EARTHJUSTICE

ALASKA CALIFORNIA FLORIDA MID-PACIFIC NORTHEAST NORTHERN ROCKIES
NORTHWEST ROCKY MOUNTAIN WASHINGTON, DC INTERNATIONAL

February 28, 2011

Attention Docket ID No. EPA-HQ-OAR-2011-0729

Regarding: Regional Haze: Revisions to Provisions Governing Alternatives to Source-Specific Best Available Retrofit Technology (BART) Determinations, Limited SIP Disapprovals, and Federal Implementation Plans; Proposed Rule; 76 Fed. Reg. 82219 (Dec. 30, 2011)

INTRODUCTION

On behalf of the National Parks Conservation Association, Sierra Club, Altahama Riverkeeper, Appalachian Mountain Club, Environmental Law & Policy Center, Fall-line Alliance for a Clean Environment, Friends of the Chattahoochee, GreenLaw, Midwest Environmental Defense Center, Minnesota Center for Environmental Advocacy, Natural Resources Defense Council, Ogeechee Riverkeeper, Respiratory Health Association of Metropolitan Chicago, Southern Alliance for Clean Energy, Southern Environmental Law Center, and Wiregrass Energy Network, we thank you for considering these comments on the Environmental Protection Agency's recent proposal (1) to exempt states subject to the Cross-State Air Pollution Rule ("CSAPR" or the "Transport Rule") from applying source-specific Best Available Retrofit Technology ("BART") requirements under the Clean Air Act's regional haze program; and (2) to disapprove in part the regional haze State Implementation Plans ("SIPs") submitted by Alabama, Florida, Georgia, Indiana, Iowa, Louisiana, Michigan, Mississippi, Missouri, North Carolina, Ohio, Pennsylvania, South Carolina, and Texas to the extent those SIPs relied on CAIR, and adopt Federal Implementation Plans ("FIPs") for those states, replacing reliance on CAIR with CSAPR.

For the reasons explained below, EPA cannot exempt states from evaluating and applying source-specific BART consistent with the Clean Air Act. The plain language of the Act requires installation and operation of BART to achieve reasonable progress toward meeting the national goal of eliminating visibility impairment at Class I areas. *See* Clean Air Act ("CAA") § 169A(b)(2)(A), 42 U.S.C. § 7491(b)(2)(A). Even if it were legally permissible for EPA to authorize states to rely on an alternative program to opt out of BART, CSAPR cannot substitute for BART for several readily apparent reasons:

- CSAPR is currently the subject of a legal challenge, and the D.C. Circuit Court of Appeals has stayed implementation of the rule. Unless the stay is lifted, EPA cannot rely on CSAPR either to approve SIPs or FIPs that fail to apply unit-specific BART requirements.

- Since the publication of its CSAPR "better-than-BART" rule, EPA has weakened the CSAPR rule by providing several states with larger pollution allocations. EPA has yet to undertake any analysis demonstrating that CSAPR as revised is better than BART.

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- EPA has not evaluated or determined each state's reasonable progress goals, and thus cannot reasonably conclude that CSAPR achieves greater reasonable progress than BART. 40 C.F.R. § 51.308(d), (e)(3).

- Governing regulations require that BART alternatives provide emission reductions surplus to those resulting from programs implemented to meet other requirements of the Clean Air Act. *See* 40 C.F.R. § 51.308(e)(2)(iv). CSAPR, as a program implemented to meet § 110 of the Clean Air Act, cannot satisfy this requirement.

Even putting aside these issues, each of which is dispositive, EPA has failed to establish that CSAPR will achieve greater reasonable progress than BART in keeping with the agency's own criteria under existing regulations. In determining whether an alternative program with a substantially different emissions distribution is "better than BART," EPA rules demand a showing based on dispersion modeling that: (1) "visibility does not decline in any Class I area;" and (2) "[t]here is an overall improvement in visibility, determined by comparing the average differences between BART and the alternative over all affected Class I areas." 40 C.F.R. § 51.308(e)(3). EPA has yet to provide a satisfactory demonstration that substituting participation in CSAPR for source-specific BART controls will satisfy either condition. Fundamentally, flaws in EPA's methodology preclude the agency from reaching a credible conclusion that CSPAR is better than BART.

In this regard, EPA improperly averaged visibility improvements across all Class I areas, instead of undertaking the state-by-state analysis required by its own regulations. *See* 40 C.F.R. § 51.308(e)(2)(i) (requiring "[a] demonstration that the emissions trading program or other alternative measure will achieve greater reasonable progress than would have resulted from the installation and operation of BART at all sources subject to BART *in the State* and covered by the alternative program"). Given that an emissions trading program necessarily carries the risk of creating pollution hot spots, spatial averaging of emissions across the broad swath of the 28 CSAPR states cannot provide any assurance of reliable state-by-state emissions reductions needed to achieve visibility improvement.

Further, EPA's analysis precludes a fair comparison between application of BART and sole reliance on CSAPR instead. In comparing the visibility impacts attributable to CSAPR and BART respectively, EPA modeled an artificial BART scenario in which nationwide BART would apply without CSAPR. As CSAPR is independently required by Section 110 of the Clean Air Act and will apply in any case (assuming it withstands legal challenge), it is incumbent on EPA to evaluate what BART would add to CSAPR in the way of emission reductions that could contribute to reasonable progress.

EPA also discounted the improvement that would be seen under a Nationwide BART scenario by failing to model emission limits that actually reflect BART. Instead, EPA relied on outdated presumptive BART limits that fail to account for significant advances in air pollution control technologies that have prompted the agency itself to impose far more stringent BART determinations. In many cases, EPA did not actually calculate presumptive BART in the manner it purported to do and instead arbitrarily assumed limits that are far less stringent even than lax presumptive BART limits.

In addition, EPA used a base case that ignores emissions reductions already achieved by other federal and state air programs and enforcement actions. These omissions in the base case further operate to give CSAPR an artificial and unfair advantage over BART in EPA's analysis. These and other issues are discussed in further detail below.

Finally, EPA cannot approve partial FIPs for Alabama, Florida, Georgia, Indiana, Iowa, Louisiana, Michigan, Mississippi, Missouri, North Carolina, Ohio, Pennsylvania, South Carolina, and Texas in reliance on CSAPR. EPA has not demonstrated that any of these states can meet reasonable progress goals without imposing BART requirements on power plants. Because each regional haze SIP or FIP must set forth a comprehensive plan for attaining natural visibility conditions by 2064, EPA cannot evaluate a BART exemption in isolation, without reference to reasonable progress goals and the other measure in place in each state to meet those goals. *See* CAA § 169A(b)(2)(A), 42 U.S.C. § 7491(b)(2)(A); 40 C.F.R. §§ 51.308(d), (e). Moreover, for all of the reasons listed above and discussed in further detail below, EPA cannot lawfully approve FIPs that rely on CSPAR as a substitute for BART.

I. BACKGROUND

A. The Clean Air Act's Visibility Program: Protecting Public Lands and People

The Clean Air Act's visibility program requires clean up of visible air pollution at the country's national parks, wilderness areas, and other premier public lands, encompassing a total of 156 protected "Class I Areas" that include many of the nation's most iconic vistas. Preservation of these views has an obvious and demonstrable intrinsic value; as National Park Service studies confirm, visitors' enjoyment of a national park is tied to visibility.[1] Preserving visibility also helps sustain the healthy tourism industry centered on visits to the nation's landmarks. The same National Parks Service studies demonstrate that visibility conditions affect the amount of time and money visitors are willing to spend at national parks.[2] In 2010 alone, national parks tourism contributed approximately $31 billion to the United States economy, sustaining over 250,000 jobs.[3]

Notwithstanding the recognized value of our Class I Areas, EPA has recognized that longstanding visibility problems continue to mar the landscape and obscure views of our most treasured —and economically important— landmarks. For example, in the preamble to the proposed "better than BART" rulemaking, EPA explained that data from the existing visibility monitoring network shows that visibility is impaired "virtually *all the time* at most national park

[1] National Parks Service, Visibility Effects of Air Pollution: Importance of Visual Air Quality to Visitor Experience, http://www.nature.nps.gov/air/AQBasics/visibility.cfm (last accessed February 13, 2012).
[2] *Id.*
[3] Southwick Associates, *The Economics Associated with Outdoor Recreation, Natural Resources Conservation and Historic Preservation in the United States*, at 17 (October 10, 2011), *available at* www.nfwf.org/Content/ContentFolders/NationalFishandWildlifeFoundation/HomePage/ConservationSpotlights/TheEconomicValueofOutdoorRecreation.pdf; United States Department of the Interior, Office of Policy Analysis, *The Department of the Interior's Economic Contributions*, at 9 (June 21, 2011), *available at* www.doi.gov/ppa/upload/DOI-Econ-Report-6-21-2011.pdf.

and wilderness areas."[4] Visibility in the western United States is about 60-100 miles, or half to two-thirds what it would be in the absence of anthropogenic air pollution, whereas in the eastern United States, the average visual range is less than 20 miles, or approximately one-fifth of the visibility range under natural conditions.[5]

Without a strong commitment to the Clean Air Act's visibility program, these problems will persist indefinitely. Despite expansion of the visibility program to address regional haze in 1999, progress has been slow, and thirteen years later, the states and EPA are still working to develop and finalize statewide regional haze plans for achieving visibility goals. Thus it is deeply regrettable, but not surprising, that the National Parks Service estimates that visibility conditions at approximately 90% of 241 studied national parks are showing no significant improvement or degradation on the haziest days, while approximately 70% are showing no significant improvement or degradation in visibility on the clearest days.[6] More troubling, the study also indicates that there is a significant decline in visibility at approximately 3% of the surveyed national parks on the haziest days.[7]

While the visibility program is designed to restore priceless vistas across the country, it also provides important ancillary health benefits as well. Haze-forming pollutants, including fine particles and their precursors sulfur dioxide and nitrogen oxides, also contribute to health problems. Any program that requires controls to target and reduce these pollutants will also improve public health. For example, exposure to fine particles has been linked to a variety of health issues, including increased respiratory symptoms, decreased lung function, aggravated asthma, development of chronic bronchitis, irregular heartbeat, nonfatal heart attacks, and premature death in people with heart or lung disease.[8] Likewise, sulfur dioxide is associated with serious lung ailments, and can even result in premature death,[9] while nitrogen oxides are a precursor to ground level ozone, or smog, which can reduce lung function and increase respiratory symptoms as well as respiratory-related emergency department visits, hospital admissions, and possibly premature deaths.[10] In 2011, there were more than 262 exceedances of the EPA's ozone air pollution standard at national parks—the highest number of exceedances since 2008.[11] Even healthy adults are urged to limit outdoor exercise on days with high ozone.[12] Given the overlap between the haze forming pollutants and the serious health problems they are known to cause, EPA has estimated that in 2015, the Regional Haze Rule will prevent 1,600

[4] Regional Haze: Revisions to Provisions Governing Alternatives to Source-Specific Best Available Retrofit Technology (BART) Determinations, Limited SIP Disapprovals, and Federal Implementation Plans; Proposed Rule; 76 Fed. Reg. 82219, 82221 (Dec. 30, 2011) (emphasis added).
[5] *Id.* at 82221-82222 (citing 64 Fed. Reg. 35715 (July 1, 1999)).
[6] National Parks Service, Air Quality in National Parks: 2009 Annual Performance & Progress Report, Natural Resource Report NPS/NRPC/ARD/NRR-2010/266, at Table 1.
[7] *Id.*
[8] United States EPA, Particulate Matter, Health http://www.epa.gov/pm/health.html.
[9] United States EPA, Sulfur Dioxide, Health, http://www.epa.gov/air/sulfurdioxide/health.html.
[10] United States EPA, Nitrogen Dioxide, Health, http://www.epa.gov/air/nitrogenoxides/health.html.
[11] Compare National Park Service, Ozone Standard Exceedances in National Parks, http://www.nature.nps.gov/air/monitoring/exceed.cfm with National Park Service, 2008 Ozone Standard Exceedances in National Parks, http://www.nature.nps.gov/air/monitoring/exceed2008.cfm.
[12] *See* note 10, *supra*.

premature deaths, 2,200 non-fatal heart attacks, 960 hospital admissions, and over 1 million lost school and work days — benefits valued at $8.4 to $9.8 billion annually.[13]

B. Visibility Protection Under the Clean Air Act

Recognizing that manmade haze diminishes visibility and degrades the integrity of many of the nation's national parks and wilderness areas, Congress in 1977 amended the Clean Air Act, "declar[ing] as a national goal the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory class I Federal areas which impairment results from manmade air pollution." *See* CAA § 169A(a)(1), 42 U.S.C. § 7491(a)(1); *see also* 40 C.F.R. pt. 81, subpt. D (listing the 156 protected Class I areas, including certain national parks, wilderness areas, and national memorial parks, as well as certain international parks). Among other things, Congress mandated that EPA adopt regulations that would require states to develop SIPs containing measures necessary to make reasonable progress toward the national goal of improving visibility, including installation and operation of BART at BART-eligible sources[14] that could be reasonably anticipated to cause or contribute to visibility impairment. CAA §§ 169A(a)(4), (b)(2)(A), 42 U.S.C. §§ 7491(a)(4), (b)(2)(A).

EPA's visibility program initially focused on controlling plume blight, or visibility degradation caused by air pollution reasonably attributable to a source or small group of sources. To address plume blight, EPA required installation of BART at sources to which visibility impairment at the Class I areas could be reasonably attributed. Under the regulations, 36 states containing Class I areas were required to determine which existing stationary sources should install and operate BART for controlling pollutants that impair visibility. *See* Visibility Protection for Federal Class I Areas, 45 Fed. Reg. 80084, 80086 (Dec. 2, 1980). The Federal Land Managers play an important role in assessing the need for BART in this context; if a Federal Land Manager certifies to the state that there exists reasonably attributable impairment of visibility in any Class I area, then, at least 6 months prior to the state's SIP submission or revision, the state is required to identify and analyze BART for those sources and, where appropriate, require installation BART as expeditiously as practicable. *See* 40 C.F.R. § 51.302(c)(1); *id.* § 51.302(c)(4). This provision for addressing reasonably attributable visibility impairment or RAVI[15] laid the groundwork for reaching the national goal or restoring natural visibility. From the outset, however, EPA acknowledged that RAVI BART could only take the nation so far toward remedying the visibility problem at our nation's Class I areas. In the original rulemaking, the agency explained that widespread, regionally homogenous haze also impaired visibility, but it deferred action on regional haze until the agency had better monitoring,

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[13] *See* United States EPA, Visibility, Fact Sheet - Final Amendments to the Regional Haze Rule and Guidelines for Best Available Retrofit Technology (BART) Determinations, *available at* http://www.epa.gov/visibility/fs_2005_6_15.html.

[14] A source is BART-eligible if it is a stationary source within one of 26 enumerated categories, was not in operation before August 7, 1962 but was in existence on August 7, 1977, and has the potential to emit 250 tons per year or more of any pollutant. CAA § 169A(b)(2)(A), (g)(7), 42 U.S.C. § 7491(b)(2)(A), (g)(7).

[15] "Reasonably attributable visibility impairment" is "visibility impairment that is caused by the emission of air pollutants from one, or a small number of sources." 40 C.F.R. § 51.301. Visibility impairment, in turn, is "any humanly perceptible change in visibility (light extinction, visual range, contrast, coloration) from that which would have existed under natural conditions." *Id.*

modeling, and scientific knowledge about the relationship between emission of certain pollutants and visibility. *See* 45 Fed. Reg. at 80086.

In 1999, as promised, EPA expanded the visibility program, promulgating the Regional Haze Rule. *See* Regional Haze Regulations, 64 Fed. Reg. 35714 (July 1, 1999). Under that Rule, states are directed to submit SIPs containing emissions limitations representing BART and schedules for compliance for each BART-eligible source that may be anticipated to cause or contribute to any visibility impairment in a Class I area. *See* 40 C.F.R. § 51.308(e). BART is determined for each source based on a case-by-case analysis. *Id.* § 51.308(e)(1)(ii). With the adoption of the regional haze rule, in addition to RAVI BART, a source may have to install and operate BART as required to combat regional haze (as differentiated from plume blight).

Implementation of the Regional Haze Rule has lagged since many states fell behind in their duty to develop Regional Haze SIPs, triggering EPA's duty to step in and impose FIPs. Now, EPA is proposing to further undermine implementation of the Act's haze clean-up mandates by skipping evaluation and implementation of source-specific BART in all 28 states where the CSAPR emissions trading program applies.

C. CSAPR

CSAPR is designed to reduce emissions of air pollutants that affect the ability of downwind states to attain and maintain compliance with the 1997 and 2006 fine particulate National Ambient Air Quality Standards ("NAAQS") and the 1997 ozone NAAQS. *See* Federal Implementation Plans: Interstate Transport of Fine Particulate Matter and Ozone and Correction of SIP approvals, 76 Fed. Reg. 48208, 48208 (Aug. 11, 2011). CSAPR, like its predecessor, the Clean Air Interstate Rule ("CAIR"),[16] was promulgated to satisfy the requirements in Section 110(a)(2)(D)(i)(I) of the Clean Air Act. *See* 42 U.S.C. § 7410(a)(2)(D)(i)(I).

To reduce interstate pollution that currently precludes attainment of the NAAQS, CSAPR establishes trading programs covering sulfur dioxide ("SO_2") and nitrogen oxide ("NOx") emissions from electric generating units ("EGUs"), including two separate programs addressing annual SO_2 emissions; a program addressing annual NOx emissions; and a program addressing NOx emissions during the ozone season, which runs from May through September. *See* 76 Fed. Reg. at 48271-72. Under each of these programs, EPA established an overall emission budget for each covered state, which is then apportioned among the covered power plants within the state via allowances. *See id.* at 48271, 48284. The plants can either reduce their emissions to meet their allowance budget or purchase allowances from other sources covered by the same relevant CSAPR program, whether or not they are located within the same state. *Id.* at 48271-72. CSAPR thus allows both intra- and inter-state trading. If emissions exceed allowances, a source is liable for penalties. *See id.* at 48296. Further, penalties may be imposed on sources that contribute to a state's exceedance of its "assurance level," which is the sum of the state's emissions allocation plus an additional buffer allocation for emissions variability. *I See id.* at 48294-96.

[16] The D.C. Circuit Court of Appeals remanded the rule to EPA, without vacatur, allowing CAIR to remain in effect until it is replaced by a rule consistent with the Court's opinion. *See North Carolina v. EPA*, 550 F.3d 1176 (D.C. Cir. 2008), *modifying* 531 F.3d 896 (D.C. Cir. 2008).

This regulatory design seeks to achieve broad regional-scale emissions reductions from power plants. As a matter of course though, CSAPR's trading programs do not prescribe where these emissions reductions will occur within a state. Rather, CSAPR allows individual power plants—including those subject to BART—to buy emissions allowances in lieu of reducing emissions. Thus, CSAPR does not guarantee emissions reductions, or even prevent emission increases, at the plants that cause or contribute to regional haze problems at Class I areas.

Currently, the CSAPR states are subject to the rule's trading programs under FIPs that were finalized along with the rule itself, but States have the option of replacing the FIPs with SIPs. Before the D.C. Circuit Court of Appeals issued its stay, compliance with CSAPR was scheduled to commence on January 1, 2012 for SO_2 and annual NOx reductions and on May 1, 2012 for ozone season NOx reductions. *See* 76 Fed. Reg. at 48211; *EME Homer City Generation, L.P. v. EPA*, No. 11-1302, Order (D.C. Cir. Dec. 30, 2011) (staying CSAPR). On January 1, 2014, CSAPR would impose more stringent requirements to reduce SO_2 emissions for states within the SO_2 Group 1 trading program, which covers those states that EPA determined are the greatest contributors to air quality problems in downwind areas. *See* 76 Fed. Reg. at 48211, 48320.

II. THE PLAIN LANGUAGE OF THE CLEAN AIR ACT PRECLUDES RELIANCE ON CSAPR TO EXEMPT SOURCES FROM BART

EPA cannot consistent with the plain language of the Clean Air Act authorize states to rely on CSAPR to opt out of BART. Nor can EPA satisfy its FIP obligations (as proposed at 76 Fed. Reg. at 82221) by promulgating a FIP that substitutes CSAPR for BART in each state where a haze FIP is required. Under the Clean Air Act, BART is a mandatory measure that must be implemented to achieve reasonable progress toward restoration of natural visibility conditions. Section 169A(b)(2)(A) expressly requires states to adopt SIPs that "contain such emission limits, schedules of compliance and other measures as may be necessary to make reasonable progress toward meeting the national goal . . . *including*" installation and operation of BART at "*each*" BART-eligible source that emits "*any"* air pollutant which may reasonably be anticipated to cause or contribute to "*any*" impairment of visibility in "*any*" Class I area. *See* CAA § 169A(b)(2)(A), 42 U.S.C. § 7491(b)(2)(A) (emphasis added). The only permissible exemption from BART is expressly set forth in § 169A(c). *See* CAA § 169A(c), 42 U.S.C. § 7491(c). Under § 169A(c), a source can be exempt from BART only if EPA, by rule promulgated with sufficient notice and opportunity for public comment, determines that the source does not either by itself or in combination with other sources "emit any air pollutant which may reasonably be anticipated to cause or contribute to a significant impairment of visibility in any mandatory class I federal area." CAA § 169A(c)(1), 42 U.S.C. § 7491(c)(1). Further, EPA cannot exempt a fossil-fuel fired power plant with a design capacity of 750 megawatts or more, unless the owner or operator of the plant can demonstrate that the power plant is located far enough away from the class I areas and "does not or will not" by itself or in conjunction with other facilities cause or contribute to visibility impairment. CAA § 169A(c)(2), 42 U.S.C. § 7491(c)(2). Finally, the appropriate Federal Land Manager or Managers must agree with the exemption before it can go into effect. CAA § 169A(c)(3), 42 U.S.C. § 7491(c)(3).

Thus, EPA's authority to exempt sources from BART is very narrowly defined. Nowhere in Section 169A did Congress contemplate or sanction alternative programs that would operate in lieu of BART. "Where Congress explicitly enumerates certain exceptions to a general prohibition, additional exceptions are not to be implied, in the absence of evidence of a contrary legislative intent." *Andrus v. Glover Constr. Co.*, 446 U.S. 608, 616–17 (1980); *see also TRW Inc. v. Andrews*, 534 U.S. 19, 28 (2001) (quoting same). This follows from the "cardinal principle of statutory construction" that "a statute ought, upon the whole, to be so construed that, if it can be prevented, no clause, sentence, or word shall be superfluous, void, or insignificant." *TRW*, 534 U.S. at 31. Neither EPA nor the Courts can read the Clean Air Act in such a way that would render an "express exception . . .insignificant, if not wholly superfluous." *Duncan v. Walker*, 533 U.S. 167, 174 (2001).

In short, there is no statutory authority for EPA to authorize reliance on CSAPR in place of BART as it has proposed to do here. EPA relies on two court decisions as authority for its proposal: *Center for Energy & Economic Dev. v. EPA*, 398 F.3d 653 (D.C. Cir. 2005) ("*CEED*") and *Utility Air Regulatory Group v. EPA*, 471 F.3d 1333, 1340 (D.C. Cir. 2006) ("*UARG*"). However, the force of such holdings has been undermined by subsequent D.C. Circuit decisions. In *North Carolina v. EPA*, 531 F.3d 896, 906-08 (D.C. Cir. 2008), the Court invalidated the CAIR trading program because it failed to conform with the underlying statutory mandate to "measure *each state's* significant contribution to specific downwind nonattainment areas and eliminate them *in an isolated state-by-state manner*." *Id*. at 907 (emphasis added). Likewise here, EPA's BART substitution proposal fails to conform with the Act's express mandate that EPA rules require haze plans to include BART at "each" BART eligible source for the purpose of eliminating or reducing visibility impairment caused or contributed to by *that* source in "any" Class I area. *See* CAA § 169A(b)(2)(A), 42 U.S.C. § 7491(b)(2)(A). In *NRDC v. EPA*, 571 F.3d 1245, 1255-58 (D.C. Cir. 2009), the Court rejected an EPA attempt to substitute an emissions trading program for the Clean Air Act's express mandate for reasonably available control technology ("RACT") at existing sources in ozone nonattainment areas. EPA claimed its substitution should be allowed because the trading program was estimated to achieve a beyond-RACT degree of control regionally, and would better serve statutory purposes, but the Court said the region-wide approach "did not meet the statutory requirement that the reductions be from sources in the nonattainment area." *Id.* at 1256. Likewise, EPA's region-wide approach here flouts the statutory mandate that "each" BART eligible source causing or contributing to visibility impairment in "any" Class I area must install BART to prevent or reduce such impairment.

