The emission limitation must be established, on a case-by-case basis, taking into consideration the technology available, the costs of compliance, the energy and nonair quality environmental impacts of compliance, any pollution control equipment in use or in existence 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.

Building, structure, or facility means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control). Pollutant-emitting activities must be considered as part of the same industrial grouping if they belong to the same Major Group (i.e., which have the same two-digit code) as described in the Standard Industrial Classification Manual, 1972 as amended by the 1977 Supplement (U.S. Government Printing Office stock numbers 4101–0066 and 003–005–00176–0 respectively).

Clearest days means the twenty percent of monitored days in a calendar year with the lowest values of the deciview index.

Current visibility condition means the average of the five annual averages of individual values of daily visibility for the most recent period for which data are available unique to each Class I area for either the most impaired days or the clearest days.

Deciview is the unit of measurement on the deciview index scale for quantifying in a standard manner human perceptions of visibility.

Deciview index means a value for a day that is derived from calculated or measured light extinction, such that uniform increments of the index correspond to uniform incremental changes in perception across the entire range of conditions, from pristine to very obscured. The deciview index is calculated based on the following equation (for the purposes of calculating deciview using IMPROVE data, the atmospheric light extinction coefficient must be calculated from aerosol measurements and an estimate of Rayleigh scattering):

Deciview index = 10 ln (b_{ext} /10 Mm^{-1}).

b_{ext} = the atmospheric light extinction coefficient, expressed in inverse megameters (Mm–1).

End of the applicable implementation period means December 31 of the year in which the next periodic comprehensive implementation plan revision is due under § 51.308(f).

Existing stationary facility means any of the following stationary sources of air pollutants, including any reconstructed source, which was not in operation prior to August 7, 1962, and was in existence on August 7, 1977, and has the potential to emit 250 tons per year or more of any air pollutant. In determining potential to emit, fugitive emissions, to the extent quantifiable, must be counted.

Fossil-fuel fired steam electric plants of more than 250 million British thermal units per hour heat input,

Coal cleaning plants (thermal dryers),

Kraft pulp mills,

Portland cement plants,

Primary zinc smelters,

Iron and steel mill plants,

Primary aluminum ore reduction plants,

Primary copper smelters,

Municipal incinerators capable of charging more than 250 tons of refuse per day,

Hydrofluoric, sulfuric, and nitric acid plants,

Petroleum refineries,

Lime plants,

Phosphate rock processing plants,

Coke oven batteries,

Sulfur recovery plants,

Carbon black plants (furnace process),

Primary lead smelters,

Fuel conversion plants,

Sintering plants,

Secondary metal production facilities,

Chemical process plants,

Fossil-fuel boilers of more than 250 million British thermal units per hour heat input,

Petroleum storage and transfer facilities with a capacity exceeding 300,000 barrels,

Taconite ore processing facilities,

Glass fiber processing plants, and

Charcoal production facilities.

Federal Class I area means any Federal land that is classified or reclassified Class I.

Federal Land Manager means the Secretary of the department with authority over the Federal Class I area (or the Secretary's designee) or, with respect to Roosevelt-Campobello International Park, the Chairman of the Roosevelt-Campobello International Park Commission.

Federally enforceable means all limitations and conditions which are enforceable by the Administrator under the Clean Air Act including those requirements developed pursuant to parts 60 and 61 of this title, requirements within any applicable State Implementation Plan, and any permit requirements established pursuant to § 52.21 of this chapter or under regulations approved pursuant to part 51, 52, or 60 of this title.

Fixed capital cost means the capital needed to provide all of the depreciable components.

Fugitive Emissions means those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

Geographic enhancement for the purpose of § 51.308 means a method, procedure, or process to allow a broad regional strategy, such as an emissions trading program designed to achieve greater reasonable progress than BART for regional haze, to accommodate BART for reasonably attributable impairment.

Implementation plan means, for the purposes of this part, any State Implementation Plan, Federal Implementation Plan, or Tribal Implementation Plan.

Indian tribe or tribe means any Indian tribe, band, nation, or other organized group or community, including any Alaska Native village, which is federally recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians.

In existence means that the owner or operator has obtained all necessary preconstruction approvals or permits required by Federal, State, or local air pollution emissions and air quality laws or regulations and either has (1) begun, or caused to begin, a continuous program of physical on-site construction of the facility or (2) entered into binding agreements or contractual obligations, which cannot be cancelled or modified without substantial loss to the owner or operator, to undertake a program of construction of the facility to be completed in a reasonable time.