More broadly, other decisions post-dating *CEED* and *UARG* have emphasized that the terms "each" and "any" must be given their literal, expansive meanings when used in the Act. *See Massachusetts v. EPA*, 549 U.S. 497, 528-29 (2007) ("repeated use of the word 'any'" in Clean Air Act provision demonstrated that statutory language was "sweeping" in its protective reach); *Sierra Club v. EPA*, 536 F.3d 673, 678 (D.C. Cir. 2008) ("If Congress meant that potentially thousands of permits could be issued without adequate monitoring requirements, then it would not have said *[e]ach permit* ... shall set forth ... monitoring ... requirements to assure compliance with the permit terms and conditions. There can be no doubt about the plain meaning of this phrase. 'Each' means [e]very one of a group considered individually." (internal quotations and citations omitted)); *New York v. EPA*, 443 F.3d 880, 886 (D.C. Cir. 2006) (holding that there

is "no reason why 'any' should not mean 'any'"); *New Jersey v. EPA*, 517 F.3d 574, 582 (D.C. Cir. 2008) (affirming that "[i]n the context of the CAA, the word 'any' has an expansive meaning")(internal quotations omitted)); *NRDC v. EPA*, 489 F.3d 1250, 1257-58 (D.C. Cir. 2007) ("[a]pplying the usual meaning" of "any" under Chevron step one).

For all the foregoing reasons, EPA's proposal to substitute CSAPR for BART violates the plain language of the Act. If *CEED* and *UARG* could be read as authorizing such substitution, those decisions would be in conflict with the plain language of the Act, and therefore in error. The Act does not allow EPA's rules to waive the statutory mandate for BART at "each" BART-eligible source based on a claim that other control methods will achieve greater reasonable progress on average. *See also* CAA § 169A(a)(4), 42 U.S.C. § 7491(a)(4) (requiring EPA's haze rules to "assure (A) reasonable progress…., *and* (B) compliance with the requirements of this section," requirements that include BART as a separate mandate (emphasis added)).[17]

III. EPA CANNOT RELY ON A RULE THAT IS NOT IN EFFECT TO SUBSTITUTE FOR BART

EPA cannot rely on CSPAR as a BART alternative because CSAPR's future is uncertain. CSAPR is the subject of a legal challenge, and on December 30, 2012, the D.C. Circuit Court of Appeals issued an order staying implementation of the rule. *See* Order, *EME Homer City Generation, L.P. v. EPA*, No. 11-1302 (D.C. Cir. Dec. 30, 2011). EPA cannot finalize a better-than-BART rule and several implementing FIPs on the strength of a regulation that has been temporarily enjoined and that is therefore not in effect.

To reduce the air pollution that contributes to haze, the CAA requires each state to include in its SIP "a requirement" that certain major stationary sources "shall procure, install, and operate . . . the best available retrofit technology."[18] CAA § 169A(b)(2)(A), 42 U.S.C. § 7491(b)(2)(A); 40 C.F.R. § 51.308(e). As discussed above, substituting a trading program for BART requirements is contrary to the statute, but to the extent EPA seeks to rely on an "alternative" program in place of BART, that program must constitute a "requirement" as well. So long as CSAPR is stayed, it cannot qualify as a requirement that could apply in place of BART.

Further, all elements of any FIP imposed by EPA must be enforceable. *See* CAA

[17] The *CEED* opinion erroneously states that the addition of § 169B in 1990 "clarified" that the focus of the Act "was to achieve 'actual progress an improvement in visibility,' 42 U.S.C. § 7492(b), not to anoint BART the mandatory vehicle of choice." 398 F.3d at 660. This assertion reads far more into § 169B(b) than the language of that subsection can possibly bear, as the provision merely directs EPA to assess and report to Congress the actual progress and improvement in visibility in Class I areas. It does not amend or limit the Act's pre-existing BART mandate, much less suggest that progress goals can supplant that mandate. Indeed, elsewhere in § 169B, Congress reinforced the BART mandate by directing EPA to "carry out the Administrator's regulatory responsibilities under section 7491 of this title," the section that includes the BART mandate. 42 U.S.C. § 7492(e)(1). Likewise, there is nothing in § 169B's authorization of visibility transport regions and commissions to suggest authority to waive the BART mandate, as *CEED* erroneously implies.

[18] Clean Air Act § 169A requires SIP revisions for each state that either (a) has within its borders a Class I area that has been designated by the Secretary of the Interior as an area where visibility is an important value or (b) is reasonably anticipated to cause or contribute to visibility impairment in such a Class I area in another state. *See* CAA § 169A(b)(2), 42 U.S.C. § 7491(b)(2).

§§ 110(a)(2)(A), (C), 42 U.S.C. §§ 7410(a)(2)(A), (C) (requiring haze plans to include "enforceable emissions limitations" and "to provide for the enforcement of" all adopted measures in the plan). Thus, EPA cannot rely on CSAPR while a stay renders the program's requirements unenforceable.

Given the pressing need to finalize regional haze plans around the country and to put all states on course to achieving Congress' visibility goals, which have now languished for decades, it is reckless for EPA to propose reliance on CSAPR in place of BART. Unless the program is upheld in its entirety, EPA will be obliged to revisit the many plans that seek to rely on CSAPR. Even if CSAPR is upheld, it is unclear how long it will take for ongoing litigation to play out in the Courts, and in the meantime, haze plans in as many as 28 states could be stalled because they rely on CSAPR as a substitute for BART. For this practical reason alone, EPA should abandon its "better than BART" approach and associated FIP proposals.

IV. EPA HAS NOT ATTEMPTED TO SHOW THAT CSAPR AS REVISED CAN SUBSTITUTE FOR BART

EPA recently finalized revisions to CSAPR, but has yet to evaluate whether, in light of these changes, CSAPR can be deemed better than BART. Earlier this month, EPA finalized revisions that: (1) change the state budgets and assurances levels for Florida, Louisiana, Michigan, Mississippi, Nebraska, New Jersey, New York, Texas, and Wisconsin; (2) alter the new unit set-asides in Arkansas and Texas; and (3) delay implementation of the assurance penalty provisions until January 1, 2014. *See* Revisions to Federal Implementation Plans to Reduce Interstate Transport of Fine Particulate Matter and Ozone, 77 Fed. Reg. 10324 (Feb. 21, 2012). These recent revisions all weaken CSAPR, further undermining EPA's dubious conclusion that CSAPR is better than BART. As should be clear, EPA cannot determine if CSAPR is better than BART until EPA has considered what CSAPR actually and currently requires.

V. EPA CANNOT CONCLUDE THAT CSAPR ACHIEVES GREATER REASONABLE PROGRESS THAN BART WITHOUT REFERENCE TO EACH STATE'S REASONABLE PROGRESS GOALS

EPA's proposed better-than-BART finding is improper because it looks at BART in isolation, without reference to or consideration of the reasonable progress goals that BART and all of the other measures incorporated into regional haze plans are intended to achieve. EPA's proposal states that the Agency will act on reasonable progress goals (and other regional haze requirements) "for each state in an individual notice at or after the time of the final rule for this action." 76 Fed. Reg. 82219, 82221 (Dec. 30, 2011). Further, EPA will not disapprove any 2018 reasonable progress targets. Without defining or even referencing those goals, EPA cannot reasonably conclude that CSAPR achieves reasonable progress at all, much less greater reasonable progress than BART under 40 C.F.R. § 51.308(e)(3).

Achieving reasonable progress is the fundamental objective that must be met by regional haze SIPs or FIPs. *See* 40 C.F.R. § 51.308(d)(1) (listing the reasonable progress goals as a core requirement of the regional haze plan); *see also UARG*, 471 F.3d at 1340 (explaining that the regulatory scheme places reasonable progress at its center, and state regional haze plans must

contain sufficient measures to achieve reasonable progress). Thus, each statewide regional haze plan must contain regional progress goals, which are set based on the uniform rate of progress to attain natural visibility conditions by 2064, and each plan must prescribe the immediate and long term strategy measures, including BART, that are necessary to meet those progress goals. *See* 40 C.F.R. §§ 51.308(d)(1) & (3); *id.* § 51.308(e). Because BART is critical to the state's ability to reach its reasonable progress goals, EPA cannot exempt sources from BART without considering how the exemption will affect the overarching reasonable progress mandate. *See* CAA § 169A(b)(2)(A), 42 U.S.C. § 7491(b)(2)(A). Concluding that CSAPR achieves greater reasonable progress toward achieving natural visibility conditions than BART without regard to defined reasonable progress goals is arbitrary and contrary to law under the Clean Air Act and implementing federal regulations.

Failure to consider the impact of the proposed BART exemption is most obviously improper in instances where states expressly relied on emissions reductions consistent with presumptive BART to meet reasonable progress goals. As the U.S. Forest Service ("USFS") has made clear in comments to EPA on the current proposal:

> [W]hile EPA states "we believe that the reasonable progress goals in the SIPs for the states addressed in this proposed action do not need to be revised by the states at this time or replaced by goals established by us via FIPs," the reality is that the allowance for creation of visibility "hot spots" through the application of the Transport Rule as a BART alternative creates inconsistencies where the established reasonable progress goals relied upon presumptive BART levels. We do not agree that progress goals would not need to be revised under this rulemaking.[19]

VI. EPA CANNOT DEMONSTRATE THAT CSAPR YIELDS SURPLUS EMISSIONS REDUCTIONS

EPA's reliance on CSAPR also fails at the outset because CSAPR cannot supply emission reductions for purposes of the regional haze program that are additive to what other programs of the Clean Air Act already require. Under 40 C.F.R. § 51.308(e)(2)(iv), a state that seeks to use an alternative program in lieu of BART must demonstrate not only that the alternative achieves greater reasonable progress toward reaching natural visibility conditions at Class I areas but also that "the emission reductions resulting from the emissions trading program or other alternative measure will be *surplus* to those reductions resulting from measures adopted to meet requirements of the CAA as of the baseline date of the SIP." EPA cannot make this showing when adopting CSAPR FIPs or promulgating a regulation allowing states to adopt SIPs that rely on CSAPR in lieu of BART. CSAPR was adopted prior to EPA's issuance of this better-than-BART proposal, and it is slated to achieve emissions reductions in 2012, well in advance of the 2014 baseline date for the proposed FIPs and in advance of any SIPs that may seek to rely on CSAPR as an alternative to BART. Moreover, under Sections 110(a)(1) and

[19] United States Forest Service Comments on Better than BART NPRM ("USFS Comments") at 1 (Nov. 28, 2011). The USFS Comments on EPA's Draft Notice of Proposed Rule Making were obtained on February 28, 2012 in response to a Freedom of Information Act request. These comments are incorporated by reference herein and attached as Attachment 1.

(a)(2)(D)(i) of the Act, states were required to adopt SIPs by the year 2000—3 years after promulgation of the 1997 ozone and PM NAAQS—to prohibit emissions from within the state from contributing significantly to nonattainment or interference with maintenance by any other state with respect to such NAAQS. Thus, any emission reductions that were required to meet that mandate cannot be credited toward the calculation of "greater" reasonable progress attributed to CSAPR. Because CSAPR cannot possibly satisfy the surplus emissions requirement of § 51.308(e)(2)(iv), EPA's proposal is necessarily inconsistent with its own governing regulations.

Similarly, because BART can produce greater visibility improvement than CSAPR at one or more Class I area (*see* Section VII.A, *infra*), the proposed rule violates 40 C.F.R. § 51.308(d)(1)(vi), which establishes that a state may not adopt a progress goal that represents less visibility improvement than would be expected from complying with requirements under the Clean Air Act, including BART. *See also* USFS Comments at 14-15 (explaining that EPA cannot adopt the proposed rule because it would sanction the adoption of reasonable progress goals that provide less visibility improvement than BART in contravention of 40 C.F.R. § 51.308(d)(1)(vi)).

VII. EPA HAS NOT DEMONSTRATED THAT CSAPR IS BETTER THAN BART

Putting aside the problem that CSAPR cannot substitute for BART for all of the reasons stated above, EPA has not provided a credible demonstration that CSAPR can achieve greater reasonable progress than BART under the relevant regulatory test set forth at 40 C.F.R. § 51.308(e)(3). The test provides that where, as here, the distribution of emissions under BART and the alternative are substantially different, the entity proposing to rely on a BART-alternative must conduct dispersion modeling to show the difference in visibility under each program for each impacted Class I area on the worst and best 20 percent of days. *See id.; see also* Technical Support Document for Demonstration of the Transport Rule as a BART Alternative ("TSD"), EPA Dkt. No. EPA-HQ-OAR-2011-0729, at 3 (explaining that the distribution of emissions is different under CSAPR and BART). The modeling will demonstrate greater reasonable progress only if: (1) "visibility does not decline in any Class I area;" and (2) "[t]here is an overall improvement in visibility, determined by comparing the average differences between BART and the alternative over all affected Class I areas." 40 C.F.R. § 51.308(e)(3)(i)-(ii).

A. EPA Improperly Averaged Visibility Impacts Based on Emission Reductions at All Sources Across All Class I Areas

Under the pre-existing regulations that purport to allow for implementation of alternative programs in place of BART, an agency seeking to impose an alternative to source-specific BART must demonstrate that "the emissions trading program or other alternative measure will achieve greater reasonable progress than would have resulted from the installation and operation of BART *at all sources subject to BART in the State* and covered by the alternative program." 40 C.F.R. § 51.308(e)(2)(i) (emphasis added). This demonstration requires that the entity proposing the alternative calculate BART and the emission reductions achievable from BART at *each* BART-eligible source that would be covered by the alternative. *Id.* § 51.308(e)(2)(i)(C); *see*

also Am. Corn Growers Ass'n v. EPA, 291 F.3d 1 (D.C. Cir. 2002) (expressly requiring states, in determining what constitutes the best available retrofit control, to engage in a source-by-source analysis of the visibility impacts achievable from application of BART); 40 C.F.R. § 51.309(d)(2) (explaining that where a state within the Grand Canyon Visibility Transport Region elects to adopt the Grand Canyon Visibility Commission's recommendations for the region in lieu of complying with the requirements, including BART, under § 51.308, it must submit a plan to EPA that projects visibility conditions at *each* of the 16 Class I areas in the transport region, based on consultation with other transport region states). As the Forest Service has affirmed in its comments to EPA, "[T]he appropriate analysis technique should limit the geographic scope of both 'affected' Class I areas and modeled emissions relative to each state as is implied in 40 C.F.R. § 51.308(e)(3)." USFS Comments at 1 Thus, to be consistent with its existing rules, EPA must determine whether a given program is better than BART on a state-by-state basis based on a source-by-source five-step BART analysis, a requirement the agency has arbitrarily refused to follow as it steps into the shoes of the states.

The failure to look at CSAPR versus BART on a state-by-state basis precludes leaves states that intend to opt out of BART in reliance on CSAPR without the requisite showing that CSPAR is "better than BART." *See id.* at 7 (explaining that "[f]rom a regulatory perspective," EPA should look at impacts of the alternative as would the states because the rule allows the states to opt out of the individualized analysis). "Because this rulemaking essentially allows for the interpretation that the Transport Rule is a BART alternative program that a State may opt to participate in and rely upon to satisfy the 308(e) requirements, the dispersion modeling conducted by EPA should have identified the 'affected' Class I areas relative to each State in the Transport region rather than simply looking at the aggregate across each 'affected' scenario that was analyzed." *Id.*

In fact, the failure to look across all Class I areas on a state by state basis poses a serious threat to visibility in Class I areas. As discussed below, by averaging results across the entire United States, EPA was able to ignore CSAPR's inferiority to BART at many Class I areas.

1. Averaging Visibility Impacts Across the Entire United States or Within Regions Masks CSAPR's Failure to Achieve Greater Reasonable Progress at Many Class I Areas in Many States

Instead of evaluating whether CSAPR achieved greater reasonable progress than BART on a state-by-state, source-by-source basis, EPA approached the second prong of the reasonable progress test, 40 C.F.R. § 51.308(e)(3)(ii)—which asks if the alternative provides greater visibility improvement at all affected class I areas—by spatially averaging the visibility reductions seen under each program across all Class I areas in the CSAPR region and all Class I areas the nation. Averaging across this expansive area masks the failure to obtain greater visibility improvements that are possible with the application of BART both regionally and state by state.

For example, EPA's own modeling analysis shows that "Nationwide BART"[20] scenario provides greater visibility improvement than the alternative "Transport Rule + BART-elsewhere" scenario in many Class I Areas across an entire region.[21]

Table 1. Class I Areas Where EPA's Modeling Shows "Nationwide BART" to Have Greater Visibility Improvement Compared to the "Transport Rule + BART-elsewhere"

Class I Area	Best 20% Days	Worst 20% Days
Badlands National Park		X
Bandelier National Monument		X
Caney Creek Wilderness	X	
Hercules-Glades Wilderness	X	
Salt Creek Wilderness	X	
San Pedro Parks Wilderness		X
Theodore Roosevelt National Park		X
Upper Buffalo Wilderness	X	
White Mountains Wilderness	X	
Wind Cave National Park	X	X

See D. Howard Gebhart, Expert Report: Technical Review of US Environmental Protection Agency Dispersion Modeling Supporting the "Transport Rule is Better than BART" Analysis 7-9 & Table 3-1 (Feb. 21, 2012) (hereinafter, "the Gebhart Report") [Attachment 2].

All of these Class I areas that EPA's modeling predicted would experience better visibility improvement under Nationwide BART are west of the Mississippi River, covering much of the central plains. *Id.* Yet, because EPA chose to look at spatial averages across all Class I areas in the CSPAR region, EPA ignored the fact that CSAPR is decidedly not better than BART in many affected Class I Areas in many states. In other words, EPA's approach sacrifices progress on visibility in the central plains,[22] a result the USFS forecast to EPA. *See* USFS Comments at 8 ("The net effect of this proposal creates subregions within the Transport Rule domain where emissions reductions under CSAPR would be significantly less than under BART," including those in the "Mississippi-West" subregion where the USFS predicts that "the Transport Rule domain will have SO_2 emissions 164% greater under CSAPR than would have been assumed by presumptive BART.").

[20] The "Nationwide BART" scenario estimated the effect of applying BART controls at specific BART-eligible source across the entire nation, including sources in the CSAPR region in the east and sources in the non-CSAPR region in the west.

[21] EPA's "Transport Rule + BART-elsewhere" scenario estimated the effect of relying on CSAPR, or the Transport Rule, in CSAPR states, yet applying BART at BART-eligible sources outside of the CSAPR region.

[22] It is not surprising that visibility in the central plains will suffer if CSAPR is substituted for BART; emission allocations under CSAPR were allotted based on the impact that each state had on the ability of downwind states in the CSAPR region, which is predominantly east of the central plains, to attain and maintain the fine particulate and ozone NAAQS. For this reason, certain CSAPR border states such as Nebraska and Minnesota, which were found to impact attainment in only one county in Wisconsin, are able to emit more than other CSAPR states, sacrificing visibility conditions west of the CSAPR region. *See* U.S. EPA, Cross-State Air Pollution Rule (CSAPR), Where You Live, http://www.epa.gov/airtransport/whereyoulive.html (showing that emissions from Nebraska and Minnesota are only linked to nonattainment at one point in Wisconsin).

The above example illustrates how spatial averaging can be used to manipulate conclusions as to whether CSAPR is better than BART. For example, if EPA chose to average visibility at the 27 Class I areas west of the Mississippi River but east of the Rocky Mountains—areas that for practical purposes should be considered separately from the eastern scenario because they react differently to sulfate aerosols—EPA would have found based on its own data that Nationwide BART is superior to the "Transport Rule + BART-elsewhere" on the best 20% days. *See* Gebhart Report at 8-9 & Table 3-2. Again, the USFS confirms this point, stating that "BART controls for SO_2 are an essential component to meeting the subregional progress goals for the Class I areas in and surrounding the 'Mississippi-West' subregion." USFS Comments at 9.

This problem in the "Mississippi-West" region underscores the importance of evaluating the performance of alternative programs as compared to BART across a more limited geographic area—*i.e.* on a state-by-state basis as governing regulations require. EPA cannot discount the many instances in which BART yields greater progress toward visibility goals than CSAPR by averaging visibility impacts across the entire CSAPR region, much less the entire country. Instead, EPA must determine whether a given program is better than BART on a state-by-state basis having considered what an alternative would achieve in the way of emissions reductions relative to BART at each relevant source. Not only has EPA failed to undertake this analysis, any such appropriate analysis would preclude the conclusion that CSAPR is better than BART, as the above examples confirm. EPA offers no lawful or reasoned explanation for departing from the approach required in its existing rules, nor can it do so.

2. Arithmetic Averaging Cannot Accurately Demonstrate Whether CSAPR Provides Greater Visibility Benefits than BART

EPA also improperly used a simple arithmetic mean to conclude that visibility improvements in the aggregate would be greater under CSAPR than BART per 40 C.F.R. § 51.308(e)(3)(ii). Whether improperly averaging across all the affected Class I areas or doing so in connection with a state-by-state evaluation, relying on an arithmetic mean is likely to misconstrue progress by heavily weighting outlier results such as large emissions reductions at a single area. In other words, significant improvements in a small number of Class I areas—even on just a few days each year—have apparently skewed EPA's averaging to yield a conclusion that visibility is improving notwithstanding lackluster progress in a majority of Class I areas. EPA's analysis must correct for this fundamental problem.

B. EPA's Analysis Fails to Compare the Proper BART Scenario to the Proposed Alternative

EPA's analysis suffers from an overarching flaw: it proceeds as if CSAPR were developed only to serve as a BART alternative, ignoring the fact that CSAPR programs will be implemented regardless of BART.[23] Thus, EPA compared a "Nationwide BART" scenario[24] that

[23] Any discussion of the method EPA has used to determine whether CSAPR is better than BART must proceed as if CSAPR has been upheld. Thus, for the purpose of comments on EPA's methodology, we assume that CSAPR will

does not account for any emissions reductions due to CSAPR, to the "Transport Rule + BART elsewhere" scenario,[25] estimating the emissions in each scenario based on a base case that likewise does not account for CSAPR.[26] Because CSAPR is mandated under § 110 of the Clean Air Act, EPA's "Nationwide BART" scenario is pure fiction; CSAPR and BART will operate simultaneously unless EPA approves this proposal to rely solely on CSAPR.

By failing to take account of any emission reductions from CSAPR in the "Nationwide BART" scenario, EPA arbitrarily and unlawfully rewards the "Transport Rule + BART-elsewhere" scenario for accomplishing emission reductions associated with the status quo, while punishing "Nationwide BART" scenario for failure to keep up with the status quo. Where the alternative to BART is itself mandated to meet the requirements of the Clean Air Act, the pertinent question under the reasonable progress test must be whether the mandated program will achieve more than what is necessary to fulfill its own obligations such that it can achieve better visibility gains in Class I areas than BART. Isolating visibility improvements under CSAPR and making a comparison to improvements from nationwide BART in the absence of CSAPR is an artificial enterprise that ignores the requirements of Clean Air Act § 110. EPA cannot read either Section 110 or Section 169A out of the statute but must give all statutory provisions their effect. *See TRW*, 534 U.S. at 31 (explaining that it is "a cardinal principle of statutory construction" that "a statute ought, upon the whole, to be so construed that, if it can be prevented, no clause, sentence, or word shall be superfluous, void, or insignificant") (quoting *Duncan v. Walker*, 533 U.S. 167 (2001); *see also United States v. Menasche*, 348 U.S. at 538–39 ("It is our duty 'to give effect, if possible, to every clause and word of a statute.'") (quoting *Montclair*, 107 U.S. at 152 (1883).

Thus, to correct for the fact that CSAPR is independently required, EPA must compare a CSPAR-only scenario to a scenario where BART applies in concert with CSAPR as would be the case if EPA abided by the mandate of both programs.[27] This comparison would allow EPA to determine whether BART would achieve aggregate visibility benefits above and beyond what CSAPR will achieve, or whether the emissions reductions from CSPAR by itself overwhelm any potential incremental benefit from BART.[28]

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apply as per the final CSAPR rulemaking. However, as discussed in Section III, *supra*, given the legal challenge and the stay, CSAPR is not a viable BART alternative.

[24] For a discussion of the "Nationwide BART" scenario, *see* note 20, *supra*.

[25] For a discussion of the "Transport Rule + BART-elsewhere" scenario, *see* note 21, *supra*.

[26] Additional issues with the base case that skew the analysis in favor of CSAPR when EPA improperly compared BART without CSAPR to CSAPR are described in Section VII.J, *infra.*

[27] The better than BART rule is focused on whether CSAPR can substitute for BART in the CSAPR region, thus BART will always apply in the non-CSAPR region. Given this reality, emissions reductions from BART in the non-CSAPR states can be placed in the base case. However, the analysis in these comments simply corrects for the primary flaw, ensuring that Nationwide BART is never evaluated in the absence of CSAPR.

[28] Because CSAPR was scheduled to come online at the beginning of 2012, CSAPR reductions are part of the status quo and could have been included in the 2014 base case. However, adding CSAPR to the 2014 base case could make it difficult to determine whether the "Transport Rule + BART-elsewhere" scenario will cause a decline in visibility over the 2014 base case. Using an artificial base case that does not include CSAPR reductions is thus appropriate to isolate what CSAPR and BART in the CSAPR region each incrementally achieve in the way of visibility improvements. *Cf.* USFS Comments at 14 ("EPA, by analyzing the BART-alternative emissions as the same emission year relative to the modeled future baseline conditions in the absence of any BART or alternative program control requirements, . . . seemingly creates a guaranteed 'no degradation' test.").

Looking at the emission reductions achieved from applying BART at the sources EPA assumed were subject to BART per the "Nationwide BART" scenario and from CSAPR at the sources EPA assumed were not subject to BART per the "Transport Rule + BART-elsewhere" scenario, it is highly unlikely that EPA could show that CSAPR provides advantages over CSAPR combined with BART. As the summary table below demonstrates, the correct BART + CSAPR scenario would further reduce NOx emissions by 80,886 tons per year compared to EPA's "Transport Rule + BART-elsewhere" scenario, while reducing SO_2 emissions by an additional 625,913 tons per year.[29]

Table 2. Comparison of proper BART + CSAPR Scenario to "Transport Rule + BART-elsewhere" and "Nationwide BART" Scenarios[30]

Scenario	Emissions, NOx Tons/yr	Emissions, SO_2 Tons/yr
TR + BART Elsewhere	1,671,352	2,784,271
BART + CSAPR	1,590,466	2,158,358
Difference	**80,886**	**625,913**
Nationwide BART	1,712,505	3,696,304
BART + CSAPR	1,590,466	2,158,358
Difference	**122,038**	**1,537,946**

Likewise, on a statewide basis, the alternative BART + CSAPR scenario produces better results than the "Transport Rule + BART-elsewhere" scenario. For example, the Conservation Organization's Technical Support Attachment to Earthjustice's Comments on the Proposed Approval of the Minnesota State Implementation Plan for Regional Haze ("Minnesota Technical Support")[31] compared the subset of *BART-subject* EGUs in Minnesota under the Nationwide BART scenario to EPA's CSAPR emissions projections for the same units to estimate whether CSAPR alone can accomplish both its own goals and those of the regional haze program.[32] Because it is reasonable to assume that CSAPR emissions predictions for non-BART-subject EGUs will be similar under both the CSAPR scenario and the Nationwide BART scenario at

[29] The alternative BART + CSAPR scenario is only an estimate as it is difficult to create a new emissions scenario reflecting BART at all BART-subject units plus CSAPR at all non-BART-subject units without running the Integrated Planning Model to project EGU utilization and pollution control decisions. However, this scenario—which simply adds emission reductions predicted in EPA's modeling of BART at the sources EPA assumed were BART-subject in the Nationwide BART scenario plus CSAPR at the sources EPA did not assume were subject to BART per EPA's modeling of the Transport Rule + BART-elsewhere scenario—provides a reasonable estimate of the emissions reductions in the preferred BART + CSAPR scenario.

[30] The input values supporting the alternative BART + CSAPR scenario are included in Table 1-2, which is filed concurrently herewith.

[31] *See* Minnesota Technical Support at 18-20. Earthjustice's comments and the Technical Support Attachment, which were submitted on behalf of National Parks Conservation Association, the Minnesota Center for Environmental Advocacy, the Friends of the Boundary Waters Wilderness, Voyageurs National Park Association, and the Sierra Club, were filed on February 24, 2012 in Docket No. EPA-R05-OAR-2010-0037. Those comments and the Technical Support Attachment are incorporated by reference herein.

[32] The Technical Support Attachment recognized the difficulty of predicting emissions without running the Integrated Planning Model. Nonetheless, this example gives an estimate of whether CSAPR + BART will reduce emissions over CSAPR alone, thereby providing for greater reasonable progress than CSAPR.

non-BART eligible sources, it follows that CSAPR + BART will be better than CSAPR alone if BART provides greater emissions reductions than CSAPR at BART-subject sources. To this point, Table 3 below demonstrates that BART would result in significantly fewer emissions at BART-subject units than the emissions EPA projected for those units under CSAPR.

Table 3. Comparison of EPA's Emission Projections under the "Nationwide BART" Scenario to EPA's Emission Projections under the "Transport Rule + BART-elsewhere" Scenario Only For the EGUs Determined to be Subject to BART in Minnesota.

Plant Name	Unit ID	EPA's Projected 2014 SO_2 Emissions from "Nationwide BART," tons[33]	EPA's Projected 2014 SO_2 Emissions from "Transport Rule + BART-elsewhere," tons[34]	EPA's Projected 2014 NOx Emissions from "Nationwide BART," tons[35]	EPA's Projected 2014 NOx Emissions from "Transport Rule + BART-elsewhere," tons[36]
Clay Boswell	3	884	884	991	991
Sherburne County	1	1,504	7,822	3,761	4,713
Sherburne County	2	1,462	7,604	3,656	4,582
Silver Bay Power	BLR 2	2,490	2,490	566	597
Silver Lake	4	265	229	236	238
Taconite Harbor	3	605	604	415	846
BART-Subject Totals		***7,210***	***19,633***	***9,625***	***11,967***

The emissions projections in Table 3 above are EPA's emissions projections for the BART-subject EGUs in Minnesota under EPA's Nationwide 2014 Emissions Scenario and its CSAPR Plus BART Elsewhere 2014 Scenario. No revisions were made to EPA's BART emission estimates in Table 3, from which it is clear that EPA's emission projections show much greater pollutant reductions with BART than with CSAPR. For SO_2, EPA's CSAPR emissions scenario results in more than twice the emissions represented in EPA's Nationwide BART

As the above examples show, BART provides benefits over CSAPR at the BART-eligible units. Thus, a proper analysis comparing CSAPR + BART to CSAPR alone would not allow EPA to conclude that substituting CSAPR for BART would result in greater reasonable progress at the Class I areas.

[33] From EPA's National BART 2014 spreadsheet, *available at* http://www.epa.gov/visibility/actions.html.
[34] From EPA's CSAPR+BART 2014 spreadsheet, *available at* http://www.epa.gov/visibility/actions.html.
[35] From EPA's National BART 2014 spreadsheet, *available at* http://www.epa.gov/visibility/actions.html.
[36] From EPA's CSAPR+BART 2014 spreadsheet, *available at* http://www.epa.gov/visibility/actions.html.

C. EPA's Arbitrary Modeling Assumptions Preclude a Finding that CSPAR Is "Better than BART"

1. EPA Unlawfully Assumed that SO_2 BART Controls Would Only Apply to EGUs with Greater than 100 MW Generating Capacity

EPA stated that "it was assumed that the threshold for BART-eligibility was 100 MW for SO2 and 25 MW for NOx and no sources were eliminated based on their annual total emissions. Appendix A lists the EGUs that were assumed to be BART-subject for the purpose of this analysis." *See* TSD at 4. In our review of EPA's assumed SO_2 emission rates below, it was assumed that all EGUs listed in Appendix A of EPA's Technical Support Document for Demonstration of the Transport Rule as a BART Alternative were assumed to be BART-subject in EPA's analysis, as stated in the Technical Support Document and at Appendix A. However, to the extent that EPA may argue that it only assumed EGUs over 100 MW in generating capacity were subject to BART for SO_2, the application of such a generating capacity threshold is arbitrary and unjustified. The only size limitation on BART-eligibility is for fossil-fuel fired steam electric plants, which must have more than 250 million British thermal units per hour heat input, which is approximately equivalent to about 25 MW generating capacity.[37] *See* CAA §§ 169A(b)(2), (g)(7), 42 U.S.C. §§ 7491(b)(2), (g)(7); *see also* 40 C.F.R.§51.301 (defining "existing stationary facility" and "BART-eligible source"). Nowhere in the statute or the implementing regulations is BART-eligibility limited to units less than 100 MW for SO_2. In fact, all visibility impairing pollutants from a source are modeled together to determine whether the source is subject to BART.

In fact, there are several examples of units of less than 100 MW generating capacity that have been determined to be subject to BART, and that have been required to install SO_2 scrubbers to comply with BART. For example, Silver Bay Boiler 2 in Minnesota, which impairs visibility more than any other BART-eligible EGU in the state,[38] only has a generating capacity of 69 MW. Silver Lake Unit 4 in Minnesota, which has a generating capacity of 59.2 MW, was also determined to be subject to BART and required to install a scrubber to comply with BART.[39] Martin Drake Unit 6 in Colorado has a generating capacity of 77 MW and was determined to be subject to BART and required to install a new spray dryer to meet BART.[40] Based on the foregoing, it is improper for EPA to impose a 100 MW generating capacity floor on SO2 BART, a flaw that renders EPA's Nationwide BART 2014 emissions scenario arbitrary and unlawful.

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[37] Based on an assumed heat rate of 10,000 Btu/kWhr.

[38] *See* December 2009 Minnesota Regional Haze State Implementation Plan, Table 9.2 (at 68), *available at* http://www.pca.state.mn.us/index.php/air/air-quality-and-pollutants/general-air-quality/minnesota-regional-haze-plan.html).

[39] *Id.* Table 9.4 (at 71).

[40] *See* Colorado Visibility and Regional Haze State Implementation Plan for the Twelve Mandatory Class I Federal Areas in Colorado, Approved January 7, 2011, Table 6-2 (at 43), *available at* http://www.cdphe.state.co.us/ap/RegionalHaze/RHSIPFINAL07JAN2011.pdf).

2. EPA Discounted the Visibility Improvements in the Nationwide BART Scenario by Relying on Presumptive BART

EPA analyzed whether CSAPR is better than BART without conducting individual BART determinations for affected coal plants. Instead, the agency assumed that presumptive BART for SO_2 and NOx represents BART, unless an actual emission rate at a given unit with existing controls is lower. *See* 76 Fed. Reg. at 82225; TSD at 4-5.[41] However, as discussed above, pre-existing regulations require EPA to analyze what controls would be imposed as BART at each BART-eligible source to be covered by an alternative program. *See* 40 C.F.R. § 51.308(e)(2)(i)(C); *see also* Section VII.A., *supra*. Relying on presumptive BART is not consistent with this regulatory requirement. Again, EPA offers no lawful or rational justification for departure from this requirement.

The "presumptive BART" emission limits for EGUs included in EPA's BART Guidelines were based on EPA's broad review of the control technologies and emission limits that could be met cost effectively at a wide range of coal-fired power plants. *See* Sections IV.E.4 and 5 of the BART Guidelines in 40 C.F.R. Part 51, Appendix Y. Presumptive limits are not *de facto* BART standards; they do not meet the minimum requirements for BART that federal law mandates and do not negate the need for a case-by-case five-factor analysis for each BART source. *See* Partial Approval and Partial Disapproval of Arkansas Regional Haze SIP, advance notice of final rulemaking at 21 ("the RHR and BART Guidelines do not exempt states from a five factor BART analysis"). For this reason, EPA recently disapproved Arkansas's SO_2 and NOx BART determination for AEP Flint Creek Boiler No. 1 and Entergy White Bluff Plant Units 1 and 2, even though the BART determination met the presumptive BART limits. As EPA explained, it was under no obligation to approve presumptive BART where the state had not conducted an individual analysis and the presumptive BART controls did not reflect the best controls available at Arkansas's subject to BART sources. *See id.* at 18-67, 79; *id.* at 23 ("EPA reiterates that the RHR and the BART Guidelines make clear that the presumptive limits are rebuttable and may not necessarily be the appropriate level of control for all EGUS. Therefore, EPA is not required to approve every BART determination that meets the presumptive emission limits, especially when there is no analysis that supports the state's decision in adopting the presumptive limit instead of a more or less stringent emission limit.").

Reliance on presumptive BART is not only procedurally improper, it also skews EPA's alternatives analysis in favor of CSAPR. Actual BART determinations are often one half or one third of the presumptive limits, given the demonstrated ability of available air pollution control technology to reduce emissions at increasingly high levels of control efficiency. For example, EPA partially approved Oklahoma's SIP and issued a partial FIP for Oklahoma adopting SO_2 BART limits of 0.06 lb/MMBtu for several EGUs, a control that is 60% lower than presumptive BART of 0.15 lb/MMBtu that applies to scrubbed units that achieve less than 95% efficiency. *See* 76 Fed. Reg. 81728, 81730 (Dec. 28, 2011) (adopting the 0.06 lb/MMByu SO_2 limit for Units 4 and 5 of the OG&E Muskogee plant, Units 1 and 2 of the OG&E Sooner plant, and Units 3 and 4 of the AEP/PSO Northeastern plant). For unscrubbed units, presuming that SO_2 BART limits will be commensurate with installing a scrubber with 95% efficiency likewise underrepresents BART; modern scrubbers today reduce SO_2 emissions by 99%. *See* Proposed

[41] As discussed in the following section, EPA did not follow its own rules regarding presumptive BART.

Rule, 76 Fed. Reg. 16168, 16188 (March 22, 2011) (EPA Region 6 partial approval of Oklahoma SIP; noting that according to an industry contractor, "[w]et scrubbing is the predominant technology for large-scale utility applications in most parts of the world").[42] Similarly, EPA has required emission limits that go beyond NOx limits imposed as presumptive BART. Table 2-1 in the Technical Support Document sets forth the presumptive BART NOx emission limits based on boiler configuration, and the lowest limit, imposed on cyclone boilers firing bituminous, subbituminous, or lignite coal, was 0.10 lbs/MMBtu. Yet EPA has required San Juan Units 1-4 to install SCR and meet a NOx limit of 0.05 lb/MMBtu on a 30-day operating average. 76 Fed. Reg. 52388, 52388 (Aug. 22, 2011). EPA also has proposed to require SCR to meet BART at Milton R. Young Units 1 and 2 and Leland Olds, to meet a NOx rate of 0.07 lbs/MMBtu on a 30 boiler operating day average. *See* 76 Fed. Reg. 58570, 58599, 58647 (Sept. 21, 2011). These requirements and limits, which represent BART based on EPA's own source-specific analyses, go well beyond EPA's presumptive NOx BART limits.

Because sources often are subject or should be subject to BART limits significantly more stringent than presumptive BART limits, reliance on presumptive BART arbitrarily short-changes the visibility benefits that could be realized by installing and operating controls that are genuinely representative of BART. Indeed, EPA's own analysis acknowledges the reality that presumptive BART is often less stringent than actual BART—i.e., EPA did not rely on presumptive BART where actual emissions at a unit with existing controls were lower than presumptive BART.

In addition, source-specific BART limits take into account the remaining useful life of emission units. *See, e.g.*, CAA § 169A(g)(2), 42 U.S.C. § 7491(g)(2). For many emission units, owners may choose to retire a source instead of complying with requirements for BART control technologies. In effect, those units would have a BART emission rate of zero not only for SO_2 and NOx but also for direct PM2.5 and ammonia. EPA completely failed to consider this potential.

For all of these reasons, EPA acted arbitrarily in assuming that presumptive BART would be found adequate where BART determinations have yet to be made. In failing to evaluate BART and the associated emissions reductions achievable for each source within the CSAPR

[42] Other technical sources likewise indicate that modern scrubbers can achieve SO_2 reduction efficiencies up to 99%. *See, e.g.*, Sargent & Lundy LLC, Wet Flue Gas Desulfurization Technology Evaluation, Project No. 11311-001 §§ 1.3.1-.2, at 10 (May 2006) (explaining that "[r]ecent contracts for LSFO [Limestone Forced Oxidation or conventional wet scrubber] technology in the US market have included guarantees of 99%," and that "MEL [Magnesium Enhanced Lime] forced oxidation systems have achieved a better level of performance than the LSFO process, with SO_2 removal efficiencies between 98% and 99% in power plants also firing a variety of high- and low-sulfur coals") [Attachment 3]; Kevin Smith, William Booth, & Stephane Crevecoeur, Evaluation of Wet FGD Technologies to Meet Requirements for Post CO_2 Removal of Flue Gas Streams, Mega Paper No. 49 (2008) [Attachment 4]; Chuck Dene, Lesley A. Baker & Robert J. Keeth, FGD Performance Capability, Mega Paper No. 62 (2008) (identifying several technologies that have achieved or are capable of achieving 99% SO_2 control) [Attachment 5]. We also incorporate by reference the discussion of concerning high efficiency scrubbers, pages 54-56, included in Earthjustice's comments filed on behalf of the Sierra Club, the National Parks Conservation Association, and the Clean Air Council on the Approval and Promulgation of Air Quality Implementation Plans Commonwealth of Pennsylvania; Regional Haze State Implementation Plan Proposed Rule, 77 Fed. Reg. 3984 (Jan. 26, 2012), Docket ID Number EPA-R03-OAR-2012-0002, filed Feb. 27, 2012 and any supporting materials filed therewith.

region subject to BART, EPA arbitrarily and unlawfully discounted the visibility improvement capability of the source-specific BART limits that would apply if the five-factor analyses required by the Clean Air Act were actually undertaken.

Finally, EPA cannot credibly claim that because it broadly applied BART to sources that might not be BART eligible, it overestimated emissions reductions, cancelling out the potential undercounting of emissions reductions stemming from its reliance on presumptive BART. First, applying limits reflective of actual BART to those units that would be subject to BART might achieve lower overall emissions on a national level than presumptive BART applied to all BART eligible EGUs. *See* Gebhart Report at 16. Second, if EPA assumed a source was subject to BART that does not in fact cause or contribute to visibility impairment at the Class I areas, and thus should not be subject to BART, any modeled emission reductions at that source would not result in modeled visibility improvements that would weigh in favor of BART. *Id.*

3. EPA Must Model The Visibility Improvement Expected By Applying BART at Gerald Gentleman Unit 2 in Nebraska

EPA acknowledged that it inadvertently omitted Gerald Gentleman Unit 2 from the inventory of BART-eligible units under the Nationwide BART emissions scenario. *See* TSD at 10 n.9. As a result, instead of applying BART controls at the unit, EPA assumed the unit would continue emitting at its current, uncontrolled SO_2 emission rate. Had EPA applied BART SO_2 controls at this unit, EPA itself estimated that the SO_2 emissions for Nebraska would be about 12,000 tons lower under the Nationwide BART. *Id.* Inexplicably EPA did not expect this omission to change the outcome of its analysis even though emissions from Gerald Gentleman affect visibility at Badlands National Park[43] and Wind Cave National Park,[44] parks where Table 1 above shows that BART is outperforming CSAPR in visibility improvement. With an additional 12,000 tons of SO_2 reductions, it is likely that the differences between CSAPR and BART at Badlands and Wind Cave National Parks would be even more pronounced, potentially changing whether CSAPR is better than BART in Nebraska. *See* Section VII.A, *supra*. For example, with the 12,000 ton reduction of SO_2, EPA's estimate of the emissions in Nebraska under the Nationwide BART scenario would have been 36% lower than modeled in the rule.[45] Likewise, with these reductions, the SO_2 emissions in Nationwide BART scenario for Nebraska would have been 71% lower than EPA's projected SO_2 emissions in the CSAPR + BART-elsewhere scenario.[46]

Moreover, if EPA had applied NOx controls to Gerald Gentleman Unit 2, Nebraska's NOx emissions would be at least 3,100 tons per year less (reflective of the NOx emission reductions expected at presumptive NOx BART rate of 0.23 lb/MMBtu for the wall-fired, dry

[43] *See* Table 10.3 of the Nebraska Department of Environmental Quality State Implementation Plan for Regional Haze and Best Available Retrofit Technology (BART), June 30, 2011, at 40, *available at* http://www.deq.state.ne.us/AirDivis.nsf/Pages/Haze. Specifically, the 98th percentile visibility contribution from Gerald Gentleman Station at Badlands National Park ranged from 2.828 to 3.121 deciviews. *Id.*

[44] *Id.* at 62.

[45] This was determined by subtracting 12,000 tons from the Nationwide BART SO_2 projection for Nebraska of 32.9 thousand tons of SO_2 in Table 2-4 of the TSD.

[46] This was determined by comparing a revised projection for Nebraska sources under BART of 20,900 tons (i.e., 32,900 tons – 12,000 tons) to EPA's projected SO_2 emissions under CSAPR of 71,200 tons in Table 2-4 of the TSD.

bottom boiler that burns subbituminous coal [47]) and more likely 7,700 tons less (reflective of application of SCR to achieve a NOx rate of 0.05 lb/MMBtu 0.05 lb/MMBtu[48]). Under either scenario, NOx emissions for Nebraska would be well below the NOx emission projections in the CSPAR + BART-elsewhere scenario,[49] making it likely that in Nebraska CSAPR is not better than BART. EPA must revise its modeling to account for reductions in emissions at Gerald Gentleman.

D. EPA Arbitrarily Did Not Follow Its Own Method of Applying Presumptive BART

Putting aside the problem that it is arbitrary and unlawful to rely on presumptive BART, which in itself fatally undermines EPA's analysis, EPA failed even to properly apply presumptive BART at many BART-eligible units in the CSAPR states. In these instances, EPA modeled emissions limits that were far greater than the already overestimated presumptive BART values. This failure to properly apply presumptive BART calls into question the accuracy of EPA's modeling and renders its analysis and "better than BART" conclusion arbitrary. Moreover, a review of the modeling assumptions that EPA actually used demonstrates that CSAPR is wrongly projected to achieve greater reductions at BART-eligible power plants than imposition of properly calculated presumptive BART limits.

In the preamble for the proposed rule and the accompanying Technical Support Document, EPA purports to apply, with respect to EGUs with scrubbers, a presumptive SO_2 BART limit that reflects either the emissions limit actually achieved if the scrubber operated at 95% efficiency or 0.15 lbs/MMBtu. If the scrubber was operating at 95% or higher efficiency, EPA said it relied on the actual emission rate achieved, even if greater than 0.15 lbs/MMBtu. Conversely, if the scrubbed achieved an emission rate of 0.15 lbs/MMBtu or lower, that rate was used even if the scrubber was less than 95% efficient. For BART-eligible units operating without a scrubber, EPA stated that it would apply a presumptive BART limit that reflected 95% control based on installation of a highly efficient scrubber. *See* 76 Fed. Reg. at 82225-26; TSD at 4-5.

At the national level, examples of EPA's failure to properly and consistently model presumptive BART were selected by identifying all BART-eligible units where the SO_2 emission rate modeled in EPA's "Nationwide BART" scenario was greater than 0.30 lb/MMBtu (*i.e.* double the presumptive BART floor) and where the historic emission rate, as reported in Clean Air Markets Database ("CAMD") for 2010 or 2011, was less than the emission rate modeled.

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[47] *See* TSD Table 2-1, at 5.