In operation means engaged in activity related to the primary design function of the source.

Installation means an identifiable piece of process equipment.

Integral vista means a view perceived from within the mandatory Class I Federal area of a specific landmark or panorama located outside the boundary of the mandatory Class I Federal area.

Least impaired days means the twenty percent of monitored days in a calendar year with the lowest amounts of visibility impairment.

Major stationary source and major modification mean major stationary source and major modification, respectively, as defined in § 51.166.

Mandatory Class I Federal Area or Mandatory Federal Class I Area means any area identified in part 81, subpart D of this title.

Most impaired days means the twenty percent of monitored days in a calendar year with the highest amounts of anthropogenic visibility impairment.

Natural conditions reflect naturally occurring phenomena that reduce visibility as measured in terms of light extinction, visual range, contrast, or coloration, and may refer to the conditions on a single day or a set of days. These phenomena include, but are not limited to, humidity, fire events, dust storms, volcanic activity, and biogenic emissions from soils and trees. These phenomena may be near or far from a Class I area and may be outside the United States.

Natural visibility means visibility (contrast, coloration, and texture) on a day or days that would have existed under natural conditions. Natural visibility varies with time and location, is estimated or inferred rather than directly measured, and may have long-term trends due to long-term trends in natural conditions.

Natural visibility condition means the average of individual values of daily natural visibility unique to each Class I area for either the most impaired days or the clearest days.

Potential to emit means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

Prescribed fire means any fire intentionally ignited by management actions in accordance with applicable laws, policies, and regulations to meet specific land or resource management objectives.

Reasonably attributable means attributable by visual observation or any other appropriate technique.

Reasonably attributable visibility impairment means visibility impairment that is caused by the emission of air pollutants from one, or a small number of sources.

Reconstruction will be presumed to have taken place where the fixed capital cost of the new component exceeds 50 percent of the fixed capital cost of a comparable entirely new source. Any final decision as to whether reconstruction has occurred must be made in accordance with the provisions of § 60.15 (f)(1) through (3) of this title.

Regional haze means visibility impairment that is caused by the emission of air pollutants from numerous anthropogenic sources located over a wide geographic area. Such sources include, but are not limited to, major and minor stationary sources, mobile sources, and area sources.

Secondary emissions means emissions which occur as a result of the construction or operation of an existing stationary facility but do not come from the existing stationary facility. Secondary emissions may include, but are not limited to, emissions from ships or trains coming to or from the existing stationary facility.

Significant impairment means, for purposes of § 51.303, visibility impairment which, in the judgment of the Administrator, interferes with the management, protection, preservation, or enjoyment of the visitor's visual experience of the mandatory Class I Federal area. This determination must be made on a case-by-case basis taking into account the geographic extent, intensity, duration, frequency and time of the visibility impairment, and how these factors correlate with (1) times of visitor use of the mandatory Class I Federal area, and (2) the frequency and timing of natural conditions that reduce visibility.

State means “State” as defined in section 302(d) of the CAA.

Stationary Source means any building, structure, facility, or installation which emits or may emit any air pollutant.

Visibility means the degree of perceived clarity when viewing objects at a distance. Visibility includes perceived changes in contrast, coloration, and texture elements in a scene.

Visibility impairment or anthropogenic visibility impairment means any humanly perceptible difference due to air pollution from anthropogenic sources between actual visibility and natural visibility on one or more days. Because natural visibility can only be estimated or inferred, visibility impairment also is estimated or inferred rather than directly measured.

Visibility in any mandatory Class I Federal area includes any integral vista associated with that area.

Wildfire means any fire started by an unplanned ignition caused by lightning; volcanoes; other acts of nature; unauthorized activity; or accidental, human-caused actions, or a prescribed fire that has developed into a wildfire. A wildfire that predominantly occurs on wildland is a natural event.

Wildland means an area in which human activity and development is essentially non-existent, except for roads, railroads, power lines, and similar transportation facilities. Structures, if any, are widely scattered.