[48] *See*, e.g., 76 Fed. Reg. 52388, 52388 (Aug. 22, 2011) (NOx BART determinations for San Juan Units 1 – 4); *see also* Section VII.C.2, *supra*.

[49] Assuming that source-specific BART would result in a NOx limit of 0.05 lb/MMBtu, NOx emissions from Nebraska sources would be significantly less than the CSAPR scenario (22.5 thousand tons under BART compared to 28.1 thousand tons under CSAPR). *See* TSD Table 2-4, at 10 (adjusting the Nationwide BART prediction by 7,700 tons). Yet even if EPA only assumed a presumptive BART NOx rate of 0.23 lb/MMBtu at Gerald Gentleman Unit 2 (as promised in the TSD), the NOx emissions from Nebraska sources would be less under the Nationwide BART scenario than under the CSAPR scenario (27.1 thousand tons under BART compared to 28.1 thousand tons under CSAPR). *See id.(* adjusting the Nationwide BART prediction by 3,100 tons)

This provides a subset of the most egregious instances of EPA's failure to apply presumptive BART uniformly. Other examples exist throughout the model.

As set forth in greater detail in the accompanying Tables 2-1 to 2-4, EPA failed to properly calculate presumptive BART at a number of units that include scrubbers. For example, at the following scrubbed units that are achieving 95% efficiency, EPA failed to model the actual SO_2 emission rate.

Table 4. SO_2 BART Emissions Modeled in Nationwide BART Scenario as Compared to Actual Emissions and Properly Calculated Presumptive BART at Scrubbed Units Achieving 95% Efficiency

Plant	Unit	Nationwide BART, SO_2 lb/MMBtu[50]	Nationwide BART, SO_2 tons[51]	2010 Annual SO_2 lb/MMBtu[52]	Properly Calculated Presumptive BART, SO_2 tons[53]
Kenneth C Coleman (KY)	C3	0.30	1,585	0.26[54]	1,397
Dickerson (MD)	3	0.91	5,121	0.18	1,039
Cumberland (TN)	1	0.31	13,984	0.15	6,865
Cumberland (TN)	2	0.31	13,995	0.17	7,816
Total			**34,685**		**17,117**

Likewise, for the following scrubbed unit, which is achieving less than 95% efficiency, EPA failed to model an emission rate that reflected the actual emission limit, which was less than

[50] The SO_2 emission rate used in the Nationwide BART was calculated from the data in EPA's National BART 2014 spreadsheet by dividing the Total SO_2 Emissions (MTons) by the Total Fuel Use (TBtu) and converting to lb/MMBtu. *See* EPA's National BART 2014 spreadsheet, *available at* http://www.epa.gov/visibility/actions.html.

[51] The tons of SO_2 modeled in the Nationwide BART scenario are reported in EPA's National BART 2014 spreadsheet, available at http://www.epa.gov/visibility/actions.html.

[52] The 2010 SO_2 emission rate was calculated from the data reported on CAMD by dividing the Total SO_2 Emissions by the Total Fuel Use and converting to lb/MMBtu. 2010 data was used for each unit in the chart except for Kenneth C Coleman C3, as described in more detail in footnote 54, *infra*.

[53] For units operating a scrubber at 95% efficiency, the properly calculated presumptive BART was determined, as EPA purported to do, by applying the actual emission rate to the heat input assumed in EPA's Nationwide BART modeling scenario.

[54] For Kenneth C Coleman C3, the emission rate was calculated using 2011 data. Using 2010 annual coal feed, coal heat content and coal sulfur content reported in EIA Form-923 along with AP-42 emission factor [(38 *S lb SO2/ton of coal) * (tons of coal) * (2000 lb/ton)], where S = fuel sulfur content, for wall-fired boiler firing bituminous coal, annual uncontrolled 2010 SO_2 emissions were calculated to be 27,347 tons SO_2 with an emission factor of 4.67 lb SO_2/mmBtu. EPA CAMD reported annual SO_2 emissions of 2,607 tons SO_2 at an emission rate of .43 lb SO_2/mmBtu which represents a RE of 90.5% [(27347-2607)/27347)]. If the RE had been 95%, actual reported emissions would have been 1,367 tons SO_2 [(1-.95)*27347] and an emission rate of 0.23 lb SO_2/mmBtu. The 2011 reported emission rate for Kenneth Coleman C3 was 0.26 lb SO_2/mmBtu which closely approximates operation with a 95% SO_2 RE. Although emissions estimates made using AP-42 emission factors have be prone to some error, if the error in the AP-42 estimate were a 10% low bias, and actual emissions were 30,082 tons, then an emission of 2,607 tons would be yielded by 91.3% RE. In either case, Kenneth Coleman C3 did not achieve 95% RE in 2010.

0.15 lbs/MMBtu. As further support for the argument that presumptive BART does not reflect best available controls, the limit applied as presumptive BART, 0.30 lbs/MMBtu, exceeds actual historic emissions.

Table 5. SO_2 BART Emissions Modeled in Nationwide BART Scenario as Compared to Actual Emissions and Properly Calculated Presumptive BART at Scrubbed Units Achieving Less than 95% Efficiency but an Emission Limit Less than 0.15 lbs/mmBtu

Plant	Unit	Nationwide BART, SO_2 lb/MMBtu[55]	Nationwide BART, SO_2 tons[56]	2010 Annual SO_2 lb/MMBtu[57]	Properly Calculated Presumptive BART, SO_2 tons[58]
Shiras (MI)	3	0.30	359	0.10	126

Finally, at the following non-scrubbed units in the CSAPR states, EPA applied emissions limits for SO_2 that are greater than would be achieved by applying a scrubber with 95% efficiency. Not only do the modeled BART emissions limits depart from the promised presumptive BART values, the modeled BART emission limits exceed actual historic emissions rates for either 2010 as deduced from reported emissions and heat input in CAMD. Likewise, the emissions limits EPA applied far exceed the limits that would be obtained if the source was required to use a highly effective scrubber, achieving 99% reduction efficiency. *See* Section VII.C.2, *supra*.

[55] The SO_2 emission rate used in the Nationwide BART was calculated from the data in EPA's National BART 2014 spreadsheet by dividing the Total SO_2 Emissions (MTons) by the Total Fuel Use (TBtu) and converting to lb/MMBtu. *See* EPA's National BART 2014 spreadsheet, *available at* http://www.epa.gov/visibility/actions.html.
[56] The tons of SO_2 modeled in the Nationwide BART scenario are reported in EPA's "National BART 2014 Unit Specific Results" spreadsheet, available at http://www.epa.gov/visibility/actions.html.
[57] The 2010 SO_2 emission rate was calculated from the data reported on CAMD by dividing the Total SO_2 Emissions by the Total Fuel Use and converting to lb/MMBtu.
[58] For the scrubbed unit that is less than 95% efficient, but that is achieving an emission rate less than 0.15 lb/mmBtu, the properly calculated presumptive BART was determined, as EPA purported to do, by applying the actual emission rate to the heat input assumed in EPA's Nationwide BART modeling scenario.

Table 6. SO_2 BART Emission Limits Modeled in Nationwide BART Scenario as Compared to Actual Emission Limits, Properly Calculated Presumptive BART Emissions Limits, and Projected BART Emission Limits at Unscrubbed Units

Plant	Unit	Nationwide BART, SO_2 lb/MMBtu [59]	2010 Annual SO_2 lb/MMBtu [60]	Properly Calculated Presumptive BART, SO_2 lb/MMBtu [61]	Projected BART, SO_2 lb/MMBtu [62]
Charles R Lowman (AL)	1	2.46	1.42	0.12	0.02
Whitewater Valley (IN)[63]	2	6.15	3.55	0.31	0.06
Ames Elec. Servs. (IA)	7	0.94	0.45	0.05	0.01
Muscatine Plant #1 (IA)	8	0.94	0.59	0.05	0.01
Streeter Station (IA)	7	1.00	0.83	0.05	0.01
Quindaro (KS)	1	0.94	0.60	0.05	0.01
Eckert Station (MI)	4	0.94	0.43	0.05	0.01
Eckert Station (MI)	5	0.94	0.53	0.05	0.01
Eckert Station (MI)	6	0.94	0.54	0.05	0.01
Presque Isle (MI)	5	1.05	0.85	0.05	0.01
Presque Isle (MI)	6	1.05	0.85	0.05	0.01
Presque Isle (MI)	7	0.62	0.48	0.03	0.01
Presque Isle (MI)	8	0.62	0.48	0.03	0.01
Presque Isle (MI)	9	0.62	0.48	0.03	0.01
Hoot Lake (MN)	3	1.49	0.71	0.07	0.01
Silver Bay (MN)	2	1.00	Not Reported	0.05	0.01
James River Power Station (MO)	4	0.94	0.55	0.05	0.01
James River Power Station (MO)	5	0.98	0.54	0.05	0.01
Lake Road (MO)	6	0.87	0.58	0.04	0.01
Dolphus M Grainger (SC)	1	4.72	2.44	0.24	0.05
Dolphus M Grainger (SC)	2	5.52	2.45	0.28	0.06

[59] The SO_2 emission rate used in the Nationwide BART was calculated from the data in EPA's National BART 2014 spreadsheet by dividing the Total SO_2 Emissions (MTons) by the Total Fuel Use (TBtu) and converting to lb/MMBtu. *See* EPA's National BART 2014 spreadsheet, *available at* http://www.epa.gov/visibility/actions.html.

[60] The 2010 SO_2 emission rate was calculated from the data reported on CAMD by dividing the Total SO_2 Emissions by the Total Fuel Use and converting to lb/MMBtu.

[61] For the unscrubbed units, the properly calculated presumptive BART was determined by applying a scrubber achieving 95% efficiency to the tons of SO_2 that EPA predicted these plants would emit under the National BART scenario. A review of EPA's National BART 2014 spreadsheet indicates that EPA did not consider these units to have been scrubbed. As such, the emissions in tons reported in the spreadsheet represent uncontrolled emissions that must be reduced by 95%.

[62] Projected BART is calculated applying a scrubber achieving 99% reduction efficiency. *See* Section VII.C.2 & n.42 *supra*.

[63] Although Whitewater Valley Unit 2 is reported to have installed an FGD scrubber in 2006, in 2010, the plant reported that the scrubber for that unit was on standby, so it is treated as unscrubbed.

EPA's failure to calculate presumptive SO_2 BART in the manner described in its modeling methodology incorrectly projects CSAPR to achieve greater reductions at a number of BART-eligible power plants. Moreover, when compared to emissions that could be achieved with projected BART controls imposed, CSAPR is clearly not better than BART at a number of plants, as the following table demonstrates:

Table 7. Comparison of EPA's "Transport Rule + BART-elsewhere" and "Nationwide BART" Scenarios to Properly Calculated Presumptive BART and Projected BART, all units evaluated

Plant	Unit	Transport Rule + BART-elsewhere (SO_2 tons)[64]	Nationwide BART (SO_2 tons)[65]	Properly Calculated Presumptive BART (SO_2 tons)[66]	Projected BART (SO_2 tons)[67]
Charles R Lowman (AL)	1	865	8,778	439	88
Whitewater Valley (IN)	2	1,218	13,280	664	133
Ames Electric Services Power Plant (IA)	7	611	993	50	10
Muscatine Plant #1 (IA)	8	1,051	1,393	70	14
Streeter Station (IA)	7	893	1,114	56	11
Quindaro (IA)	1	1,674	2,413	121	24
Kenneth C Coleman (KY)	C3	1,084	1,585	1,397	1,397
Dickerson (MD)	3	627	5,121	1,039	1,039
Eckert Station (MI)	4	1,143	2,230	111	22
Eckert Station (MI)	5	1,235	2,410	121	24
Eckert Station	6	1,165	2,273	114	23

[64] From EPA's CSAPR+BART 2014 spreadsheet, available at http://www.epa.gov/visibility/actions.html.
[65] From EPA's National BART 2014 spreadsheet, available at http://www.epa.gov/visibility/actions.html.
[66] Properly calculated presumptive BART is described for each type of unit as above, scrubbed units with a reduction efficiency of 95% or greater (*see* footnote 53, *supra*), scrubbed units with a reduction efficiency of less than 95% yet achieving an emission rate less than 0.15 lb/MMBtu (*see* footnote 58, *supra*), or unscrubbed units (*see* footnote 61, *supra*).
[67] For the unscrubbed units, projected BART is calculated as described in footnote 62, supra, by applying a scrubber achieving 99% reduction efficiency. *See* Section VII.C.2 & n.42 *supra*. For the scrubbed units, projected BART conservatively assumes the historic achieved emission rate as applied to the heat input EPA assumed in the Nationwide BART scenario. Thus, it is the same as the "Properly Calculated Presumptive BART" for the scrubbed units, as described in footnotes 53 & 58, *supra*.

Plant	Unit	Transport Rule + BART-elsewhere (SO_2 tons)[64]	Nationwide BART (SO_2 tons)[65]	Properly Calculated Presumptive BART (SO_2 tons)[66]	Projected BART (SO_2 tons)[67]
(MI)					
Presque Isle (MI)	5	2,709	2,969	148	30
Presque Isle (MI)	6	2,697	2,956	148	30
Presque Isle (MI)	7	1,940	1,993	100	20
Presque Isle (MI)	8	1,862	1,913	96	19
Presque Isle (MI)	9	1,865	1,915	96	19
Shiras (MI)	3	151	359	126	126
Hoot Lake (MN)	3	1,882	4,491	225	45
Silver Bay (MN)	2	2,490	2,491	125	25
James River Power Station (MO)	4	1,105	2,043	102	20
James River Power Station (MO)	5	2,016	3,726	186	37
Lake Road (MO)[68]	6	-	2,360	118	24
Dolphus M Grainger (SC)	1	3,305	14,884	744	149
Dolphus M Grainger (SC)	2	3,359	17,122	856	171
Cumberland (TN)	1	11,246	13,984	6,865	6,865
Cumberland (TN)	2	11,255	13,995	7,816	7,816
Total		**59,447**	**128,791**	**21,931**	**18,181**

The consequences of EPA's failure to properly apply SO_2 presumptive BART become particularly apparent when EPA's conclusion that CSAPR is "better than BART" is tested within individual states, as seen in particular in Minnesota, where commenters have had the opportunity to undertake indepth analysis. As explained in the Technical Support Attachment to Comments of Conservation Organizations on the Minnesota Regional Haze SIP, EPA modeled SO_2 emissions limits higher than presumptive BART in several instances. For example, EPA modeled Austin Northeast at 1.05 lb/MMBtu, Hoot Lake Unit 3 at 1.49 lb/MMBtu, and Silver Bay Boiler 2 at 1.00 lb/MMBtu, but because none of these units have scrubbers, EPA should have assumed SO_2 emission rates reflecting 95% control. If EPA's assumed SO_2 emission rates for these three EGUs reflected 95% control, then the uncontrolled SO_2 emission rates of the coal would range from 20 to 30 lb/MMBtu which is not credible. These units all burn only

[68] EPA has classified this unit in the CSAPR + BART spreadsheet as "Coal Withdrawn as Uneconomic" and included no heat input or SO*2* emissions. *See* EPA's CSAPR+BART 2014 spreadsheet, *available at* http://www.epa.gov/visibility/actions.html.

subbituminous coal,[69] which is typically low sulfur coal. In fact, the EPA's assumed emission rates for Hoot Lake Unit 3 and Silver Bay Boiler 2 not only reflect uncontrolled emissions but also are significantly higher than actual historical emission rates. Over 2003-2011, the highest annual average SO_2 emission rate at Hoot Lake Unit 3 was only 0.71 lb/MMBtu according to CAMD, but EPA modeled the unit based on an SO_2 emission rate of 1.49 lb/MMBtu. Had EPA truly followed its purported methodology in its Nationwide BART emissions projections, it should have assumed 95% reductions, which would have resulted in much lower emission rates than EPA actually used in its emission projections.

In addition, EPA assumed an SO_2 rate for the unscrubbed Taconite Harbor Unit 3 of 0.22 lb/MMBtu.[70] At maximum, the unit had an annual average SO_2 rate of 0.67 lb/MMBtu over the last nine years.[71] Thus, if EPA were to apply presumptive BART limits to Taconite Harbor Unit 3, it should have assumed an SO_2 emission rate reflecting 95% control at that unit. Instead, EPA inexplicably assumed an SO_2 emission rate of 0.22 lb/MMBtu.

For Clay Boswell Unit 4, EPA assumed an SO_2 emission rate of 0.15 lb/MMBtu. However, Boswell Unit 4 has a wet scrubber, as indicated in EPA's National BART 2014 spreadsheet, and CAMD data shows that the unit is actually achieving lower SO_2 emission rates than 0.15 lb/MMBtu. In 2010-2011, the annual average SO_2 emission rate at the unit ranged from 0.10 to 0.05 lb/MMBtu. Nevertheless, EPA assumed an SO_2 BART rate of 0.15 lb/MMBtu, which was inconsistent with what EPA purported to assume (*i.e.*, presumptive BART levels unless actual emissions were lower).

Likewise, a review of EPA's assumed SO_2 emission rates in its 2014 Nationwide BART emissions scenario for BART-eligible units in Missouri shows that EPA did not consistently apply this methodology to all BART-eligible units. Missouri has 21 BART-eligible EGUs, and all but one of the units have no SO_2 scrubbers, according to CAMD. Because these units were uncontrolled for SO_2 (Iatan Unit 1 was uncontrolled through 2007), data from CAMD from 2003 to 2010 will reveal the maximum historical uncontrolled SO_2 emission rate. Using an uncontrolled emission rate equal to the high annual emission rate from 2003-2010, it is possible to calculate the approximate SO_2 removal efficiency that EPA should have assumed in its Nationwide BART 2014 scenario, as shown below.

For the fifteen units in Missouri with projected SO_2 emission rates of 0.15 lb/MMBtu or less, EPA assumed SO_2 rates in the Nationwide BART 2014 scenario ranging from 0.06 lb/MMBtu to 0.15 lb/MMBtu.[72] However, the SO_2 removal that these projected emission rates

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[69] *See* EPA's National BART 2014 Spreadsheet, Columns regarding Total Subbituminous Fuel Use and Total Bituminous Fuel Use.

[70] The Minnesota Pollution Control Agency ("MPCA") has adopted as BART the requirement to install Rotating Opposed Fired Air ("ROFA")/Rotomix system that includes Furnace Sorbent Injection for SO_2 control. *See* MPCA BART Determination for Minnesota Power Taconite Harbor Unit 3 in Appendix 9.4 of the Minnesota Regional Haze Plan at 910. However, it does not appear that these controls have been installed yet at Unit 3. CAMD does not indicate any scrubber or other SO_2 controls installed at Taconite Harbor Unit 3, nor have SO_2 rates declined in recent years to indicate application of SO_2 controls.

[71] Based on a review of SO_2 emission rates from CAMD for 2003-2011.

[72] The assumed SO_2 emission rate was calculated from the data in EPA's National BART 2014 spreadsheet by dividing the Total SO_2 Emissions (MTons) by the Total Fuel Use (TBtu) and converting to lb/MMBtu.

reflected ranged from a low of 76% to a high of 96%, with the average SO_2 removal efficiency being 88%. Thus, if EPA assumed an uncontrolled emission rate equal to the high annual emission rate from 2003-2010, EPA did not assume SO_2 rates in the BART scenario of 95% control at units with no scrubbers in Missouri.

For three other units in Missouri, EPA's projected SO_2 emissions under the Nationwide BART scenario only reflected 5% to 48% SO_2 removal from historical maximum uncontrolled SO_2 emission rates. And there are three units for which EPA's SO_2 emission rates with BART applied no SO_2 controls and instead reflected increases in SO_2 emission rates of 17% to 70%, as seen in the table below.

Table 8. Review of EPA's Assumed SO_2 Emission Rates for BART-Eligible Units in Missouri in the Nationwide BART 2014 Emissions Scenario

Plant	Unit	EPA's Assumed SO_2 Emission Rate in Nationwide BART 2014 Emissions Scenario, lb/MMBtu	Percent SO_2 Removal Efficiency Reflected by EPA's Assumed BART SO_2 Emission Rate Compared to Historical Uncontrolled SO_2 Emission Rates
Iatan	1	0.06	91%
Asbury	1	0.07	96%
Thomas Hill	MB1	0.08	82%
Montrose	3	0.08	91%
Labadie	1	0.08	89%
Labadie	2	0.08	89%
Labadie	3	0.08	89%
Labadie	4	0.08	89%
New Madrid	2	0.08	80%
New Madrid	1	0.08	82%
Rush Island	2	0.08	88%
Rush Island	1	0.08	88%
Sioux	1	0.12	93%
Sioux	2	0.12	93%
Sikeston Power Station	1	0.15	76%
Sibley	3	0.88	6%
Sibley	2	0.88	5%
James River Power Station	5	0.94	-64%
James River Power Station	4	0.94	-70%
Lake Road	6	0.94	-17%
Blue Valley	3	2.68	48%

As shown by the above table, EPA did not always project SO2 emissions under BART for unscrubbed units based on 95% SO2 removal in Missouri. EPA did not even assume that scrubbers would be installed at several unscrubbed BART-eligible units in its SO2 BART emission projections.

In addition, at Fair Station in Iowa, if EPA assumed an uncontrolled emission rate equal to the high annual emission rate from 2003-2010, EPA assumed an SO_2 emission rate of 0.95 lb/MMBtu in its Nationwide BART scenario, which reflects only 82% SO2 removal from the unit's maximum annual average uncontrolled SO_2 rate from 2003 to 2010. Likewise, based on the same assumptions, for Big Cajun 2 in Louisiana, both units burn the same low sulfur coal, have no scrubbers, and emit SO2 at a maximum uncontrolled rate of 0.77 lb/MMBtu. Yet, in its Nationwide BART scenario, EPA projected SO_2 emissions for Big Cajun 2 Unit 1 at 0.08 lb/MMBtu and for Big Cajun 2 Unit 2 at 0.58 lb/MMBtu, reflecting 89% control for Unit 1 and only 25% control for Unit 2. Finally, in Kentucky, EPA assumed Robert Reid Unit 1 would emit SO_2 at a rate of 4.28 lb/MMBtu in the Nationwide BART scenario. This emission rate reflects historical uncontrolled SO_2 emission rates at the unit from 2003 to 2010. Thus, for this unit, EPA assumed no control equals BART.

As all of the above examples make clear, EPA's projections of SO_2 emissions for BART-eligible sources did not reflect the assumptions that EPA claimed to have made in its Technical Support Document.

EPA's treatment of Minnesota sources in its alternatives analysis is also illustrative of EPA's failure to properly apply presumptive NOx BART. The presumptive NOx BART limits vary with coal type and boiler configuration. If a source had existing NOx controls, EPA assumed those controls would be operated year round. If those controls did not meet presumptive BART limits, EPA would assume installation of post-combustion controls, such as selective catalytic reduction ("SCR") or selective non-catalytic reduction ("SNCR") that would meet the BART guidelines. The limits are as follows (*see* TSD at 5):

Table 9. Presumptive BART for NOx per the Technical Support Document

	Bituminous	**Subbituminous**	**Lignite**
Dry bottom wall-fired	0.39	0.23	0.29
Tangential-fired	0.28	0.15	0.17
Cell burners	0.40	0.45	n/a
Dry turbo-fired	0.32	0.23	n/a
Wet bottom tangential-fired	0.62	n/a	n/a
Cyclone	0.10	0.10	0.10

Given this purported methodology for projecting NOx emissions under BART, EPA should have assumed installation of an SCR at Sherburne County Units 1 and 2 in Minnesota. These units have already installed combustion controls, but the units have failed to meet the 0.15 lb/MMBtu presumptive BART limits for tangential-fired boilers burning subbituminous coal. According to actual annual emissions data from CAMD, the units have averaged 0.18 lb/MMBtu

NOx rates on an annual basis in 2009-2011. In instances where installed combustion controls do not meet presumptive BART limits, EPA represented that it would assume post-combustion controls (SCR or SNCR) would be installed.[73] However, EPA did not assume the Sherburne County Units 1 and 2 would be retrofitted with post-combustion controls. Had EPA projected BART emissions in the manner it purported, it should have projected NOx emissions for Sherburne County Units 1 and 2 at 0.05 lb/MMBtu.[74]

Similarly, Northshore Mining's Silver Bay Boiler 2 was not projected to meet the presumptive NOx BART limit of 0.23 lb/MMBtu for wall-fired subbituminous coal-fired boilers with combustion controls. Instead, MPCA found the unit could only meet a NOx rate of 0.40 lb/MMBtu with combustion controls[75] Thus, according to EPA's methodology, EPA should have assumed installation of post-combustion NOx controls for this unit, but EPA did not do so. Given that the Silver Bay power plant causes more visibility impairment to the Boundary Waters Class I area than any other coal-fired power plant in Minnesota[76] and given that installation of SCR would be cost effective at the unit, a proper NOx BART determination for the unit would have resulted in a NOx BART limit of 0.05 lb/MMBtu.

By improperly applying presumptive NOx BART limits at these units, EPA's Nationwide BART scenario includes 5,385 tons more NOx emissions in Minnesota than it should. Correcting for presumptive BART at these units would result in the Nationwide BART scenario producing 7,294 fewer tons of NOx from these plants than the CSAPR scenario.

In sum, failure to apply presumptive BART in the manner stated in the preamble and the Technical Support Document is both arbitrary and consequential, fatally undermining the credibility of EPA's analysis. By failing to apply presumptive BART, which is too weak in any case, with any uniformity, EPA arbitrarily discounted the emissions achieved in the BART scenarios.

E. EPA Did Not Properly Account for Different Averaging Times under CSAPR and BART When Comparing Visibility Impacts

In failing to consider the different averaging times that are used to establish compliance with CSAPR and BART, EPA's analysis cannot establish that CSAPR provides greater reasonable progress than BART. Under the established reasonable progress test, EPA was required to show that reliance on CSAPR in lieu of BART will not cause visibility to degrade at any Class I area on the 20 percent best and worst days, and that CSAPR provides an overall improvement in visibility over BART on the 20 percent best and worst days. 40 C.F.R.

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[73] *See* TSD at 5.

[74] *See* Letter from Soug Aburano, U.S. EPA Region 5 to John M. Seitz, Chief, Minnesota Pollution Control Agency at 2 (June 6, 2011) (finding that SCR could be applied at Xcel Energy's Sherburne County facility) [Attachment 6]; *See also* National Park Service's October 3, 2009 Comments Entitled "Xcel Energy's Sherburne County Generating Station (SHERCO) MPCA 5/19/09 report and Subsequent Response to Comments" in Appendix 2.5 of Minnesota Regional Haze SIP at 377.

[75] *See* MPCA BART Determination for Northshore Mining Silver Bay Power Boiler 2, in Appendix 9.4 of Minnesota Regional Haze plan at 848.

[76] *See* Table 9.5.3 of Appendix P.5 of Minnesota Regional Haze Plan at 933.

§ 51.308(e)(3)(i)-(ii). The difference in how emission impacts are measured or averaged can significantly affect the outcome of this analysis.

Visibility impacts are measured based on a twenty-four hour averaging time,[77] whereas BART emission limits are set based on 30-day averaging times. The BART Guidelines require enforceable emission limits reflecting BART requirements and specify that permits reflecting BART limits for EGU's must "specify an averaging time of a 30-day rolling average." *See* 70 Fed. Reg. 39104, 39172 (July 6, 2005). Moreover, BART emissions limits must be met on a continuous basis. *See* 42 U.S.C. § 7602(k); CAA § 302(k). In contrast, CSAPR provides for averaging of emissions over a year for the annual SO_2 and NOx programs, and over a five-month period for the ozone season NOx program. Because pollutants are not emitted at a constant rate throughout a given day, month, or year, longer averaging times will "smooth out" variations including hourly spikes in emissions that impact visibility. Without accounting for the averaging times, it is impossible to accurately determine whether CSAPR will provide greater benefits than BART on the 20 percent best or worst days. 40 C.F.R. § 51.308(e)(3)(ii). Also, because CSAPR has such a long averaging time, EPA has failed to show that its analysis accurately assesses whether CSAPR will cause or allow visibility to decline at any Class I area on the 20 percent best or worst days. *Id.* § 51.308(e)(3)(i). For all the foregoing reasons, EPA's proposed finding that CSAPR provides for greater reasonable progress than BART is arbitrary.

F. EPA's Modeling Does Not Include Realistic Nitrate Levels

EPA's CSAPR better than BART visibility modeling does not reflect realistic nitrate levels, precluding a credible comparison between CSAPR and BART. In response to a data request, EPA provided its intermediate modeling results, which revealed a high frequency of near zero nitrate levels. *See* Gebhart Report at 11. This revelation conflicts with real-world measurements of atmospheric nitrate concentrations from IMPROVE monitors. *See id.* EPA's failure to produce modeling results that accord with real-life atmospheric conditions severely undermines the credibility of the agency's analysis. *See Columbia Falls Aluminum Co. v. EPA*, 139 F.3d 914, 923 (D.C. Cir. 1998) ("An agency's use of a model is arbitrary if that model 'bears no rational relationship to the reality it purports to represent.'") (internal citation omitted).

Because nitrate and sulfate concentrations contribute to overall atmospheric extinction, a core component of visibility, the model's failure to contain sufficient nitrate concentrations could significantly affect whether the model accurately predicts visibility impacts. Sulfate and nitrate typically affect extinction relative to their concentrations in the atmosphere. Thus, in the east where there is more sulfate in the atmosphere, sulfate has a greater effect on extinction, whereas the relative importance of sulfate extinction diminishes as one approaches the central plains, northern plains, and upper Midwest. *See* Gebhart Report at 11-12. EPA's model does not reflect this reality, but instead shows an extremely high sulfate to nitrate concentration on the 20% best days at Isle Royale National Park in Michigan where one would expect more nitrate concentrations, and a higher than normal sulfate to nitrate concentrate at Dolly Sods Wilderness in West Virginia on the 20% worst days. *Id.* at 13-14. The nitrate levels in the model could be low for two reasons: failure to provide enough ammonia, which preferentially converts SO_2 to

[77] *See* BART Guidelines, 40 C.F.R. Pt. 51, Appx. Y, § III.A.3, Option 2.

sulfate before converting NOx to nitrate, or an overestimation of SO_2, which could consume all of the ammonia leaving little left for nitrate conversions. *Id.* at 14. Either deficiency would result in less NOx in the model than in reality, which in turn would mask improvements in visibility from NO_X reductions that would be expected to increase where BART is required. *See id.* at 15 (explaining that "[w]ith nitrate levels at or near zero in USEPA's modeling, the NOx emission controls assumed by USEPA probably achieve little if any modeled benefit toward improving Class I visibility."). This failure to replicate real life conditions renders the agency's modeling analysis arbitrary and precludes EPA from using its modeling results to justify reliance on CSAPR in place of BART. *See Columbia Falls*, 139 F.3d at 923. EPA "retains a duty to examine key assumptions as part of its affirmative burden of promulgating and explaining a non-arbitrary, noncapricious rule." *Small Refiner Lead Phase-Down Task Force v. EPA*, 705 F.2d 506, 534 (D.C. Cir. 1983); *see also Eagle-Picher Indus., Inc. v. EPA*, 759 F.2d 905, 921 (D.C. Cir.1985) (agency must provide a full analytic defense when its model is challenged).

G. EPA Has Failed to Demonstrate that CSAPR is Better than BART in States Subject Only to the Seasonal Ozone Trading Program

1. CSAPR is Not Better Than BART in the Ozone Season States

EPA's analysis does not attempt to demonstrate that CSAPR is better than BART in those states where power plants are only subject to the five-month ozone season NOx trading program. Under the better than BART proposal, BART-eligible sources in Arkansas, Florida, Louisiana, Mississippi, and Oklahoma—which are only covered by the ozone season program and thus only required to hold allowances and limit emissions during May through September—would escape the BART requirement to install and operate year-round controls designed to reduce NOx emissions that harm the nation's Class I areas. This creates a palpable risk of visibility degradation during the seven months of the year when the sources have no incentive to operate controls, causing CSAPR to fail under prong 1 of the reasonable progress test. *See* 40 C.F.R. § 51.308(e)(3)(i). EPA has not attempted to show that for these states CSAPR can nevertheless be better than BART, and based on the analysis below it will not likely be able to make that showing. *See* USFS Comments at 1 ("We do not support the provision for reliance upon ozone season NOx limitations as providing for greater reasonable progress than source-specific BART.").

For example, as the USFS has explained, summertime NOx controls may not improve visibility given the atmospheric chemistry of particulate nitrate formation. As they explained,

> Particulate nitrate formation is largely dependent upon cooler temperatures and higher humidity values, conditions most common during the late autumn through the early spring months. This translates into a significantly higher contribution of particulate nitrate to the extinction budget during the winter season. Correspondingly, summer time nitrate concentrations are typically very low and contribute very little to light extinction. . . . NOx controls which are limited to ozone season will have little effect on reducing particulate nitrate levels during the period of the year when nitrate contribution to light extinction is greatest.

USFS Comments at 1-3, Figs.1-2. Thus, at a minimum, in Oklahoma and Arkansas, where modeling predicts the highest nitrate levels between November and February, CSAPR is not likely to be better than BART. *Id.* at 3. Moreover, independent of the nitrate chemistry, it is not certain that CSAPR can be better than partial-BART because, in many of these states, CSAPR is not predicted to reduce NOx emissions over ozone-only BART.

a. Arkansas

Arkansas is one of the five states in which CSAPR only applies during the five-month ozone season for NOx emissions from EGUs. In Arkansas, the three BART-eligible coal-fired units, White Bluff Units 1 and 2 and Flint Creek Unit 1, have been determined by Arkansas to be subject to BART.[78]

The state of Arkansas adopted the presumptive NOx BART emission rates from EPA's BART Guidelines as BART limits for these units, but EPA recently disapproved these state BART determinations for failing to consider post-combustion controls such as selective catalytic reduction (SCR).[79] As EPA noted in its proposed disapproval of the Arkansas NOx BART determinations, NOx emission rates with SCR as low as 0.05 lb/MMBtu have been routinely met.[80] In comparison, the presumptive NOx BART rates for White Bluff Units 1 and 2 and Flint Creek are 0.15, 0.15, and 0.23 lb/MMBtu, respectively.

In its BART projections for these three EGUs in the National BART 2014 scenario, EPA ignored its October 2011 proposed disapproval of the presumptive NOx BART limits. Instead, EPA assumed that meeting the presumptive NOx limits reflected source-specific BART at these units. EPA has now made clear in its final disapproval of those same limits that presumptive BART does *not* equal source-specific BART for White Bluff Units 1 and 2 and Flint Creek Unit 1 in Arkansas. *See also* Section VII.C.2, *supra*.

As the table below shows, EPA assumed that these three units would not reduce emissions in the CSAPR scenario. EPA essentially projected the same level of emissions for these three units under CSAPR as the units were projected to emit in the 2014 base case (without BART). It is not clear how EPA can claim that ozone-season only CSAPR requirements in Arkansas will be better than BART when EPA's own projections show that CSAPR will not result in any NOx reductions at BART-subject units in Arkansas.

Table 10. Comparison of Proper NOx BART Emissions for BART-Subject Coal-Fired EGUs in Arkansas Compared to EPA's NOx Emissions Projections for these Units.

Plant	Unit	NOx	EPA's	EPA's	EPA's

[78] *See* 76 Fed. Reg. 64186, 64199 (Oct. 17, 2011).
[79] *See* EPA Final Rule signed February 13, 2012 (unofficial signed rule, not yet published in the Federal Register), Arkansas Regional Haze State Implementation Plan; Interstate Transport State Implementation Plan to Address Pollution Affecting Visibility and Regional Haze, at 36-37.
[80] *See* 76 Fed. Reg. 64186, 64203 (Oct. 17, 2011).

		Emissions with Proper BART (including SCR), tons[81]	Projected Emissions under "Nationwide BART," tons[82]	Projected Emissions under "Transport Rule + BART-elsewhere," tons[83]	Projected 2014 Base Case NOx Emissions, tons[84]
White Bluff	1	683	1,867	6,659	6,510
White Bluff	2	683	2,174	7,755	7,580
Flint Creek	1	1,043	4,799	5,446	5,446
	Total	**2,409**	**8,840**	**19,860**	**19,536**

Not only has EPA demonstrated that BART would result in much greater NOx reductions than CSAPR in Arkansas, but proper source-specific NOx BART, based on application of SCR to meet a NOx limit of 0.05 lb/MMBtu, would result in substantially more NOx reductions than CSAPR at the BART-subject coal-fired EGUs in the state.

As it stands, EPA's modeling of its projected BART emissions versus modeling of its projected CSAPR emissions shows that visibility will actually degrade on the 20% best days at the Class I areas within Arkansas and affected by Arkansas.[85] Those Class I areas are listed in the following table.

Table 11. Class I Areas In or Impacted by Arkansas Emissions Where EPA's Modeling Shows BART Will Improve Visibility More than CSAPR on the 20% Best Days[86]

Class I Area	Location	Visibility Improvement that BART Provides over CSAPR on 20% Best Days Based on EPA's Modeling
Caney Creek	Arkansas	0.2 dv
Upper Buffalo	Arkansas	0.1 dv
Hercules-Glades	Missouri	0.2 dv

This makes sense given that EPA has essentially stated that CSAPR will not result in any NOx emission reductions at the Arkansas coal-fired EGUs subject to BART. Thus, EPA's emissions scenarios and modeling fail to show that the NOx reductions under CSAPR will

[81] Proper BART is calculated based on application of SCR to meet a NOx limit of 0.05 lb/MMBtu. This rate was applied to the heat input assumed for each unit in EPA's Nationwide BART scenario.
[82] From EPA's National BART 2014 spreadsheet, *available at* http://www.epa.gov/visibility/actions.html.
[83] From EPA's CSAPR+BART 2014 spreadsheet, *available at* http://www.epa.gov/visibility/actions.html.
[84] From EPA's 2014 Basecase spreadsheet, *available at* http://www.epa.gov/visibility/actions.html.
[85] *See* 76 Fed. Reg, 64186, 64193 (October 17, 2011).
[86] Data extracted from Table 3-5 of EPA's Technical Support Document for Demonstration of the Transport Rule as a BART Alternative (at 34-36). For the larger list of Class I areas where EPA projects visibility to be better under BART than CSAPR, see Table 1 in Section VII.A, *supra*.

achieve greater reasonable progress than BART in the Class I areas within Arkansas or affected by Arkansas sources.

In the summer ozone season, the NOx emitted by coal-fired power plants such as White Bluff or Flint Creek is more likely to be converted to ozone in the atmosphere rather than visibility-impairing nitrate particulates. However, during the months outside of the ozone season, the data on the worst 20% days for Caney Creek wilderness in Arkansas shows that nitrates are often the major component of visibility impairment.[87] And, on the best 20% of days, nitrates are more often the major component of visibility impairment.[88] Similar non-ozone season nitrate contributions occur at the Upper Buffalo wilderness in Arkansas, especially in the month of November for the worst 20% of days and in the spring, winter, and fall of the best 20% of days.[89] The Missouri Class I areas show similar patterns.[90] Based on this data, it would not be protective of visibility on a year-round basis if the NOx controls at Arkansas EGUs only applied during the ozone season. Given that EPA's NOx emission projections do not predict any NOx emission reductions at the BART-subject EGUs in Arkansas under CSAPR, EPA has not, and could not, demonstrated that ozone-season only CSAPR requirements would result in greater reasonably progress towards achieving natural background visibility conditions than source-specific BART would.

b. Other Ozone-Season-Only CSAPR States

A review of the four remaining ozone-season-only CSAPR states show that EPA has not demonstrated that CSAPR is better than source-specific BART in those states either. For example in Florida, Crystal River Units 1 and 2 are 25 km, or about 15.5 miles, from the Chassahowitzka Wilderness, part of the larger Chassahowitzka National Wildlife Refuge on the Gulf Coast of Florida. They are also within 300 km of Okefenokee, St. Marks, and Wolf Island wildernesses. Currently, both of these 1960s-era units have some form of combustion control for NOx, but no add-on controls. Under CSAPR, Units 1 and 2 at Crystal River would be required to reduce their ozone season NOx emissions by about 75% over 2010 actual emissions. Since CSAPR does not compel reductions during the remaining part of the year, this amounts to only about 35% reduction annually. Particularly given their impacts on multiple Class I areas, these units are good candidates for add-on NOx controls such as Selective Catalytic Reduction (SCR), which would not be required for the facility to meet its CSAPR allocations. These controls could provide reductions in NOx emissions of over 90%.

In addition, as shown in the table below, EPA has projected that emissions will be lower under BART than under CSAPR in the states of Florida and Oklahoma andthat emissions would be the same under BART or CSAPR in Louisiana and Mississippi.

[87] *See* Technical Support Document for CENRAP Emissions and Air Quality Modeling to Support Regional Haze State Implementation Plans, prepared by ENVIRON International Corporation and University of California Riverside, September 12, 2007 at 3-18 (in Docket for EPA's proposed rulemaking on the Arkansas Regional Haze SIP, under Appendix A references, Docket ID EPA-R06-OAR-2008-0727-0008).
[88] *Id.*
[89] *Id.* at 3-19.
[90] *Id.* at 3-23 to 3-24.

Table 12. Comparison of EPA's NOx Emission Projections Under BART and Under CSAPR for BART-Eligible EGUs in Ozone-Season-Only States.

State	EPA's Projected NOx Emissions in "Nationwide BART" for BART-Eligible EGUs, tons[91]	EPA's Projected NOx Emissions in "Transport Rule + BART-elsewhere" for BART-Eligible EGUs, tons[92]
Arkansas	8,840	19,860
Florida	23,051	32,229
Oklahoma	14,479	17,658
Mississippi	15,738	15,765
Louisiana	15,542	15,542

Thus, for almost all of the five ozone-season-only states, EPA's analyses shows that NOx emissions will be lower under BART than under ozone-season-only CSAPR requirements. Yet, as discussed above regarding the EPA's emission projections under BART for Arkansas EGUs, EPA mainly assumed presumptive NOx BART rates reflected BART. which is not an appropriate assumption because source-specific BART determinations may be lower than presumptive BART. Even so, EPA's ana;ysis has shown that BART will result in greater NOx emission reductions in almost all of the ozone-season-only CSAPR states. Had EPA determined proper source-specific NOx BART emission rates for the BART-subject EGUs, NOx emissions under BART would be even lower than projected by EPA, as we have demonstrated above in the case of Arkansas. In any event, EPA has failed to demonstrate that CSAPR will result in greater NOx emission reductions than source-specific BART in these ozone-season-only states.

2. EPA Must Analyze Whether a Seasonal Program is Better than Application of Year-Round BART controls

In addition to addressing the obvious concern that limiting emissions under CSAPR for less than half a year cannot provide greater reasonable progress than installing and operating effective controls year-round, EPA must also account for the possibility that BART-eligible sources in these states may simply purchase allowances from newer, cleaner sources located in states subject to both the seasonal NOx and annual program alike[93]—that is, sources that are more likely to install controls. This likely scenario risks degradation at the Class I areas impacted by sources in ozone season states and could cause CSAPR to fail prong 1 of the reasonable progress test. 40 C.F.R. § 51.308(e)(3)(i). While EPA purported to model some trading in the IPM, EPA's failure to undertake a meaningful evaluation of the likely worst case scenario and CSAPR's impacts in these states renders its proposal arbitrary and unlawful.

[91] From EPA's National BART 2014 spreadsheet, *available at* http://www.epa.gov/visibility/actions.html.
[92] From EPA's CSAPR+BART 2014 spreadsheet, *available at* http://www.epa.gov/visibility/actions.html.
[93] These states include Alabama, Georgia, Illinois, Indiana, Iowa, Kentucky, Maryland, Michigan, Missouri, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, West Virginia, and Wisconsin.

H. EPA Cannot Reliably Evaluate Visibility Impacts at All Class I Areas Using Only Data from IMPROVE Monitors

EPA's analysis is further flawed because it fails to consider differences in visibility across each Class I area, instead estimating visibility based on a single IMPROVE monitor, where available. In this way, EPA's analysis does not show whether CSAPR would cause a decline in visibility across all or parts of any Class I area. *See* 40 C.F.R. § 51.308(e)(3)(i). In some instances, EPA relied on a single monitor in a Class I Area to make conclusions about visibility in another Class I Area entirely. *Cf.* 40 C.F.R. § 51.308(e)(3) (requiring dispersion modeling "to determine differences in visibility between BART and the trading program for *each* impacted Class I area, for the worst and best 20 percent of days" (emphasis added)). For example, in EPA's analysis, Otter Creek Wilderness in West Virginia is represented by the IMPROVE Monitor at Dolly Sods Wilderness in West Virginia. *See* Gebhart Report at 10.

Evaluating visibility impairment at a single monitor location, whether that monitor is within the Class I area or is a proxy for a nearby Class I area, is unlikely to accurately describe visibility conditions across the Class I area. *See* Gebhart Report at 10. This problem is particularly pronounced for large Class I areas such as Shenandoah National Park, which covers 70 miles and stretches from Front Royal, Virginia to Wayneboro, Virginia. *See id.* Certainly, given its size, visibility would be expected to differ throughout the area. Nonetheless, EPA's modeling represents Shenandoah based on the single 12 km x 12 km grid square where its IMPROVE monitor is located. This approach conflicts with both conventional and EPA wisdom; even EPA's own BART Guidelines recognize that a single IMPROVE monitor cannot represent visibility impact, particularly where multiple Class I areas are at issue:

> [I]f there are multiple Class I areas in relatively close proximity to a BART-eligible source, a State may model a full field of receptors at the closest Class I area. Then a few strategic receptors may be added at the other Class I areas (perhaps at the closest point to the source, a receptor at the highest and lowest elevation in the Class I area, a receptor at the IMPROVE monitor, and a few receptors that are expected to be at the approximate plume release height).

70 Fed. Reg. 39104, 39126 (July 6, 2005).

Thus, analysis based on a single monitor location cannot provide assurance that visibility will not degrade across any Class I area, and EPA must rely on more than evaluation of the impacts at IMPROVE monitor locations to demonstrate that visibility will not decline in any Class I area if CSAPR is relied on in lieu of source-specific BART. *See* 40 C.F.R. § 51.308(e)(3)(i). EPA's failure to consider other means of estimating visibility across the Class I areas, or to explain why it departed from the BART Guidelines, renders its analysis arbitrary.

I. EPA's Estimates of the Visibility Improvements Under CSAPR Do Not Attempt to Capture CSAPR's Real World Impacts

EPA's analysis does not reasonably account for CSAPR's regulatory flexibility and what it may yield in the way of differing emissions scenarios. Most fundamentally, EPA arbitrarily

assumes that CSAPR will achieve greater reductions than required. In addition, EPA's analysis is not premised on reasonable assumptions about *which* sources will purchase allowances and *when* the allowances will in fact be used. These issues plague EPA's analysis of the key questions whether EPA has established that visibility will not decline at any Class I under CSAPR, and whether CSAPR provides greater overall improvement at the Class I areas than BART. *See* 40 C.F.R. § 51.308(e)(3)(i)-(ii).

3. EPA's Assumptions About Emission Reductions Under CSAPR Are Not Consistent with CSAPR's Own Requirements

In the better than BART rule, EPA has assumed that both Alabama and Georgia will emit fewer tons of SO_2 than allowed under each state's respective emission budget in the original CSAPR rulemaking as described in the table below. Similarly, EPA has assumed that Alabama, Kansas, Pennsylvania, and West Virginia each will emit fewer tons of NOx than allowed in each state's respective emission budget in the original CSAPR rulemaking as described in the table below. Assuming that these CSAPR states will emit less SO_2 or NOx than CSAPR requires is not only unfounded, but also may under-predict visibility impairment, preventing detection of a likely decline in visibility in Class I areas. *See* 40 C.F.R. § 51.308(e)(3)(i). Further, in EPA's current analysis, which considers BART in a vacuum without CSAPR, overstating SO_2 emissions reductions arbitrarily attributes added visibility improvements to CSAPR over BART, rendering CSAPR more likely to satisfy the second prong of the reasonable progress test undeservedly. *See id.* § 51.308(e)(3)(ii).