Credits
[64 FR 35763, 35773, July 1, 1999; 82 FR 3122, Jan. 10, 2017]

SOURCE: 36 FR 22398, Nov. 25, 1971; 45 FR 80089, Dec. 2, 1980; 52 FR 24712, July 1, 1987; 55 FR 14249, April 17, 1990; 56 FR 42219, Aug. 26, 1991; 57 FR 32334, July 21, 1992; 57 FR 52987, Nov. 5, 1992; 58 FR 38821, July 20, 1993; 60 FR 40100, Aug. 7, 1995; 62 FR 8328, Feb. 24, 1997; 62 FR 43801, Aug. 15, 1997; 62 FR 44903, Aug. 25, 1997; 63 FR 24433, May 4, 1998; 64 FR 35763, July 1, 1999; 65 FR 45532, July 24, 2000; 72 FR 28613, May 22, 2007, unless otherwise noted.

AUTHORITY: 23 U.S.C. 101; 42 U.S.C. 7401–7671q.; Secs. 110, 114, 121, 160–169, 169A, and 301 of the Clean Air Act, (42 U.S.C. 7410, 7414, 7421, 7470–7479, and 7601).

Notes of Decisions (10)

Current through March 24, 2022; 87 FR 16651.

End of Document

40 C.F.R. pt. 51 app. W § 2.1

2.1 Suitability of Models

a. The extent to which a specific air quality model is suitable for the assessment of source impacts depends upon several factors. These include: (1) The topographic and meteorological complexities of the area; (2) the detail and accuracy of the input databases, i.e., emissions inventory, meteorological data, and air quality data; (3) the manner in which complexities of atmospheric processes are handled in the model; (4) the technical competence of those undertaking such simulation modeling; and (5) the resources availableto apply the model. Any of these factors can have a significant influence on the overall model performance, which must be thoroughly evaluated to determine the suitability of an air quality model to a particular application or range of applications.

b. Air quality models are most accurate and reliable in areas that have gradual transitions of land use and topography. Meteorological conditions in these areas are spatially uniform such that observations are broadly representative and air quality model projections are not further complicated by a heterogeneous environment. Areas subject to major topographic influences experience meteorological complexities that are often difficult to measure and simulate. Models with adequate performance are available for increasingly complex environments. However, they are resource intensive and frequently require site-specific observations and formulations. Such complexities and the related challenges for the air quality simulation should be considered when selecting the most appropriate air quality model for an application.

c. Appropriate model input data should be available before an attempt is made to evaluate or apply an air quality model. Assuming the data are adequate, the greater the detail with which a model considers the spatial and temporal variations in meteorological conditions and permit-enforceable emissions, the greater the ability to evaluate the source impact and to distinguish the effects of various control strategies.

d. There are three types of models that have historically been used in the regulatory demonstrations applicable in the Guideline, each having strengths and weaknesses that lend themselves to particular regulatory applications.

i. Gaussian plume models use a “steady-state” approximation, which assumes that over the model time step, the emissions, meteorology and other model inputs, are constant throughout the model domain, resulting in a resolved plume with the emissions distributed throughout the plume according to a Gaussian distribution. This formulation allows Gaussian models to estimate near-field impacts of a limited number of sources at a relatively high resolution, with temporal scales of an hour and spatial scales of meters. However, this formulation allows for only relatively inert pollutants, with very limited considerations of transformation and removal (e.g., deposition), and further limits the domain for which the model may be used. Thus, Gaussian models may not be appropriate if model inputs are changing sharply over the model time step or within the desired model domain, or if more advanced considerations of chemistry are needed.

ii. Lagrangian puff models, on the other hand, are non-steady-state, and assume that model input conditions are changing over the model domain and model time step. Lagrangian models can also be used to determine near- and far-field impacts from a limited number of sources. Traditionally, Lagrangian models have been used for relatively inert pollutants, with slightly more complex considerations of removal than Gaussian models. Some Lagrangian models treat in-plume gas and particulate chemistry. However, these models require time and space varying concentration fields of oxidants and, in the case of fine particulate matter ($PM_{2.5}$), neutralizing agents, such as ammonia. Reliable background fields are critical for applications involving secondary pollutant formation because secondary impacts generally occur when in-plume precursors mix and react with species in the background atmosphere. [7] [8] These oxidant and neutralizing agents are not routinely measured, but can be generated with a three-dimensional photochemical grid model.