Table 13. Comparison of 2014 SO_2 Emission Allocations under CSAPR and SO_2 Emissions Modeled in the "Transport Rule + BART-elsewhere" scenario

State	2014 Annual SO_2 Emissions, per CSAPR (tons)[94]	2014 SO_2 Emissions for "Transport Rule + BART-elsewhere" (tons)[95]
Alabama	213,258	168,500
Georgia	95,231	93,600

Table 14. Comparison of 2014 NOx Emission Allocations under CSAPR and NOx Emissions Modeled in the "Transport Rule + BART-elsewhere" scenario

State	2014 Annual NOx Emissions, per CSAPR (tons)[96]	2014 NOx Emissions for "Transport Rule + BART-elsewhere" (tons)[97]
Alabama	71,962	70,300
Kansas	25,560	24,400

[94] *See* 76 Fed. Reg. 48208, 48269, Table VI.F-1 (Aug. 8, 2011).
[95] *See* TSD, Table 2-4.
[96] *See* 76 Fed. Reg. at 48208, 48269, Table VI.F-2 (Aug. 8, 2011).
[97] *See* TSD, Table 2-5.

Pennsylvania	119,194	118,400
West Virginia	54,582	53,200

Accordingly, EPA's proposal is arbitrary because it assumes without rational support that CSAPR will achieve greater emissions reductions than the trading program requires. This approach is flatly at odds with the agency's proper refusal in other instances to allow states or sources to claim credit for emission limitations or reductions that are not federally enforceable. *See, e.g.,* CAA § 110(a)(2), 42 U.S.C. § 7410(a)(2); 40 C.F.R. § 51.308(d)(3).

4. EPA Failed to Adequately Consider the Potential for Trading to Degrade Visibility at the Class I Areas

CSAPR is designed to give sources flexibility in meeting their emission allocations, and as such, allows BART-eligible sources—sources that may have been required to install pollution controls to comply with BART requirements—to purchase allocations rather than control emissions. These trading decisions can significantly impact whether and where CSAPR will create hot spots that could degrade visibility at the Class I areas, causing CSAPR to fail the first prong of the reasonable progress test. *See* 40 C.F.R. § 51.308(e)(3)(i).

As discussed above, CSAPR allows sources covered by the same trading program—e.g., the annual NOx program or the SO_2 Group 1 program—to trade allowances regardless of whether the sources are in the same state, creating inherent uncertainties about where and, as discussed in the next section, when states will choose to emit. Given these inherent uncertainties, EPA's analysis for the proposed CSAPR "better than BART" rule does not and likely cannot assess the visibility impact of complex trading under CSAPR on the Class I areas. EPA has not provided any assurance in light of trading that CSAPR will not degrade visibility at any Class I area, or that CSAPR will achieve as much visibility improvement in those areas as BART would. Thus, regardless of whether trading flexibility will assist the states in complying with the NAAQS, this flexibility is at odds with ensuring emissions reductions and visibility improvement at specific Class I areas under the regional haze rule.

To remedy potential hot spots arising from trading decisions, EPA proposes to allow geographic enhancements, which, among other measures, could require installation of BART to remedy visibility impairment that is reasonably attributable to a source or group of sources (RAVI BART). *See, e.g.*, 76 Fed. Reg. 82219, 82224 & n.13. Certainly RAVI BART is critical to remedying existing impairment and must be implemented no matter what the fate of the "better than BART" proposal. *See* 40 C.F.R. § 51.302 (setting forth the control strategies to address reasonably attributable visibility impairment).[98] However, RAVI BART cannot be relied upon to *prevent* hot spots and associated degradation under CSPAR. RAVI BART is reactive; it

[98] In the CAIR better than BART rulemaking, EPA went to great lengths to explain that it recognized that a BART-alternative under the Regional Haze Rule does not eliminate the requirement that states impose BART where necessary to address reasonably attributable visibility impairment. *See* 70 Fed. Reg. 39104, 39137 (July 6, 2005) (explaining, when finalizing the CAIR better than BART rule, that "[e]ven if a BART alternative is deemed to satisfy BART for regional haze purposes, . . . CAA section 169A(b)(2)'s trigger for BART based on impairment at any Class I area remains in effect, because a source may become subject to BART based on 'reasonably attributable visibility impairment' at any area" (citing 40 C.F.R. § 51.302)).

requires FLMs to voluntarily take action to address an existing problem, and thus will not spur proactive permitting or other actions to avoid degradation in the first instance. *See id.* §§ 51.302(c)(1), (4); *see also* USFS Comments at 14 (explaining that relying on RAVI BART "shifts the burden of insuring that individual Class I area progress goals are maintained in areas where BART would have achieved greater visibility improvement than the Transport Rule from the State to the affected Federal Land Manager").

Thus, given the barriers and procedural hurdles of imposing RAVI BART, EPA cannot rely on RAVI or other geographic enhancements to mitigate the level of impairment at the multiple Class I areas to save its "better than BART" proposal, but instead must ensure in the first instance that the trading allowed under CSAPR will not degrade the Class I areas, as prohibited under the first prong of the reasonable progress test, 40 C.F.R. § 51.308(e)(3)(i). *See* USFS Comments at 14 ("While we believe preserving the RAVI BART process under 302(c) is of paramount importance and should be explicitly reaffirmed in this rulemaking, we believe that using the RAVI regulations to serve as the 'regulatory backstop' to be an unreasonable expectation and contrary to the intended purposes of the requirements of Section 308(e) of the [Regional Haze Rule]."); *see also Sierra Club v. EPA*, 356 F.3d 296, 298 (D.C. Cir. 2004) ("We agree with Sierra Club's principal contention that EPA was not authorized to grant conditional approval to plans that did nothing more than promise to do tomorrow what the Act requires today.").

5. EPA Failed to Consider When States Will Use Allowances, Potentially Overstating the Visibility Benefits Provided by CSAPR

EPA's analysis potentially overstates the air quality benefits provided by CSAPR because EPA failed to consider that while allowances are issued for a given year, sources are under no obligation to ration the allowances out over the year. Instead, as some coal plants are already planning to do, a source might choose to save its allowances for use during the summer ozone period when demand for electricity is at its peak and to idle during the rest of the year, failing to reduce emission during the months when Class I areas may be most especially likely to experience degradation in visibility. This, in turn, makes it unlikely that CSAPR will pass the first prong of the reasonable progress test. *See* 40 C.F.R. § 51.308(e)(3)(i).

For example, Luminant Generation Co. has indicated that it would idle units at Monticello in Texas when demand is low, but for D.C. Circuit Court of Appeals' recent decision to stay implementation of the rule,[99] and the Tennessee Valley Authority has likewise indicated it is considering idling when demand is low at many of its plants in Kentucky.[100] If each of these sources chooses to emit during peak ozone season and idle in the off season, the visibility benefits that BART could achieve will not materialize, and it is possible that visibility will

[99] Declaration of David A. Campbell at 3-4, *Luminant Generation Co., LLC v. EPA*, No. 11-1315 (D.C. Cir. Sept. 12, 2011).

[100] Attachment 2 to Comment submitted by John S. Lyons, Director, Kentucky Division for Air Quality (KYDAQ), Kentucky Department of Environmental Protection; re: Federal Implementation Plans to Reduce Interstate Transport of Fine Particulate Matter and Ozone; Docket # EPA-HQ-OAR-2009-0491, Document ID # EPA-HQ-OAR-2009-0491-3709, at 2 (Oct. 15, 2010).

degrade at nearby Class I areas. Under these circumstances, CSAPR cannot be deemed better than BART. *See* 40 C.F.R. §§ 51.308(e)(3)(i)-(ii). .

In addition, because the comparison under 40 C.F.R. § 51.308(e)(3)(ii) is based on the worst and best days rather than every day, EPA cannot say that CSAPR will improve visibility more than BART because EPA cannot say during what days CSAPR sources will emit at their highest level. This problem is not only intra-year but inter-year. That is CSAPR allows banking of allowances so that sources can emit at a high level and thus have high visibility impacts in a particular year versus source-specific BART that guarantees visibility at the same level every year. *See* 40 C.F.R. §§ 97.426, .526, .626, .726. Failure to account for the temporal implications of the use of allowances renders EPA's analysis of the visibility benefits under CSAPR inadequate to demonstrate that CSAPR is better than BART

J. EPA's 2014 Base Case Does Not Account for Historic Emissions Reductions at Non BART-eligible Sources, Thereby Overestimating the Benefits from CSAPR

EPA relied on a base case that ignores SO_2 emissions reductions that non-BART eligible sources have already achieved in response to other federal and state air programs and enforcement actions.[101] In so doing, EPA gave CSAPR an artificial advantage over BART on prong 2 of the reasonable progress test in EPA's already skewed analysis, which evaluates Nationwide BART in the absence of CSAPR. 40 C.F.R. § 51.308(e)(3)(ii).

In assessing CSAPR as a potential BART alternative, EPA established the 2014 base case as its visibility baseline. EPA then used this base case to calculate the expected visibility reductions under "Nationwide BART"[102] and the "Transport Rule + BART-elsewhere"[103] over and above the base case. *See* 76 Fed. Reg. 82,219, 82,224. As EPA recognizes, the 2014 base case is central to the analysis. *See* TSD at 12 (explaining that "[t]he cornerstone of [EPA's] modeling process was the 2014 base case modeling scenario, which contains emissions for 2014 based on predicted growth and existing emissions controls").

[101] EPA's base case also failed to take account of historic SO_2 emission reductions at BART-eligible sources. The most egregious example of this failure is at units 1-3 of the Harrison Power Plant in West Virginia. Although these three units have operated wet scrubbers since 1995, EPA's base case estimated that each unit would emit SO_2 at a rate of 4.28 lb/MMBtu, a rate that is more than four times greater than the 0.14 lb/MMBtu (Unit 1), 0.10 lb/MMBtu (Unit 2), and 0.11 lb/MMBtu (Unit 3) SO_2 rate that each unit averaged over 2005-2010 according to information on CAMD. *See* EPA Scrubber and SCR Retrofit Data submitted to the Senate Committee on Environment and Public Works, *available at* http://epw.senate.gov/public/index.cfm?FuseAction=Files.View&FileStore_id=a0437dd3-b584-4796-9ad0-926bb0dc3de9 (indicating that Harrison installed scrubbers in 1995). The failure to account for historic emission reductions result at Harrison Units 1-3 alone overstated SO_2 emissions in the base case by 263,289 tons. Any failure to properly account for long-standing emission control technology and historically low emissions in the base case could impact the technology assumed in the BART and CSAPR scenarios, which in turn affects how the IMP model will predict emissions at other sources and ultimately visibility impairment at the Class I areas. Rather than point out all such errors, these comments focus on problems in the base case at units that are not subject to BART, as in this situation only the Transport Rule + BART-elsewhere scenario, and not the Nationwide BART scenario, has an opportunity to make up for EPA's error. However, EPA must review the assumptions in its base case to ensure accurate modeling.

[102] The Nationwide BART scenario is defined in footnote 24, *supra*.

[103] The Transport Rule + BART-elsewhere scenario is defined in footnote 25, *supra*.

However, EPA's projected base case fails to provide a realistic basis for evaluating reliance on CSPAR in place of BART. The base case purports to include "constraints on EGU emissions from the Acid Rain Program, the NOx SIP Call, New Source Performance Standards, Title V permits, any state laws and consent order requiring emission reductions, and any other permanent and enforceable binding reduction commitments." 76 Fed. Reg. at 82224.[104] However, it fails to accurately reflect emissions reductions at non-BART eligible sources from historic fuel switching decisions or failure to account for historic installation of scrubbers that were unrelated to CAIR. Likewise, the base case does not include emissions reductions already achieved under the CAIR program at non BART-eligible sources. To the extent that these emission reductions are permanent—i.e., will apply regardless of whether CAIR is replaced with another trading program—they should be reflected in the baseline. To the extent that CSAPR preserves these emissions reductions, they should be reflected in both the CSAPR and the BART + CSAPR scenarios described in Section VII.B, *supra*.

For example, as explained in more detail in Tables 3-1 to 3-2 submitted as an attachment, in the following instances, EPA failed to account for historically low SO_2 emissions due to pre-CAIR decisions to install scrubbers or switch fuel type[105] at non-BART eligible sources in the CSAPR states in the 2014 base case — a failure that translated to higher than appropriate emissions in the Nationwide BART scenario. This failure also credited CSAPR with far greater emission reductions than it actually can be expected to induce.

Table 15. Units Where EPA's Base Case and "Nationwide BART" Scenario Fail to Account for Historically Low Emissions

Plant	Unit	Base Case (SO_2 tons)[106]	"Nationwide BART" (SO_2 tons)[107]	Historic Emissions (SO_2 tons)[108]
Kraft (GA)	1	6,393	6,393	2,236
Kraft (GA)	2	6,219	6,219	2,355

[104] It is unclear whether EPA's modeling has taken into account all consent decrees as the modeling input spreadsheets do not break down limits imposed at each source. EPA must apply the consent decrees and must make it clear that it has. Failure to do so renders the modeling arbitrary.

[105] It is safe to assume that the historic 2003-2010 SO_2 emissions were not constrained by CAIR because the emission rates and annual emissions for the post-CAIR years 2006-2010 were consistent with the rates and annual emissions for the pre-CAIR period viewed, 2003-2005.

[106] The emissions included for the base case were taken from the results of EPA's Integrated Planning Model for this proposal, 2014 basecase, *available at* http://www.epa.gov/visibility/actions.html.

[107] The emissions included for the 2014 Nationwide BART scenario were taken from the results of EPA's Integrated Planning Model for this proposal, National BART 2014 spreadsheet, *available at* http://www.epa.gov/visibility/actions.html.

[108] The historic emissions values were selected based on the highest emissions reported from 2003-2010. The data for the years 2006-2010 were the values EPA used in the CSAPR better than BART rulemaking to make its unit level allocations. *See* EPA, Technical Information and Support Documents, Technical Support Documents for the Final Cross-State Air Pollution Rule (CSAPR) and the Supplemental Notice of Proposed Rulemaking (SNPR), *Final CSAPR Unit Level Allocations under the FIP and Underlying Data, *available at* http://www.epa.gov/airtransport/techinfo.html. For the years 2003-2005, the historic emissions were generated from the Clean Air Markets website, http://camddataandmaps.epa.gov/gdm/index.cfm?fuseaction=emissions.wizard.

Plant	Unit	Base Case (SO_2 tons)[106]	"Nationwide BART" (SO_2 tons)[107]	Historic Emissions (SO_2 tons)[108]
Yates (GA)	Y1BR	1,857	1,857	613
Yates (GA)	Y2BR	15,229	15,229	7,051
Yates (GA)	Y3BR	16,254	16,254	6,878
Yates (GA)	Y4BR	18,478	18,478	9,214
Yates (GA)	Y5BR	18,723	18,723	8,637
A B Brown (IN)	2	8,871	9,387	4,060
Clifty Creek (IN)	1	54,091	37,623	12,265
Clifty Creek (IN)	2	37,665	36,667	12,230
Clifty Creek (IN)	3	37,439	36,448	13,447
Clifty Creek (IN)	4	37,283	36,295	12,977
Clifty Creek (IN)	5	36,479	35,513	12,998
Clifty Creek (IN)	6	51,749	35,994	12,341
Harding Street (IN)	50	15,138	15,138	11,159
Harding Street (IN)	60	15,093	15,093	10,411
Whitewater Valley (IN)	1	7,337	7,337	4,633
E W Brown (KY)	1	14,026	14,026	9,184
Clay Boswell (MN)	2	4,191	4,191	2,958
Thomas Hill (MO)	MB3	23,482	23,482	11,281
B L England (NJ)	2	18,057	9,244	1,183
Avon Lake (OH)	10	11,433	12,796	6,553
Eastlake (OH)	1	16,709	16,709	6,689
Eastlake (OH)	2	16,407	16,407	9,360
Eastlake (OH)	3	15,973	15,973	8,890
Eastlake (OH)	4	28,470	28,470	9,220
Kyger Creek (OH)	1	32,180	32,180	21,857
Kyger Creek (OH)	2	32,554	32,554	23,298
Kyger Creek (OH)	3	32,587	32,587	18,914
Kyger Creek (OH)	4	32,901	32,901	23,029
Kyger Creek (OH)	5	32,458	32,458	22,565
Niles (OH)	1	13,244	13,244	9,084
Niles (OH)	2	13,289	13,289	8,936
R E Burger (OH)	5	5,667	5,667	723
R E Burger (OH)	6	5,667	5,667	671
Allen Steam Plant (TN)	1	11,129	11,129	8,136
Allen Steam Plant (TN)	2	11,129	11,129	8,170
Allen Steam Plant (TN)	3	11,129	11,129	7,576
Gallatin (TN)	1	35,891	35,891	7,133
Gallatin (TN)	2	35,891	35,891	6,167
Gallatin (TN)	3	42,656	42,656	8,773

Plant	Unit	Base Case (SO_2 tons)[106]	"Nationwide BART" (SO_2 tons)[107]	Historic Emissions (SO_2 tons)[108]
Gallatin (TN)	4	42,656	42,656	8,989
Tolk (TX)	171B	10,701	17,279	13,633
Tolk (TX)	172B	10,197	16,464	13,333
Willow Island (WV)	2	10,950	11,847	8,305
Total		**955,921**	**926,563**	**428,115**

These examples of EPA's failure account for historic emission decreases were selected by identifying all BART-eligible units where the SO_2 emission rate modeled in EPA's "Nationwide BART" scenario was greater than 0.30 lb/MMBtu and where the historic emission rate, as reported in CAMD for 2010 or 2011, was less than the emission rate modeled. This provides a subset of the most egregious instances of EPA's failure to account for lower historic emission rates, and other examples may well exist throughout the model.

Notably, three of the EGUs included in Table 14 above operate FDG scrubbers installed prior to 1996. A B Brown Unit 2 installed an FGD in 1986 with a design SO_2 removal efficiency of 90% (as reported on DOE EIA Form-860R) and operated during 2008 (the year with the highest SO_2 emissions during 2003-2010 time period) with a removal efficiency of 88.4% (as reported on DOE EIA Form 923). Clay Boswell Unit 2 installed an FGD in 1980 with a design removal efficiency of 83.2% (as reported on DOE EIA Form-860R) and operated during the maximum SO_2 emissions year 2007 with a removal efficiency of 25.4% (as reported on DOE EIA Form 923). B L England Unit 2 installed an FGD in 1995 with a design removal efficiency of 93% (as reported on DOE EIA Form-860R) and operated during the maximum SO_2 emissions year 2003 with an SO_2 removal efficiency of 93% (as reported on DOE EIA Form-923).

In each of these three examples, the FGD was installed many years before implementation of CAIR, and the units operated during 2003-2010 with annual SO_2 emissions equal to or less than the maximum SO_2 emissions reported in Table 14 above. Furthermore, in each case, both the design removal efficiency, and the actual operating SO_2 removal efficiency for these EGUs are less than the 95% presumptive BART SO_2 removal efficiency EPA has prescribed for National BART. Yet EPA has assigned SO_2 annual emissions and emission rates in the Nationwide BART scenario that greatly exceed even the highest reported emission rates for the maximum SO_2 emissions years when the FGDs operated at less than EPA's presumptive BART removal efficiency.

EPA's failure to account for historic emission reductions is critically wrong where EPA ignored reductions required by mandatory emission limits that the plants themselves disclosed to the Department of Energy's Energy Information Administration. For example, at the following 19 units included in Table 14 above, EPA's failed to apply these mandatory limits, overstating the Nationwide BART scenario by 220,389 tons of SO_2.

Table 16. Units Where EPA's Nationwide BART Scenario Failed to Reflect Mandatory Emission Limits Reported to DOE/EIA

Plant	Unit	"Nationwide BART" (SO_2 tons)[109]	Emissions in National BART if Using Emission Limit Reported to DOE/EIA (SO_2, tons)[110]	Difference between modeled "Nationwide BART" and Emission Limit (SO_2, tons)
Kraft (GA)	1	6,393	4,485	1,909
Kraft (GA)	2	6,219	4,362	1,856
Yates (GA)	Y2BR	15,229	10,682	4,546
Yates (GA)	Y3BR	16,254	11,402	4,852
Yates (GA)	Y4BR	18,478	12,962	5,516
Yates (GA)	Y5BR	18,723	13,134	5,589
A B Brown (IN)	2	9,387	6,020	3,367
Clifty Creek (IN)	1	37,623	18,571	19,052
Clifty Creek (IN)	2	36,667	18,260	18,407
Clifty Creek (IN)	3	36,448	18,810	17,638
Clifty Creek (IN)	4	36,295	18,503	17,792
Clifty Creek (IN)	5	35,513	17,840	17,673
Clifty Creek (IN)	6	35,994	18,777	17,217
B L England (NJ)	2	9,244	1,056	8,188
Kyger Creek (OH)	1	32,180	17,770	14,410
Kyger Creek (OH)	2	32,554	17,104	15,450
Kyger Creek (OH)	3	32,587	16,504	16,083
Kyger Creek (OH)	4	32,901	17,242	15,659
Kyger Creek (OH)	5	32,458	17,273	15,185
Total		**481,147**	**260,757**	**220,389**

By failing to take account of any emission reductions from pre-CAIR historic fuel switching decisions or installation of scrubbers, per the above examples, and for permanent changes prompted by CAIR in the base case at non-BART-eligible sources, EPA placed the "Nationwide BART" scenario at an arbitrary disadvantage, affording CSAPR undeserved credit

[109] The emissions included for the 2014 Nationwide BART scenario were taken from the results of EPA's Integrated Planning Model for this proposal, National BART 2014 spreadsheet, *available at* http://www.epa.gov/visibility/actions.html.

[110] Date reported on http://www.eia.gov/cneaf/electricity/page/eia860.html (file name EnviroEquipY2010); 2010 DOE Form EIA-860. Where the SO_2 emission limit was reported in lbs/mmBtu, the tons of SO_2 expected in the Nationwide BART scenario if EPA had applied the mandatory emission limits was calculated by taking the reported limits multiplied by the heat input in the Nationwide BART scenario (mm/Btu), and dividing by 2000. Where the SO_2 emission limit was reported in pounds per hour of SO_2, we assumed an operating time of 8760 hours, and converted to tons by dividing by 2000. *See* Table 3-1, filed concurrently herewith.

for requiring emissions reductions on sources that were already achieving those reductions. Indeed, historic emissions are less than half of those modeled in the "Nationwide BART" scenario. Even where CSAPR achieves significant further reductions, it is fundamentally improper to compare CSPAR to a Nationwide BART scenario with excess emissions. This flaw renders EPA's analysis arbitrary.

VIII. EPA CANNOT PARTIALLY REJECT THE REGIONAL HAZE SIPS AND ISSUE PARTIAL REGIONAL HAZE FIPS

A. EPA Cannot Approve FIPs Without Ensuring Reasonable Progress

EPA cannot partially reject regional haze SIPs and propose partial regional haze FIPs for Alabama, Florida, Georgia, Indiana, Iowa, Louisiana, Michigan, Mississippi, Missouri, North Carolina, Ohio, Pennsylvania, South Carolina, and Texas.[111] In proposing to reject the SIP and issue partial FIPs, EPA illegally and arbitrarily addressed only part of the regional haze equation, BART, without accounting for reasonable progress goals in these states and whether they can be achieved without the emissions reductions at power plants that BART would provide. *See* 76 Fed. Reg. at 82221. Each regional haze SIP or FIP must ensure reasonable progress with a comprehensive strategy that includes an array of measures that collectively put the state on a glide path toward restoration of natural visibility by 2064. *See* CAA § 169A(b)(2)(A), 42 U.S.C. § 7491(b)(2)(A); 40 C.F.R. § 51.308(b) (requiring states to submit regional haze plans addressing the reasonable progress goals and long term strategy as required in section (d) and BART as required in section (e)). Thus, in approving each plan, EPA must determine that the sum of its parts will result in required visibility improvements. EPA cannot evaluate individual components of a regional haze plan in isolation, unmoored from the fundamental question whether reasonable progress will be achieved.

Under the Clean Air Act and implementing federal regulations, reasonable progress is the cornerstone and over-arching mandate of each statewide regional haze plan. *See UARG*, 471 F.3d at 1340. Indeed, among the "core requirements" of each regional haze plan are the reasonable progress goals and the long term strategy to attain those goals. 40 C.F.R. § 51.308(d)(1), (3). BART, as one of the statutorily enumerated means of achieving reasonable progress, must also be evaluated along side the reasonable progress goals and long term strategy. *See* CAA § 169A(b)(2)(A), 42 U.S.C. § 7491(b)(2)(A).

B. The Proposed Partial FIPs Do Not Make Reasonable Progress

In many of these states for which EPA has proposed to issue a limited disapproval of the regional haze SIP and replace the SIP with a partial regional haze FIP, substituting CSAPR for BART does not promise to result in greater reasonable progress. As the discussion below

[111] EPA cannot approve the proposed FIPs for the additional reasons set forth in comments on EPA's proposed approval of regional haze SIPs for Ohio, Minnesota, Pennsylvania, and Indiana that were submitted on behalf of conservation groups including NPCA and the Sierra Club. Those comments are incorporated here by reference. Likewise, EPA cannot approve the proposed FIPs for the additional reasons set forth in state-specific comments on this proposal that have been submitted concurrently on behalf of conservation groups including NPCA and the Sierra Club. Those comments also are incorporated here by reference..

demonstrates, in Alabama, Georgia, Indiana, Michigan, Missouri, North Carolina, Ohio, Pennsylvania, South Carolina, and Texas, BART will likely provide significant emissions reductions over CSAPR at the BART-eligible sources neighboring Class I Areas. These emissions reductions are very likely needed to ensure that each state either meets its own reasonable progress goals or does not preclude achievement of reasonable progress in downwind states.

The discussion below is not intended to capture every instance where BART is needed in addition to CSAPR to ensure reasonable progress. We looked exclusively at units that: (1) do not currently have SO_2 or NOx controls; and (2) are located within 300 km of Class I areas, in an effort to target the most obviously problematic implications of exempting sources from BART requirements in the proposed FIP states. (We expect similar concerns to be present in all states across the CSAPR regions). Based on these examples alone, however, EPA cannot finalize these reasonable haze FIPs without undertaking state-specific demonstrations that CSPAR somehow achieves greater reasonable progress than BART.

6. Alabama

Alabama contains five BART-eligible units located within 300 km of Alabama's Sipsey Wilderness, each of which is unequipped with readily available SO_2 BART controls. As described in Section VII.C.2 above, modern scrubbers, which is likely to represent BART for SO_2, can reduce emissions by 99%. Thus, assuming installation of effective BART controls, these five units would be able to reduce their annual SO_2 emissions over 62,000 tons a year to a mere 622 tons, much less than the 37,997 tons allocated to these units under CSAPR. Not only is it unreasonable to conclude without analyzing the reasonable progress goals that these units can be exempt from BART, exempting these units from BART will likely preclude Alabama from meeting those goals.

Table 17. Units in Alabama near Class I areas Where SO_2 Emissions under Projected BART would be less than the Unit's SO_2 Emission Allocations under CSAPR

Plant	Unit	SO_2 Control	2010 SO_2 Emissions (tons)[112]	Projected BART SO_2 Emissions (tons)[113]	CSAPR 2014 SO_2 Annual Emissions (tons)[114]	Additional Emissions Under CSAPR (tons)
Barry	4	None	7,704	77	5,639	5,562
Greene County	1	None	18,979	190	5,030	4,840
Greene County	2	None	14,641	146	5,211	5,065
James H Miller Jr.	1	None	13,716	137	15,357	15,220
Colbert	5	None	7,237	72	6,760	6,688
Total			**62,277**	**623**	**37,997**	**37,374**

7. Georgia

Allowing sources in Georgia to avoid installing adequate SO_2 BART controls is also likely to preclude Georgia from achieving its reasonable progress goals. Georgia contains seven units that do not have SO_2 controls that are also located within 300 km of two of its Class I areas, Cohotta Wilderness Area and Wolf Island Wilderness Area. Applying proper BART emission limits would reduce overall SO_2 emissions from these units by approximately 95% over CSAPR allocations for these units, as the table below demonstrates. EPA cannot approve a FIP for Georgia without analyzing whether Georgia will still be on track to meet its reasonable progress goals even if it opts out of BART controls that reduce emissions by 95% over CSAPR. Given that CSAPR allows for 29,459 tons of SO_2 emissions per year at uncontrolled plants, whereas BART would limit SO_2 emissions to an estimated 1,235 tons per year, Georgia will not likely be able to make reasonable progress without BART.

[112] The 2010 SO_2 emissions can be found on CAMD. *See* U.S. Environmental Protection Agency, Clean Air Markets – Data and Maps, http://camddataandmaps.epa.gov/gdm/index.cfm?fuseaction=iss.isshome.
[113] Calculated by applying a scrubber with 99% efficiency to the annual 2010 SO_2 emissions reported in CAMD. *See* Section VII.C.2 & n.42 *supra*.
[114] The annual unit level allocations are taken from EPA's spreadsheet titled "Final CSAPR Unit Level Allocations under the FIP and Underlying Data," listed documents associated with the Final Cross-State Air Pollution Rule (CSAPR) and Supplemental Rulemaking, *available at* http://www.epa.gov/airtransport/techinfo.html.

Table 18. Units in Georgia near Class I areas Where SO_2 Emissions under Projected BART would be less than the Unit's SO_2 Emission Allocations under CSAPR

Plant	Unit	SO_2 Control	2010 SO_2 Emissions (tons)[115]	Projected BART SO_2 Emissions (tons)[116]	CSAPR 2014 SO_2 Annual Emissions (tons)[117]	Additional Emissions Under CSAPR (tons)
Harllee Branch	1	None	7,232	72	1620	1548
Harllee Branch	2	None	7,880	79	2036	1957
Harllee Branch	3	None	20,291	203	3274	3071
Harllee Branch	4	None	17,855	179	3090	2911
Jack McDonough[118]	MB1	None	7,413	74	1696	1622
Kraft	3	None	3,736	37	793	756
McIntosh (6124)	1	None	2,505	25	910	885
Scherer	1	None	20,075	201	6864	6663
Scherer	2	None	19,395	194	7054	6860
Yates	Y7BR	None	17,082	171	2122	1951
Total			**123,463**	**1,235**	**29,459**	**28,224**

8. Indiana

Although Indiana does not contain any Class I areas, four units in Indiana that lack SO_2 controls are located within 300 km of Mammoth Cave in Kentucky. Under governing regulations, Indiana's regional haze SIP (or FIP) must include controls as necessary to ensure that its sources do not prevent Kentucky from meeting its reasonable progress goals. *See* 40 C.F.R. § 51.308(d)(3). Because projected BART at these sources would reduce emissions by

[115] The 2010 SO_2 emissions can be found on CAMD. *See* U.S. Environmental Protection Agency, Clean Air Markets – Data and Maps, http://camddataandmaps.epa.gov/gdm/index.cfm?fuseaction=iss.isshome.

[116] Calculated by applying a scrubber with 99% efficiency to the annual 2010 SO_2 emissions reported in CAMD. *See* Section VII.C.2 & n.42 *supra*.

[117] The annual unit level allocations are taken from EPA's spreadsheet titled "Final CSAPR Unit Level Allocations under the FIP and Underlying Data," listed documents associated with the Final Cross-State Air Pollution Rule (CSAPR) and Supplemental Rulemaking, *available at* http://www.epa.gov/airtransport/techinfo.html.

[118] It is also worth noting that Jack McDonough Unit 2 closed in September, 2011. See Energy Information Administration, Electric Power Monthly, ES-4 (Jan. 30, 2012), *available at* http://205.254.135.24/electricity/monthly/. To the extent that the McDonough Plant receives allocations under CSAPR based on its emissions from both Units 1 and 2, those allocations now will be available for trading to other plants, including BART-subject plants that will be able to forego emissions reductions in the absence of BART requirements.

90% over CSAPR, BART is likely needed to ensure reasonable progress. EPA cannot propose a regional haze FIP without considering this reality.

Table 19. Units in Indiana near Class I areas Where SO_2 Emissions under Projected BART would be less than the Unit's SO_2 Emission Allocations under CSAPR

Plant	Unit	SO_2 Control	2010 SO_2 Emissions (tons)[119]	Projected BART SO_2 Emissions (tons)[120]	CSAPR 2014 SO_2 Annual Emissions (tons)[121]	Additional Emissions Under CSAPR (tons)
Frank E Ratts	1SG1	None	11,133	111	1,096	985
Frank E Ratts	2SG1	None	10,174	102	1,151	1,049
Tanners Creek	U4	None	19,280	193	3,254	3,061
Wabash River Gen Station	6	None	34,733	347	2,763	2,416
Total			**75,320**	**753**	**8,264**	**7,511**

9. Michigan

Allowing BART-eligible sources in Michigan to escape SO_2 and NOx BART controls is also likely to preclude Michigan from achieving its reasonable progress goals. Michigan contains five units that do not have SO_2 controls that are located within 300 km of two of its Class I areas, Isle Royale National Park and Seney Wilderness Area. Three of those units are also uncontrolled for NOx. Applying projected SO_2 BART controls at these units would reduce SO_2 emissions by approximately 5,845 tons over CSAPR. Likewise, applying projected NOx BART controls such as selective catalytic reduction (SCR) technologies at these units will reduce NOx emissions by more than 90%,[122] the equivalent of 1,129 tons over CSAPR.

These results strongly suggest that in Michigan, substituting CSAPR for BART will prevent reasonable progress toward achieving natural visibility conditions at Isle Royale

[119] The 2010 SO_2 emissions can be found on CAMD. *See* U.S. Environmental Protection Agency, Clean Air Markets – Data and Maps, http://camddataandmaps.epa.gov/gdm/index.cfm?fuseaction=iss.isshome.

[120] Calculated by applying a scrubber with 99% efficiency to the annual 2010 SO_2 emissions reported in CAMD. *See* Section VII.C.2 & n.42 *supra*.

[121] The annual CSAPR unit level allocations for the listed units in Indiana reflect changes to the original allocations per Final Cross-State Air Pollution Rule Revisions. *See* EPA's Final Revisions Rule Unit Level Allocations under the FIPs spreadsheet, *available at* http://www.epa.gov/airtransport/techinfo.html.

[122] *See, e.g.*, 76 Fed. Reg. 52388 (Aug. 22, 2011) (EPA Region 6 BART determination for San Juan Generating Station); *see also* U.S. Environmental Protection Agency, Technical Bulletin EPA 456/F-99-006R, Nitrogen Oxides (NOx), Why and How They Are Controlled, 18 (Nov. 1999) (noting that SCR "can achieve up to a 94% [efficiency] and is one of the most effective NOx abatement techniques").

National Park and Seney Wilderness Area by 2064. EPA cannot approve a partial FIP for Michigan without analyzing whether Michigan will still be on track to meet its reasonable progress goals absent BART controls that reduce emissions by 95% over CSAPR.

Table 20. Units in Michigan near Class I areas Where SO_2 Emissions under Projected BART would be less than the Unit's SO_2 Emission Allocations under CSAPR

Plant	Unit	SO_2 Control	2010 SO_2 Emissions (tons)[123]	Projected BART SO_2 Emissions (tons)[124]	CSAPR 2014 SO_2 Annual Emissions (tons)[125]	Additional Emissions Under CSAPR (tons)
Presque Isle	5	None	1,987	20	1,035	1,015
Presque Isle	6	None	1,984	20	1,064	1,044
Presque Isle	7	None	1,489	15	1,202	1,187
Presque Isle	8	None	1,741	17	1,306	1,289
Presque Isle	9	None	1,474	15	1,325	1,310
Total			**8,675**	**87**	**5,932**	**5,845**

[123] The 2010 SO_2 emissions can be found on CAMD. *See* U.S. Environmental Protection Agency, Clean Air Markets – Data and Maps, http://camddataandmaps.epa.gov/gdm/index.cfm?fuseaction=iss.isshome.
[124] Calculated by applying a scrubber with 99% efficiency to the annual 2010 SO_2 emissions reported in CAMD.
[125] The annual unit level allocations are taken from EPA's spreadsheet titled "Final CSAPR Unit Level Allocations under the FIP and Underlying Data," listed documents associated with the Final Cross-State Air Pollution Rule (CSAPR) and Supplemental Rulemaking, *available at* http://www.epa.gov/airtransport/techinfo.html.

Table 21. Units in Michigan near Class I areas Where NOx Emissions under Projected BART would be less than the Unit's NOx Emission Allocations under CSAPR

Plant	Unit	NOx Control	2010 NOx Emissions (tons)[126]	Projected BART NOx Emissions (tons)[127]	CSAPR 2014 NOx Annual Emissions (tons)[128]	Additional Emissions Under CSAPR (tons)
Presque Isle	7	None	1,235	124	477	353
Presque Isle	8	None	1,446	145	518	373
Presque Isle	9	None	1,218	122	525	403
Total			**3900**	**391**	**1,520**	**1,129**

Michigan DEQ has also recognized in its proposed regional haze SIP that other coal plants in the state are impacting visibility in Michigan's Class I Areas, and in areas downwind from the plants. For example, the J.H. Campbell plant contributes to visibility problems at both Isle Royale and Seney.[129] The Monroe Generating Station contributes to haze problems in Isle Royale, and emissions from the Karn-Weadock and B.C. Cobb facilities impact Seney.[130] Reductions from these plants may be needed for Michigan to meet its reasonable progress goals, but Michigan simply concluded that CAIR would be sufficient without any analysis as to whether additional reductions would be needed. EPA cannot similarly conclude with analysis that CSAPR will be sufficient to achieve reasonable progress.

In addition, Michigan sources contribute to visibility impairment in many Class I areas further away in Maine, New Hampshire, New Jersey, and Vermont, each of which are within the MANE-VU region. MANE-VU has requested that upwind states including Michigan make 90 percent or greater reductions in SO_2 emissions from 167 coal-plant stacks whose emissions impact visibility in Class I Areas in the MANE-VU region, and that such states achieve greater overall emission reductions than would have been achieved under CSPAR's predecessor, CAIR. Specific Michigan plants identified by MANE-VU as having visibility impacts are Monroe, Trenton Channel, St. Clair, and Karn.

Of these other units identified by Michigan DEQ or MANE-VU, Trenton Channel Unit 9A, Campbell Unit 2, St. Clair Unit 7, and Monroe Units 1 and 2 are BART-eligible and have no

[126] The 2010 NOx emissions can be found on CAMD. *See* U.S. Environmental Protection Agency, Clean Air Markets – Data and Maps, http://camddataandmaps.epa.gov/gdm/index.cfm?fuseaction=iss.isshome.
[127] Calculated by applying post combustion controls with 90% efficiency to the annual 2010 NOx emissions reported in CAMD.
[128] The annual unit level allocations are taken from EPA's spreadsheet titled "Final CSAPR Unit Level Allocations under the FIP and Underlying Data," listed documents associated with the Final Cross-State Air Pollution Rule (CSAPR) and Supplemental Rulemaking, *available at* http://www.epa.gov/airtransport/techinfo.html.
[129] *See* Michigan Haze SIP Proposal at 47.
[130] *See id.*

SO_2 controls. For such units, BART-level reductions would be significantly better than the allocations provided under CSAPR, as detailed below.

Table 22. Additional BART-Eligible Units in Michigan That Lack SO_2 Controls and Impact Class I Areas

Plant	Unit	SO_2 Control	2010 SO_2 Emissions (tons)[131]	Projected BART SO_2 Emissions (tons)[132]	CSAPR 2014 SO_2 Annual Emissions (tons)[133]	Additional Emissions Under CSAPR (tons)
Trenton Channel	9A	None	15,181	152	5205	5053
J.H. Campbell	2	None	9,017	90	4382	4292
St. Clair	7	None	11,564	116	4422	4306
Monroe	1	None	27,636	276	9315	9039
Monroe	2	None	18,850	189	8390	8201
Total			**82,248**	**823**	**31,714**	**30,891**

In addition, J.H. Campbell Unit 2 lacks post-combustion NOx controls. Under BART, its 2010 NOx emissions of 3,364 tons would be reduced to 336 tons, while CSAPR provides a NOx emissions allocation of 1,587 tons to J.H. Campbell Unit 2.

Monroe Units 3 and 4 are BART-eligible and have already installed controls that have brought those units' emissions down to levels that are relatively, though not fully, consistent with BART. Under CSAPR, however, Monroe Units 3 and 4 will receive allocations that are far higher than their actual emissions. For example, 2010 SO_2 emissions from Monroe Unit 3 were 500 tons, while the unit's CSAPR allocation is 9,151 tons of SO_2. For Monroe Unit 4, the 2010 SO_2 emissions were 620.5 tons, while the unit's CSAPR allocation is 9,323 tons. Similarly, for NOx, Monroe Unit 3 emissions in 2010 were 1,999 tons, while the 2014 NOx allocation is 3,314 tons. For Monroe Unit 4, NOx emissions in 2010 were 2,198 tons, while the 2014 NOx allocation is 3,376 tons. As a result, CSAPR will create thousands of tons of SO_2 and NOx emission allocations that the owner of Monroe Units 3 and 4, Detroit Edison, could use to try to avoid installing BART controls on other units.

[131] The 2010 SO2 emissions can be found on CAMD. *See* U.S. Environmental Protection Agency, Clean Air Markets – Data and Maps, http://camddataandmaps.epa.gov/gdm/index.cfm?fuseaction=iss.isshome.
[132] Calculated by applying a scrubber with 99% efficiency to the annual 2010 SO_2 emissions reported in CAMD.
[133] The annual unit level allocations are taken from EPA's spreadsheet titled "Final CSAPR Unit Level Allocations under the FIP and Underlying Data," listed documents associated with the Final Cross-State Air Pollution Rule (CSAPR) and Supplemental Rulemaking, *available at* http://www.epa.gov/airtransport/techinfo.html.

10. Missouri

Similarly, exempting BART-eligible sources in Missouri from BART in favor of CSAPR would likely preclude Missouri from making reasonable progress at its Class I areas, Hercules-Glades Wilderness Area and Mingo Wilderness Area. For this and additional reasons set forth below, EPA cannot approve a regional haze FIP for Missouri.

First and foremost, EPA's own modeling establishes that SO_2 emissions will be 60% less in Missouri where BART controls are imposed than under CSAPR. *See* TSD at 10, Table 2-4 (under CSAPR + BART elsewhere, SO_2 emissions in Missouri are 181.8 Mtons, whereas under Nationwide BART, SO_2 emissions in Missouri are 107.9 Mtons). Second, as demonstrated below, at the 16 BART-eligible units located within 300 km of Missouri's Class I areas that do not contain SO_2 controls, applying adequate SO_2 BART limits would decrease annual emissions by 95,245 tons over allowable emissions under CSAPR. Thus if EPA finalizes the partial FIP, it is likely that Missouri will not make reasonable progress toward attaining natural visibility conditions at its Class I areas by 2064.

Table 23. Units in Missouri near Class I areas Where SO_2 Emissions under BART would be less than the Unit's SO_2 Emission Allocations under CSAPR

Plant	Unit	SO_2 Control	2010 SO_2 Emissions (tons)[134]	BART SO_2 Emissions (tons)[135]	CSAPR 2014 SO_2 Annual Emissions (tons)[136]	Additional Emissions Under CSAPR (tons)
Labadie	1	None	16,027	160	9,156	8,996
Labadie	2	None	16,113	161	9,367	9,206
Labadie	3	None	17,230	172	9,739	9,567
Labadie	4	None	17,424	174	10,038	9,864
Rush Island	1	None	14,964	150	9,596	9,446
Rush Island	2	None	11,103	111	8,795	8,684
James River	4	None	999	10	857	847
James River	5	None	1,884	19	1,583	1,564
Montrose	3	None	3,882	39	2,714	2,675
Asbury	1	None	9,403	94	3,215	3,121
Southwest	1	None	3,577	36	2,914	2,878
New Madrid Power Plant	1	None	8,850	89	8,280	8,192

[134] The 2010 SO_2 emissions can be found on CAMD. *See* U.S. Environmental Protection Agency, Clean Air Markets – Data and Maps, http://camddataandmaps.epa.gov/gdm/index.cfm?fuseaction=iss.isshome.
[135] Calculated by applying a scrubber with 99% efficiency to the annual 2010 SO_2 emissions reported in CAMD. *See* Section VII.C.2 & n.42 *supra*.
[136] The annual unit level allocations are taken from EPA's spreadsheet titled "Final CSAPR Unit Level Allocations under the FIP and Underlying Data," listed documents associated with the Final Cross-State Air Pollution Rule (CSAPR) and Supplemental Rulemaking, *available at* http://www.epa.gov/airtransport/techinfo.html.

Sibley	3	None	10,169	102	5,092	4,990
New Madrid Power Plant	2	None	6,190	62	7,628	7,566
Thomas Hill Energy Center	MB1	None	3,060	31	3,015	2,984
Thomas Hill Energy Center	MB2	None	5,147	51	4,716	4,665
Total			**146,022**	**1,460**	**96,705**	**95,245**

More broadly, EPA cannot credibly claim that CSAPR is "better than" BART in Missouri given that its BART-eligible units are largely uncontrolled for SO_2. Of the 24 BART-eligible units identified by Missouri, at least 19 lack any SO_2 controls.[137] In addition, most—roughly two out of three—lack modern NO_x controls. As discussed above, state-of-the-art scrubbers are capable of reducing SO_2 emissions by 99%, and selective catalytic reduction ("SCR") technologies reduce NO_x emissions by over 90%.[138]

Despite the ready availability of these highly effective technologies, not a single Missouri BART-eligible unit uses both controls. In fact, only one-third of these units use SCR, less than 10% use any SO_2 controls at all, and at least one unit lacks any SO_2 or NO_x controls:

[137] Missouri's Regional Haze Plan identifies 24 BART-eligible units. *See* State of Missouri Regional Haze Plan (June 25, 2009) ("MO SIP"), at 50. For three units (Marshall Municipal Utilities, Boiler EP-05; Trigen—Kansas City, Boiler 1A; and University of Missouri—Columbia, Boiler 10), information regarding these units' emissions and controls is lacking. Such information does not appear to be contained within EPA's Clean Air Markets database, EPA's Technical Support Document for Demonstration of the Transport Rule as a BART Alternative, or Appendix I of the Missouri SIP. *See* U.S. Environmental Protection Agency, Clean Air Markets – Data and Maps, http://camddataandmaps.epa.gov/gdm/index.cfm?fuseaction=iss.isshome; U.S. Environmental Protection Agency, Technical Support Document for Demonstration of the Transport Rule as a BART Alternative, Docket Number EPA-HQ-OAR-2011-0729 (Dec. 2011); MO SIP, App. I. While such historical information may exist within Appendix J of the Missouri SIP, the undersigned organizations have not been able to find this appendix on the Missouri Department of Natural Resources website (http://dnr.mo.gov/) or the Internet.

[138] *See, e.g.,* Proposed Rule, 76 Fed. Reg. 16168, 16188 (March 22, 2011) ("Wet scrubbing is the predominant technology for large-scale utility applications in most parts of the world . . . SO_2 removal guarantees of up to 99% (without additives) are available from the system suppliers and have been demonstrated in commercial applications").