iii. Photochemical grid models are three-dimensional Eulerian grid-based models that treat chemical and physical processes in each grid cell and use diffusion and transport processes to move chemical species between grid cells. [9] Eulerian models assume

that emissions are spread evenly throughout each model grid cell. At coarse grid resolutions, Eulerian models have difficulty with fine scale resolution of individual plumes. However, these types of models can be appropriately applied for assessment of near-field and regional scale reactive pollutant impacts from specific sources [7] [10] [11] [12] or all sources. [13] [14] [15] Photochemical grid models simulate a more realistic environment for chemical transformation, [7] [12] but simulations can be more resource intensive than Lagrangian or Gaussian plume models.

e. Competent and experienced meteorologists, atmospheric scientists, and analysts are an essential prerequisite to the successful application of air quality models. The need for such specialists is critical when sophisticated models are used or the area has complicated meteorological or topographic features. It is important to note that a model applied improperly or with inappropriate data can lead to serious misjudgments regarding the source impact or the effectiveness of a control strategy.

f. The resource demands generated by use of air quality models vary widely depending on the specific application. The resources required may be important factors in the selection and use of a model or technique for a specific analysis. These resources depend on the nature of the model and its complexity, the detail of the databases, the difficulty of the application, the amount and level of expertise required, and the costs of manpower and computational facilities.

2.1.1 Model Accuracy and Uncertainty

a. The formulation and application of air quality models are accompanied by several sources of uncertainty. “Irreducible” uncertainty stems from the “unknown” conditions, which may not be explicitly accounted for in the model (e.g., the turbulent velocity field). Thus, there are likely to be deviations from the observed concentrations in individual events due to variations in the unknown conditions. “Reducible” uncertainties [16] are caused by: (1) Uncertainties in the “known” input conditions (e.g., emission characteristics and meteorological data); (2) errors in the measured concentrations; and (3) inadequate model physics and formulation.

b. Evaluations of model accuracy should focus on the reducible uncertainty associated with physics and the formulation of the model. The accuracy of the model is normally determined by an evaluation procedure which involves the comparison of model concentration estimates with measured air quality data. [17] The statement of model accuracy is based on statistical tests or performance measures such as bias, error, correlation, etc. [18] [19]

c. Since the 1980's, the EPA has worked with the modeling community to encourage development of standardized model evaluation methods and the development of continually improved methods for the characterization of model performance. [16] [18] [20] [21] [22] There is general consensus on what should be considered in the evaluation of air quality models; namely, quality assurance planning, documentation and scrutiny should be consistent with the intended use and should include:

• Scientific peer review;

• Supportive analyses (diagnostic evaluations, code verification, sensitivity analyses);

• Diagnostic and performance evaluations with data obtained in trial locations; and

• Statistical performance evaluations in the circumstances of the intended applications.

Performance evaluations and diagnostic evaluations assess different qualities of how well a model is performing, and both are needed to establish credibility within the client and scientific community.

40 C.F.R. pt. 51 app. Y § III

Example: The total potential emissions, obtained by adding the potential emissions of all emission units in a listed category at a plant site, are as follows:

200 tons/yr SO_2

150 tons/yr NO_X

25 tons/yr PM

Even though total emissions exceed 250 tons/yr, no individual regulated pollutant exceeds 250 tons/yr and this source is not BART–eligible.

Can States establish de minimis levels of emissions for pollutants at BART–eligible sources?

In order to simplify BART determinations, States may choose to identify de minimis levels of pollutants at BART–eligible sources (but are not required to do so). De minimis values should be identified with the purpose of excluding only those emissions so minimal that they are unlikely to contribute to regional haze. Any de minimis values that you adopt must not be higher than the PSD applicability levels: 40 tons/yr for SO_2 and NO_X and 15 tons/yr for PM_{10} . These de minimis levels may only be applied on a plant-wide basis.

III. How to Identify Sources "Subject to BART"

Once you have compiled your list of BART–eligible sources, you need to determine whether (1) to make BART determinations for all of them or (2) to consider exempting some of them from BART because they may not reasonably be anticipated to cause or contribute to any visibility impairment in a Class I area. If you decide to make BART determinations for all the BART–eligible sources on your list, you should work with your regional planning organization (RPO) to show that, collectively, they cause or contribute to visibility impairment in at least one Class I area. You should then make individual BART determinations by applying the five statutory factors discussed in Section IV below.

On the other hand, you also may choose to perform an initial examination to determine whether a particular BART–eligible source or group of sources causes or contributes to visibility impairment in nearby Class I areas. If your analysis, or information submitted by the source, shows that an individual source or group of sources (or certain pollutants from those sources) is not reasonably anticipated to cause or contribute to any visibility impairment in a Class I area, then you do not need to make BART determinations for that source or group of sources (or for certain pollutants from those sources). In such a case, the source is not "subject to BART" and you do not need to apply the five statutory factors to make a BART determination. This section of the Guideline discusses several approaches that you can use to exempt sources from the BART determination process.

A. What Steps Do I Follow To Determine Whether a Source or Group of Sources Cause or Contribute to Visibility Impairment for Purposes of BART?

1. How Do I Establish a Threshold?

One of the first steps in determining whether sources cause or contribute to visibility impairment for purposes of BART is to establish a threshold (measured in deciviews) against which to measure the visibility impact of one or more sources. A single source that is responsible for a 1.0 deciview change or more should be considered to "cause" visibility impairment; a source that causes less than a 1.0 deciview change may still contribute to visibility impairment and thus be subject to BART.

Because of varying circumstances affecting different Class I areas, the appropriate threshold for determining whether a source "contributes to any visibility impairment" for the purposes of BART may reasonably differ across States. As a general matter,

any threshold that you use for determining whether a source "contributes" to visibility impairment should not be higher than 0.5 deciviews.

In setting a threshold for "contribution," you should consider the number of emissions sources affecting the Class I areas at issue and the magnitude of the individual sources' impacts. [5] In general, a larger number of sources causing impacts in a Class I area may warrant a lower contribution threshold. States remain free to use a threshold lower than 0.5 deciviews if they conclude that the location of a large number of BART–eligible sources within the State and in proximity to a Class I area justify this approach. [6]

2. What Pollutants Do I Need To Consider?

You must look at SO_2, NO_X, and direct particulate matter (PM) emissions in determining whether sources cause or contribute to visibility impairment, including both PM_{10} and $PM_{2.5}$. Consistent with the approach for identifying your BART–eligible sources, you do not need to consider less than de minimis emissions of these pollutants from a source.

As explained in section II, you must use your best judgement to determine whether VOC or ammonia emissions are likely to have an impact on visibility in an area. In addition, although as explained in Section II, you may use PM_{10} an indicator for particulate matter in determining whether a source is BART–eligible, in determining whether a source contributes to visibility impairment, you should distinguish between the fine and coarse particle components of direct particulate emissions. Although both fine and coarse particulate matter contribute to visibility impairment, the long-range transport of fine particles is of particular concern in the formation of regional haze. Air quality modeling results used in the BART determination will provide a more accurate prediction of a source's impact on visibility if the inputs into the model account for the relative particle size of any directly emitted particulate matter (i.e. PM_{10} vs. $PM_{2.5}$).

3. What Kind of Modeling Should I Use To Determine Which Sources and Pollutants Need Not Be Subject to BART?

This section presents several options for determining that certain sources need not be subject to BART. These options rely on different modeling and/or emissions analysis approaches. They are provided for your guidance. You may also use other reasonable approaches for analyzing the visibility impacts of an individual source or group of sources.

Option 1: Individual Source Attribution Approach (Dispersion Modeling)

You can use dispersion modeling to determine that an individual source cannot reasonably be anticipated to cause or contribute to visibility impairment in a Class I area and thus is not subject to BART. Under this option, you can analyze an individual source's impact on visibility as a result of its emissions of SO_2, NO_X and direct PM emissions. Dispersion modeling cannot currently be used to estimate the predicted impacts on visibility from an individual source's emissions of VOC or ammonia. You may use a more qualitative assessment to determine on a case-by-case basis which sources of VOC or ammonia emissions may be likely to impair visibility and should therefore be subject to BART review, as explained in section II.A.3. above.

You can use CALPUFF [7] or other appropriate model to predict the visibility impacts from a single source at a Class I area. CALPUFF is the best regulatory modeling application currently available for predicting a single source's contribution to visibility impairment and is currently the only EPA–approved model for use in estimating single source pollutant concentrations resulting from the long range transport of primary pollutants. [8] It can also be used for some other purposes, such as the visibility assessments addressed in today's rule, to account for the chemical transformation of SO_2 and NO_X .

There are several steps for making an individual source attribution using a dispersion model:

1. Develop a modeling protocol. Some critical items to include in the protocol are the meteorological and terrain data that will be used, as well as the source-specific information (stack height, temperature, exit velocity, elevation, and emission rates of applicable pollutants) and receptor data from appropriate Class I areas. We recommend following EPA's Interagency Workgroup on Air Quality Modeling (IWAQM) Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts [9] for parameter settings and meteorological data inputs. You may use other settings from those in IWAQM, but you should identify these settings and explain your selection of these settings.