Table 24. Existing SO_2 and NO_x Controls at Missouri BART-Eligible EGUs[139]

EGU	Unit	SO_2 Controls	SO_2 Emissions in Tons (2010)	NO_x Controls	NO_x Emissions in Tons (2010)
Labadie	1	None	16,026.8	Low NOx Burners (LNB) with Closed-Coupled (CC) Separated Overfire Air (SOFA)	2,244.8
Labadie	2	None	16,113.3	LNB with CC SOFA	2,392.6
Labadie	3	None	17,230.2	LNB with CC SOFA	2,548.3
Labadie	4	None	17,424.1	LNB with CC SOFA	2,610.7
Rush Island	1	None	14,963.6	LNB with CC SOFA	1,934.8
Rush Island	2	None	11,102.5	LNB with CC SOFA	1,448.6
Sioux	1	Wet Limestone	21,495.1	Overfire Air (OFA) Other	4,027.5
Sioux	2	Wet Limestone	18,836.8	OFA Other	3,472.1
Lake Road	6	None	1,587.5	OFA	1,859.6
Sibley	3-5C	None	10,168.5	OFA and Selective Catalytic Reduction (SCR)	1,087.7
Thomas Hill	1-EP-01	None	3,060.0	OFA and SCR	725.9
Thomas Hill	1-EP-01	None	5,147.4	OFA and SCR	4,950.3
New Madrid	1-EP-01	None	8,849.9	OFA and SCR	2,002.3
New Madrid	2-EP-02	None	6,189.8	OFA and SCR	1,590.1
City of Columbia Municipal Power Plant (a.k.a. Columbia Energy Center)*	7—EP02	None	0.0	Dry LNB	0.2
Southwest (a.k.a.	1—E09	None	3,577.3	Other SCR	587

[139] *See* U.S. Environmental Protection Agency, Clean Air Markets – Data and Maps, http://camddataandmaps.epa.gov/gdm/index.cfm. As noted earlier, EPA's Clean Air Markets database lacks information on three BART-eligible units identified by Missouri; accordingly, such information was not included here.

John Twitty Energy Center)					
James River	4—EO7	None	998.8	LNB with OFA	389.1
James River	5—E08	None	1,883.5	LNB with OFA	706.7
Asbury	7	None	9,403.4	OFA and SCR	962.5
Blue Valley	3—EP-05	None	561.3	LNB with CC OFA	35.6
Montrose	3	None	3,881.6	None	1,918.2

As a result of these largely uncontrolled units, Missouri's BART-eligible units in 2010 emitted over 188,000 tons of SO_2 and over 32,600 tons of NO_x.[140]

According to Missouri's Regional Haze Plan, these emissions are "reasonably expected" to contribute to visibility impairment at two Missouri Class I areas: Hercules Glades Wilderness Area and a 7,700-acre Wilderness area within the Mingo National Wildlife Refuge. MO SIP, at 10-11. The Hercules Glades Wilderness Area is within the Mark Twain National Forest and contains over 12,000 acres of "the most scenic and unique country in the Midwest."[141] The Mingo National Wildlife Area is a resting and wintering area for migratory waterfowl and other birds.[142] This Refuge contains over 21,000 acres, of which 7,700 acres have been designated by Congress as Wilderness protected under the 1964 Wilderness Act.[143]

Missouri's emission sources are also "reasonably expected" to contribute to visibility impairment at out-of-state Class I areas including Upper Buffalo Wilderness Area and Caney Creek Wilderness Area, both located in Arkansas. MO SIP, at 11, 17. The Upper Buffalo Wilderness Area is located within the Ozarks-St. Francis National Forest and is comprised of roughly 12,000 pristine, unroaded acres.[144] The Caney Creek Wilderness Area encompasses over 14,000 acres within the Ouachita National Forest.[145] Missouri's emission sources have also been identified as contributing to visibility impairment in Wichita Mountains (Oklahoma) and Boundary Waters (Minnesota). Oklahoma and Minnesota have both provided Missouri with modeling data indicating that emission sources located in Missouri are contributing to visibility impairment in these Class I areas. *See* MO SIP, at 17, 18. Although Missouri has so far resisted requiring the installation any additional controls that might help these Class I areas (*see id*. at 18, 19), it has offered no persuasive justification why these sources should not be subject to BART.[146]

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[140] U.S. Environmental Protection Agency, Clean Air Markets – Data and Maps, http://camddataandmaps.epa.gov/gdm/index.cfm.

[141] U.S. Department of Agriculture, Forest Service, http://www.fs.usda.gov/recarea/mtnf/recreation/hiking/recarea/?recid=21754&actid=51.

[142] U.S. Fish & Wildlife Service, Mingo National Wildlife Refuge, http://www.fws.gov/midwest/mingo/.

[143] *Id*.

[144] U.S. Department of Agriculture, Forest Service, http://www.fs.usda.gov/recarea/osfnf/recreation/hunting/recarea/?recid=43499&actid=55.

[145] Wildnerness.net, http://www.wilderness.net/index.cfm?fuse=NWPS&sec=wildView&WID=95.

[146] Missouri takes the position that "it is counter-intuitive to assume that planned emission controls on Missouri sources would be significant," given the distance between the Wichita Mountains and Missouri's western Class I

Given that Missouri's BART-eligible units are already contributing to visibility impairment at several Class I areas both within and outside of Missouri, it is imperative that EPA not approve a FIP that will preclude emissions reductions that are needed to achieve reasonable progress. For Missouri, a CSAPR "better than BART" determination would allow BART-eligible sources to emit an additional 73,900 tons of SO_2. In other words, BART would achieve an over 40% reduction of SO_2 as compared to CSAPR.[147] Missouri's projected NO_x reductions are similarly reduced under BART and not CSAPR. EPA's data shows that Missouri's BART-eligible units would be allowed to emit roughly 900 additional tons of NO_x under CSAPR. *See* TSD at 11. Thus, based on EPA's data alone, it appears unlikely that CSAPR canachieve "greater reasonable progress" than BART. Moreover, in reality, the SO_2 and NO_x emissions reductions under BART as opposed to CSPAR would be even greater than projected had EPA assumed the installation of more up-to-date BART controls. *See* TSD at 4-5 (assuming presumptive BART).

11. North Carolina

In North Carolina, exempting BART-eligible sources from SO_2 BART controls may preclude the state from achieving its reasonable progress goals. North Carolina contains two units that do not have SO_2 controls that are located within 300 km of one of its many Class I areas, including Great Smoky Mountains, Joyce Kilmer-Slickrock Wilderness Area, Linville Gorge Wilderness Area, Shining Rock Wilderness Area, and Swanquarter Wilderness Area. Applying proper SO_2 BART controls at these units would reduce SO_2 emissions by approximately 2,107 tons over these units' CSAPR allocations. This suggests that substituting CSAPR for BART in North Carolina will prevent reasonable progress toward achieving natural visibility conditions North Carolina's Class I areas by 2064. EPA cannot approve a partial FIP for North Carolina without analyzing whether North Carolina will still be on track to meet its reasonable progress goals in the absence of BART controls that reduce emissions by approximately 90% over CSAPR.[148]

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area—approximately 200 to 250 miles. MO SIP, at 18. Missouri also contends that on a cost-per-ton basis, it would be more efficient to impose controls on facilities located in Oklahoma, Texas, and Louisiana. *See id*. As to the Boundary Waters, Missouri acknowledges that Minnesota's modeling analysis has identified Missouri as a state contributing to ongoing haze problems, but it insists that "it is not reasonable to control the Missouri sources at the same level as MN sources to achieve a very small impact at the Boundary Waters Class I area." *Id*. at 19. None of these arguments is availing. BART-eligible sources that contribute to visibility impairment are subject to BART under the Clean Air Act. *See* 42 U.S.C. § 7491(b)(2); *see also* 40 C.F.R. § 51.308(d)(3)(i) (requires states such as Missouri to develop a coordinated emission strategy to address "reasonably anticipated" visibility impairments).

[147]Under the "Transport Rule + BART-elsewhere" scenario, EPA projects over 181,000 tons of SO_2 being emitted from Missouri BART-eligible sources. *See* TSD at 10. Under the "Nationwide BART" alternative, however, less than 108,000 tons of SO_2 would be emitted. *See id*.

[148] While Progress Energy has announced plans to shutter these two units, we are not aware of any binding obligations that require shutdown on any enforceable schedule. To the extent they do retire, CSPAR allocations for these plant will become available to other BART-subject units in North Carolina that would be able to avoid BART-based emissions reductions under EPA's proposal.

Table 25. Units in North Carolina near Class I areas Where SO_2 Emissions under Projected BART would be less than the Unit's SO_2 Emission Allocations under CSAPR

Plant	Unit	SO_2 Control	2010 SO_2 Emissions (tons)[149]	Projected BART SO_2 Emissions (tons)[150]	CSAPR 2014 SO_2 Annual Emissions (tons)[151]	Additional Emissions Under CSAPR (tons)
H F Lee Steam Electric Plant	3	None	9,744	97	967	870
L V Sutton	3	None	11,861	119	1,356	1,237
Total			**21,605**	**216**	**2,323**	**2,107**

12. Ohio

Although Ohio is not home to any Class I areas, seven sources in Ohio that lack SO_2 controls are located within 300 km of Mammoth Cave National Park in Kentucky, Otter Creek Wilderness area Dolly Sods Wilderness Area in West Virginia, and Shenandoah National Park and James River Face Wilderness area in Virginia. Under governing regulations, Ohio's regional haze SIP (or FIP) must include controls as necessary to ensure that emissions from sources within its boundaries do not prevent Kentucky, Virginia, West Virginia, or other downwind states from meeting their reasonable progress goals. *See* 40 C.F.R. § 51.308(d)(3). Because applying modern SO_2 BART controls at these sources will likely reduce SO_2 emissions 16,680 tons more than CSAPR would, BART is likely needed to ensure reasonable progress, and EPA cannot finalize the partial regional haze FIP for Ohio without demonstrating reasonable progress in the absence of BART.

[149] The 2010 SO_2 emissions can be found on CAMD. *See* U.S. Environmental Protection Agency, Clean Air Markets – Data and Maps, http://camddataandmaps.epa.gov/gdm/index.cfm?fuseaction=iss.isshome.

[150] Calculated by applying a scrubber with 99% efficiency to the annual 2010 SO_2 emissions reported in CAMD. *See* Section VII.C.2 & n.42 *supra*.

[151] The annual unit level allocations are taken from EPA's spreadsheet titled "Final CSAPR Unit Level Allocations under the FIP and Underlying Data," listed documents associated with the Final Cross-State Air Pollution Rule (CSAPR) and Supplemental Rulemaking, *available at* http://www.epa.gov/airtransport/techinfo.html.

Table 26. Units in Ohio Near Class I Areas Where SO_2 Emissions Under Projected BART Would Be Less Than the Unit's SO_2 Emission Allocations Under CSAPR

Plant	Unit	SO_2 Control	2010 SO_2 Emissions (tons)[152]	Projected BART SO_2 Emissions (tons)[153]	CSAPR 2014 SO_2 Annual Emissions (tons)[154]	Additional Emissions Under CSAPR (tons)
Avon Lake Power Plant	12	None	34,481	345	2879	2534
Conesville	3	None	11,604	116	680	564
Eastlake	5	None	31,527	315	3687	3372
Walter C Beckjord Generating Station	5	None	17,719	177	1123	946
Walter C Beckjord Generating Station	6	None	46,945	469	2476	2007
Cardinal	3	None	26,596	266	4199	3933
Muskingum River	5	None	27,688	277	3602	3325
Total			**196,560**	**1,966**	**18,646**	**16,680**

Similarly, applying post-combustion NOx BART controls at these sources would reduce NOx emissions 4,596 tons more than CSAPR would.

[152] The 2010 SO_2 emissions can be found on CAMD. *See* U.S. Environmental Protection Agency, Clean Air Markets – Data and Maps, http://camddataandmaps.epa.gov/gdm/index.cfm?fuseaction=iss.isshome.
[153] Calculated by applying a scrubber with 99% efficiency to the annual 2010 SO_2 emissions reported in CAMD.
[154] The annual unit level allocations are taken from EPA's spreadsheet titled "Final CSAPR Unit Level Allocations under the FIP and Underlying Data," listed documents associated with the Final Cross-State Air Pollution Rule (CSAPR) and Supplemental Rulemaking, *available at* http://www.epa.gov/airtransport/techinfo.html.

Table 27. Units in Ohio Near Class I Areas Where NOx Emissions Under Projected BART Would Be Less Than the Unit's NOx Emission Allocations Under CSAPR

Plant	Unit	NOx Control	2010 NOx Emissions (tons)[155]	BART NOx Emissions (tons)[156]	CSAPR 2014 NOx Annual Emissions (tons)[157]	Additional Emissions Under CSAPR (tons)
Avon Lake	12	LNB/OFA/ SNCR	4,974	623[158]	1800	1177
Conesville	3	LNB	1,192	119	430	311
Eastlake	5	LNB/OFA/ SNCR	4,434	793[159]	2306	1513
Walter C Beckjord Generating Station	5	LNB/OFA	2,416	242	710	468
Walter C Beckjord Generating Station	6	LNB/OFA	4,399	440	1567	1127
Total			**17,415**	**2217**	**6813**	**4596**

In addition, as set forth in detail in comments submitted by Earthjustice on EPA's proposed "limited" approval of the Ohio SIP,[160] Ohio sources contribute to visibility impairment in many Class I areas further away in Missouri and Michigan, and as far away as New Jersey, and Maine. Maine and New Jersey are both in the MANE-VU region, which has requested that upwind states including Ohio make 90 percent or greater reductions in SO_2 emissions from EGUs and achieve greater overall emission reductions than would have been achieved under CSPAR's predecessor, CAIR. In Ohio, there are 28 EGU stacks at 14 plants that impact Class I areas in the MANE-VU region that accordingly need to achieve these emissions reductions. In the absence of BART requirements, however, these plants would be permitted to contribute to ongoing visibility impairment. Three of these plants—Avon Lake, Eastlake, and Walter C.

[155] The 2010 NOx emissions can be found on CAMD. *See* U.S. Environmental Protection Agency, Clean Air Markets – Data and Maps, http://camddataandmaps.epa.gov/gdm/index.cfm?fuseaction=iss.isshome.
[156] Unless otherwise noted, these figures were calculated by applying post combustion controls with 90% efficiency to the annual 2010 NOx emissions reported in CAMD.
[157] The annual unit level allocations are taken from EPA's spreadsheet titled "Final CSAPR Unit Level Allocations under the FIP and Underlying Data," listed documents associated with the Final Cross-State Air Pollution Rule (CSAPR) and Supplemental Rulemaking, *available at* http://www.epa.gov/airtransport/techinfo.html.
[158] This figure was calculated by multiplying the unit's 2010 heat rate, as found on CAMD, by a NOx emission rate of 0.05lb/mmBtu.
[159] This figure was calculated by multiplying the unit's 2010 heat rate, as found on CAMD, by a NOx emission rate of 0.05lb/mmBtu
[160] Letter from Shannon Fisk, Earthjustice, to Pamela Blakely, U.S. EPA, Comments of the National Parks Conservation Association, Natural Resources Defense Council, and Sierra Club re: Proposed Limited Approval of Revisions to the Ohio State Implementation Plan for Regional Haze, Docket No. EPA-R05-OAR-2011-0239 (Feb. 24, 2012).

Beckjord—do not have scrubbers and do not have any announced plans to install them to comply with CSPAR. (While these plants may retire, they are under no legal obligation to do so).

Additional scrubbed units at the General J.M. Gavin plant are still emitting SO_2 at rates inconsistent with achieving 90 percent control efficiency and have a significant adverse impact on the Dolly Sods/Otter Creek Wilderness Area in West Virginia as a result.[161] Despite having scrubbers, Gavin Unit 1 emitted 11,989 tons of SO2 in 2010, and Gavin Unit 2 emitted 13,339 tons, which suggests that the scrubbers are not very effective and/or that the units are burning very high sulfur coal. While CSAPR would allocate only 6,030 and 5,936 SO2 emission allowances to Units 1 and 2 respectively, scrubbers achieving BART-level controls would reduce SO2 emissions considerably further. Without data on what the scrubbers are currently achieving at Gavin, it is impossible to determine exactly what level of SO2 emissions would result from the BART-required 99% removal efficiency. However, using the 0.06 lb/mmBtu limit recently approved by U.S. EPA in Oklahoma's regional haze SIP, BARt controls would result in SO_2 emissions of 2,515 and 2,762 tons per year, respectively — less than half of the tonnage allocated under CSAPR for Gavin Units 1 and 2.

Given Ohio's recognized contribution to visibility impairment in multiple Class I areas across many states, EPA cannot approve the proposed partial FIP for Ohio without providing a persuasive demonstration that exempting the state's many BART-subject EGUs from BART requirements will not preclude achievement of reasonable progress goals by other states.

13. Pennsylvania

Pennsylvania is another state that does not contain any Class I areas. Thus, like Indiana and Ohio, its regional haze SIP (or FIP) must include measures ensuring that Pennsylvania sources do not preclude reasonable progress at Class I areas in other states. *See* 40 C.F.R. § 51.308(d)(3). As set forth in greater detail in the comments on EPA's proposed approval of Pennsylvania's regional haze SIP, reliance on CSAPR in lieu of BART will not preclude Pennsylvania from interfering with neighboring state's reasonable progress goals, and its FIP therefore cannot be approved. Moreover, as the table below explains, at the four units that are located within 300 km of Class I areas in New Jersey, Virginia, Vermont, and West Virginia, applying BART controls to limit SO_2 emissions instead of allowing the sources to emit up to their CSAPR allocations will reduce emissions by 7,718 tons per year. These additional reductions are likely critical ensure that nearby states can meet their reasonable progress goals.

[161] Ohio Haze SIP at 57.

Table 28. Units in Pennsylvania near Class I areas Where SO_2 Emissions under Projected BART would be less than the Unit's SO_2 Emission Allocations under CSAPR

Plant	Unit	SO_2 Control	2010 SO_2 Emissions (tons)[162]	Projected BART SO_2 Emissions (tons)[163]	CSAPR 2014 SO_2 Annual Emissions (tons)[164]	Additional Emissions Under CSAPR (tons)
New Castle	5	None	3,941	39	522	483
Portland	2	None	13,256	133	1,255	1,122
Homer City	1	None	53,645	536	3,635	3,099
Homer City	2	None	55,695	557	3,571	3,014
Total			**126,537**	**1,265**	**8,983**	**7,718**

14. South Carolina

Exempting BART-eligible sources in South Carolina from applying SO_2 BART controls is likely to preclude South Carolina from achieving its reasonable progress goals. Six units at three plants that do not have SO_2 controls are located within 300 km of South Carolina's Cape Romain Wilderness area. Applying BART at these units would reduce SO_2 emissions by approximately 11,287 tons per year over the annual CSAPR allocations for these units, as the table below demonstrates. EPA cannot approve the FIP without analyzing whether South Carolina will still be on track to meet its reasonable progress goals absent BART controls. The fact that BART provides significant emissions reductions over CSAPR at many units makes it likely that opting out of BART will preclude South Carolina from making reasonable progress.

[162] The 2010 SO_2 emissions can be found on CAMD. *See* U.S. Environmental Protection Agency, Clean Air Markets – Data and Maps, http://camddataandmaps.epa.gov/gdm/index.cfm?fuseaction=iss.isshome.
[163] Calculated by applying a scrubber with 99% efficiency to the annual 2010 SO_2 emissions reported in CAMD. *See* Section VII.C.2 & n.42 *supra*.
[164] The annual unit level allocations are taken from EPA's spreadsheet titled "Final CSAPR Unit Level Allocations under the FIP and Underlying Data," listed documents associated with the Final Cross-State Air Pollution Rule (CSAPR) and Supplemental Rulemaking, *available at* http://www.epa.gov/airtransport/techinfo.html.

Table 29. Units in South Carolina near Class I areas Where SO_2 Emissions under Projected BART would be less than the Unit's SO_2 Emission Allocations under CSAPR

Plant	Unit	SO_2 Control	2010 SO_2 Emissions (tons)[165]	Projected BART SO_2 Emissions (tons)[166]	CSAPR 2014 SO_2 Annual Emissions (tons)[167]	Additional Emissions Under CSAPR (tons)
Jefferies	4		4,062	41	2563	2522
Canadys Steam	CAN2		3,723	37	1721	1684
Canadys Steam	CAN3		6,031	60	2641	2581
Dolphus M Grainger	1		2,569	26	1184	1158
Dolphus M Grainger	2		3,027	30	1161	1131
Jefferies	3		5,990	60	2271	2211
Total			**25402**	**254**	**11,541**	**11,287**

15. Texas

Finally, as explained more fully in Earthjustice's comments on EPA's proposal to partially reject Texas's regional haze SIP and issue a partial FIP, exempting BART-eligible sources in Texas from BART controls in favor of CSAPR would likely preclude Texas from making reasonable progress at its Class I areas, Big Bend National Park and Guadalupe Mountains National Park and from meeting its obligation to ensure that out-of-state Class I areas can achieve reasonable progress goals. For this reason, EPA cannot approve the regional haze FIP for Texas

Indeed, EPA's own modeling establishes that SO_2 emissions will be 50% less if BART controls are imposed. *See* TSD at 10, Table 2-4 (under CSAPR + BART elsewhere, SO_2 emissions in Texas are 266.6 Mtons, whereas under Nationwide BART, SO_2 emissions are 139.3 Mtons). Moreover, as demonstrated below, at the nine BART-eligible units located within 300 km of Texas's Class I areas, applying SO_2 BART controls would decrease annual emissions by 66,829 tons if those units instead used their CSAPR allocations. It is unreasonable to propose a partial FIP allowing these sources to opt out of BART without considering whether increased emissions under CSPAR will impact reasonable progress. Given that BART will likely reduce

[165] The 2010 SO_2 emissions can be found on CAMD. *See* U.S. Environmental Protection Agency, Clean Air Markets – Data and Maps, http://camddataandmaps.epa.gov/gdm/index.cfm?fuseaction=iss.isshome.
[166] Calculated by applying a scrubber with 99% efficiency to the annual 2010 SO_2 emissions reported in CAMD. *See* Section VII.C.2 & n.42 *supra*.
[167] The annual unit level allocations are taken from EPA's spreadsheet titled "Final CSAPR Unit Level Allocations under the FIP and Underlying Data," listed documents associated with the Final Cross-State Air Pollution Rule (CSAPR) and Supplemental Rulemaking, *available at* http://www.epa.gov/airtransport/techinfo.html.

emissions by over 66,000 tons a year, it is unlikely that Texas will be able to achieve reasonable progress without BART.

Table 30. Units in Texas near Class I areas Where SO_2 Emissions under Projected BART would be less than the Unit's SO_2 Emission Allocations under CSAPR

Plant	Unit	SO_2 Control	2010 SO_2 Emissions (tons)[168]	Projected BART SO_2 Emissions (tons)[169]	CSAPR 2014 SO_2 Annual Emissions (tons)[170]	Additional Emissions Under CSAPR (tons)
Monticello	1	None	19,160	192	8,598	8,406
Monticello	2	None	19,872	199	8,745	8,546
Big Brown	1	None	31,131	311	8,473	8,162
Big Brown	2	None	32,169	322	8,559	8,237
Harrington Station	061B	None	6,327	63	5,361	5,298
Harrington Station	062B	None	5,565	56	5,255	5,199
Harrington Station	063B	None	8,424	84	5,055	4,971
Welsh Power Plant	1	None	8,361	84	6,496	6,412
Welsh Power Plant	2	None	8,792	88	7,050	6,962
Total			139,801	1,398	63,592	62,194

IX. CONCLUSION

For all of the reasons set forth above, we respectfully urge EPA to abandon its proposed "better-than-BART" proposal, and any piecemeal action on Alabama, Florida, Georgia, Indiana, Iowa, Louisiana, Michigan, Mississippi, Missouri, North Carolina, Ohio, Pennsylvania, South Carolina, and Texas's regional haze plans. The agency is now making unprecedented progress toward achieving visibility goals set by Congress 35 years ago. This sweeping exemption from BART requirements would constitute a major setback. Please do not hesitate to contact undersigned counsel with any questions or concerns.

[168] The 2010 SO_2 emissions can be found on CAMD. *See* U.S. Environmental Protection Agency, Clean Air Markets – Data and Maps, http://camddataandmaps.epa.gov/gdm/index.cfm?fuseaction=iss.isshome.

[169] Calculated by applying a scrubber with 99% efficiency to the annual 2010 SO_2 emissions reported in CAMD. *See* Section VII.C.2 & n.42 *supra*.

[170] The annual CSAPR unit level allocations for the listed units in Texas reflect changes to the original allocations per Final Cross-State Air Pollution Rule Revisions. *See* EPA's Final Revisions Rule Unit Level Allocations under the FIPs spreadsheet, *available at* http://www.epa.gov/airtransport/techinfo.html.

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