One important element of the protocol is in establishing the receptors that will be used in the model. The receptors that you use should be located in the nearest Class I area with sufficient density to identify the likely visibility effects of the source. For other Class I areas in relatively close proximity to a BART–eligible source, you may model a few strategic receptors to determine whether effects at those areas may be greater than at the nearest Class I area. For example, you might chose to locate receptors at these areas at the closest point to the source, at the highest and lowest elevation in the Class I area, at the IMPROVE monitor, and at the approximate expected plume release height. If the highest modeled effects are observed at the nearest Class I area, you may choose not to analyze the other Class I areas any further as additional analyses might be unwarranted.

You should bear in mind that some receptors within the relevant Class I area may be less than 50 km from the source while other receptors within that same Class I area may be greater than 50 km from the same source. As indicated by the Guideline on Air Quality Models, 40 CFR part 51, appendix W, this situation may call for the use of two different modeling approaches for the same Class I area and source, depending upon the State's chosen method for modeling sources less than 50 km. In situations where you are assessing visibility impacts for source-receptor distances less than 50 km, you should use expert modeling judgment in determining visibility impacts, giving consideration to both CALPUFF and other appropriate methods.

In developing your modeling protocol, you may want to consult with EPA and your regional planning organization (RPO). Up-front consultation will ensure that key technical issues are addressed before you conduct your modeling.

2. With the accepted protocol and compare the predicted visibility impacts with your threshold for “contribution.” You should calculate daily visibility values for each receptor as the change in deciviews compared against natural visibility conditions. You can use EPA's “Guidance for Estimating Natural Visibility Conditions Under the Regional Haze Rule,” EPA–454/B–03–005 (September 2003) in making this calculation. To determine whether a source may reasonably be anticipated to cause or contribute to visibility impairment at Class I area, you then compare the impacts predicted by the model against the threshold that you have selected.

The emissions estimates used in the models are intended to reflect steady-state operating conditions during periods of high capacity utilization. We do not generally recommend that emissions reflecting periods of start-up, shutdown, and malfunction be used, as such emission rates could produce higher than normal effects than would be typical of most facilities. We recommend that States use the 24 hour average actual emission rate from the highest emitting day of the meteorological period modeled, unless this rate reflects periods start-up, shutdown, or malfunction. In addition, the monthly average relative humidity is used, rather than the daily average humidity—an approach that effectively lowers the peak values in daily model averages.

For these reasons, if you use the modeling approach we recommend, you should compare your “contribution” threshold against the 98th percentile of values. If the 98th percentile value from your modeling is less than your contribution threshold, then you may conclude that the source does not contribute to visibility impairment and is not subject to BART.

Option 2: Use of Model Plants To Exempt Individual Sources With Common Characteristics

Under this option, analyses of model plants could be used to exempt certain BART–eligible sources that share specific characteristics. It may be most useful to use this type of analysis to identify the types of small sources that do not cause or contribute to visibility impairment for purposes of BART, and thus should not be subject to a BART review. Different Class I

areas may have different characteristics, however, so you should use care to ensure that the criteria you develop are appropriate for the applicable cases.

In carrying out this approach, you could use modeling analyses of representative plants to reflect groupings of specific sources with important common characteristics. Based on these analyses, you may find that certain types of sources are clearly anticipated to cause or contribute to visibility impairment. You could then choose to categorically require those types of sources to undergo a BART determination. Conversely, you may find based on representative plant analyses that certain types of sources are not reasonably anticipated to cause or contribute to visibility impairment. To do this, you may conduct your own modeling to establish emission levels and distances from Class I areas on which you can rely to exempt sources with those characteristics. For example, based on your modeling you might choose to exempt all NO_X -only sources that emit less than a certain amount per year and are located a certain distance from a Class I area. You could then choose to categorically exempt such sources from the BART determination process.

Our analyses of visibility impacts from model plants provide a useful example of the type of analyses that can be used to exempt categories of sources from BART. [10] In our analyses, we developed model plants (EGUs and non–EGUs), with representative plume and stack characteristics, for use in considering the visibility impact from emission sources of different sizes and compositions at distances of 50, 100 and 200 kilometers from two hypothetical Class I areas (one in the East and one in the West). As the plume and stack characteristics of these model plants were developed considering the broad range of sources within the EGU and non–EGU categories, they do not necessarily represent any specific plant. However, the results of these analyses are instructive in the development of an exemption process for any Class I area.

In preparing our analyses, we have made a number of assumptions and exercised certain modeling choices; some of these have a tendency to lend conservatism to the results, overstating the likely effects, while others may understate the likely effects. On balance, when all of these factors are considered, we believe that our examples reflect realistic treatments of the situations being modeled. Based on our analyses, we believe that a State that has established 0.5 deciviews as a contribution threshold could reasonably exempt from the BART review process sources that emit less than 500 tons per year of NO_X or SO_2 (or combined NO_X and SO_2), as long as these sources are located more than 50 kilometers from any Class I area; and sources that emit less than 1000 tons per year of NO_X or SO_2 (or combined NO_X and SO_2) that are located more than 100 kilometers from any Class I area. You do, however, have the option of showing other thresholds might also be appropriate given your specific circumstances.

Option 3: Cumulative Modeling To Show That No Sources in a State Are Subject to BART

You may also submit to EPA a demonstration based on an analysis of overall visibility impacts that emissions from BART–eligible sources in your State, considered together, are not reasonably anticipated to cause or contribute to any visibility impairment in a Class I area, and thus no source should be subject to BART. You may do this on a pollutant by pollutant basis or for all visibility-impairing pollutants to determine if emissions from these sources contribute to visibility impairment.

For example, emissions of SO_2 from your BART–eligible sources may clearly cause or contribute to visibility impairment while direct emissions of $PM_{2.5}$ from these sources may not contribute to impairment. If you can make such a demonstration, then you may reasonably conclude that none of your BART–eligible sources are subject to BART for a particular pollutant or pollutants. As noted above, your demonstration should take into account the interactions among pollutants and their resulting impacts on visibility before making any pollutant-specific determinations.

Analyses may be conducted using several alternative modeling approaches. First, you may use the CALPUFF or other appropriate model as described in Option 1 to evaluate the impacts of individual sources on downwind Class I areas, aggregating those impacts to determine the collective contribution of all BART–eligible sources to visibility impairment. You may also use a photochemical grid model. As a general matter, the larger the number of sources being modeled, the more appropriate it may be to use a photochemical grid model. However, because such models are significantly less sensitive than dispersion

models to the contributions of one or a few sources, as well as to the interactions among sources that are widely distributed geographically, if you wish to use a grid model, you should consult with the appropriate EPA Regional Office to develop an appropriate modeling protocol.

IV. The BART Determination: Analysis of BART Options

This section describes the process for the analysis of control options for sources subject to BART.

A. What factors must I address in the BART review?

The visibility regulations define BART as follows:

Best Available Retrofit Technology (BART) means an emission limitation based on the degree of reduction achievable through the application of the best system of continuous emission reduction for each pollutant which is emitted by . . . [a BART–eligible source]. The emission limitation must be established, on a case-by-case basis, taking into consideration the technology available, the costs of compliance, the energy and non-air quality environmental impacts of compliance, any pollution control equipment in use or in existence 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.

The BART analysis identifies the best system of continuous emission reduction taking into account:

(1) The available retrofit control options,

(2) Any pollution control equipment in use at the source (which affects the availability of options and their impacts),

(3) The costs of compliance with control options,

(4) The remaining useful life of the facility,

(5) The energy and non-air quality environmental impacts of control options

(6) The visibility impacts analysis.

B. What is the scope of the BART review?

Once you determine that a source is subject to BART for a particular pollutant, then for each affected emission unit, you must establish BART for that pollutant. The BART determination must address air pollution control measures for each emissions unit or pollutant emitting activity subject to review.

Example: Plantwide emissions from emission units within the listed categories that began operation within the “time window” for BART [11] are 300 tons/yr of NO_X, 200 tons/yr of SO_2, and 150 tons/yr of primary particulate. Emissions unit A emits 200 tons/yr of NO_X, 100 tons/yr of SO_2, and 100 tons/yr of primary particulate. Other emission units, units B through H, which began operating in 1966, contribute lesser amounts of each pollutant. For this example, a BART review is required for NO_X, SO_2, and primary particulate, and control options must be analyzed for units B through H as well as unit A.

C. How does a BART review relate to Maximum Achievable Control Technology (MACT) Standards under CAA section 112, or to other emission limitations required under the CAA?