

**Clean Air Task Force * Environmental Defense
American Lung Association of New York State, Inc. * Appalachian Mountain Club
Arizona Center for Law in the Public Interest * Big Bend Regional Sierra Club
Clean Water Action * Conservation Law Foundation
Friends of the Columbia Gorge * Group Against Smog and Pollution
National Parks and Conservation Association * National Environmental Trust
Natural Resources Defense Council * Natural Resources Council of Maine
New Jersey Environmental Lobby * New Mexico Citizens for Clean Air & Water
Northwest Environmental Defense Center * The Ohio Environmental Council
Refinery Reform Campaign * Southern Alliance for Clean Energy
Southern Environmental Law Center * U.S. Public Interest Research Group
Valley Watch, Inc. * Wasatch Clean Air Coalition**

July 15, 2004

BY EMAIL/ E-DOCKET SUBMISSION;
HARD COPY TO FOLLOW

OAD Docket
U.S. Environmental Protection Agency
Mailcode: B102
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Transmitted by email to: EPA E-Docket (www.epa.gov/edocket)
Kathy Kaufman (Kaufman.Kathy@epa.gov)
Todd Hawes (Hawes.Todd@epa.gov)

Attention: EPA Docket ID No. OAR-2002-0076;
69 Fed. Reg. 25184 (May 5, 2004).

Re: Comments on EPA's "Regional Haze Regulations and Guidelines for Best Available Retrofit Technology (BART) Determinations."

Dear Administrator Leavitt:

The Clean Air Task Force¹ and Environmental Defense,² on behalf of themselves and twenty-two other environmental and public health organizations, are pleased to submit to the Agency the following detailed comments on the proposed “Regional Haze Regulations and Guidelines for Best Available Retrofit Technology (BART) Determinations,” published in the Federal Register on May 5, 2004 at 69 Fed. Reg. 25184 (the “2004 BART Guidelines” or the “BART Guidelines”). These twenty-four organizations, including the American Lung Association of New York State, Inc., Appalachian Mountain Club, Arizona Center for Law in the Public Interest, Big Bend Regional Sierra Club, Clean Water Action, Conservation Law Foundation, Friends of the Columbia Gorge, Group Against Smog and Pollution, National Parks and Conservation Association, National Environmental Trust, Natural Resources Defense Council, Natural Resources Council of Maine, New Jersey Environmental Lobby, New Mexico Citizens for Clean Air & Water, Northwest Environmental Defense Center, The Ohio Environmental Council, Refinery Reform Campaign, Southern Alliance for Clean Energy, Southern Environmental Law Center, U.S. Public Interest Research Group, Valley Watch, Inc., and Wasatch Clean Air Coalition are local, regional, and national organizations actively working to protect scenic vistas in national parks and wilderness areas from power plants and other major sources of industrial air pollution. Commenters represent their many hundreds of thousands of members who live near, visit, and cherish the premier national parks and wilderness areas that must be protected under this important clean air program.

¹ The Clean Air Task Force (CATF) is a national non-profit environmental organization dedicated to restoring clean air and healthy environments through scientific research, public education, and legal advocacy. CATF works in close collaboration with other non-profit environmental and public health organizations in 30 states and allies in various industry sectors, to advocate for state and federal policy change. CATF has worked to tighten state and federal regulations in order to reduce smog, soot, haze, acid rain, toxic pollution and climate change resulting from power plant air emissions.

² Environmental Defense is a national non-profit, non-partisan, non-governmental environmental organization with some 400,000 members nationwide and offices across the country dedicated to the creation of innovative, equitable, and cost-effective solutions to the most urgent environmental problems. Environmental Defense has worked to protect the air quality of national parks and wilderness areas for over a quarter century.

Our nation’s parks, monuments, and wilderness areas are shrouded in haze. In much of the country, the impairment of visibility is largely due to emissions from old coal-fired power plants and other industrial stationary sources. Almost 30 years ago, in the 1977 Clean Air Act Amendments, Congress expressly declared and codified “. . . as a national goal the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory Federal Class I areas which impairment results from man-made air pollution.”³ Yet, as demonstrated in Table 1, visual air quality has shown little improvement or is still deteriorating in many national parks and wilderness areas.⁴

Region	General Trend	Example Trend in Hazeiest Days Deciview / yr⁵	Airshed
Northern Great Plains	Deterioration	+ 0.1	Badlands NP
Great Basin	Deterioration	+ 0.23	Jarbridge W
Colorado Plateau	Deterioration & Improvement	+ 0.1	Bryce Canyon NP
Central Rocky Mountains	Deterioration or little change	0.00	Rocky Mountain NP
Sonoran Desert	Deterioration	+ 0.07	Chiracahua NM
West Texas	Deterioration	+ 0.23	Big Bend NP
Appalachian Mountains	Deterioration	+ 0.10	Great Smoky Mountains NP
Far West	Deterioration &	+ 0.13	Yosemite NP

³ 42 U.S.C. § 7491(a)(1).

⁴ Class I areas are designated in the Act as all international parks, national wilderness areas which exceed 5,000 acres in size, national memorial parks which exceed 5,000 acres in size, and national parks which exceed 6,000 acres in size, and which are in existence on August 7, 1977. 42 U.S.C. § 7472 (a)(1)-(4). Mandatory Class I areas are Federal areas which may not be redesignated as other than Class I. 42 U.S.C. § 7491(g)(5).

⁵ Examples of deteriorating airshed given where available; other areas in region may show no change or improvement. Positive slope mean deterioration, negative slope means improvement. Meeting the Regional Haze Rule target depends on a 1-3 dv improvement per decade depending on region.

	Improvement		
Northeast	Improvement	- 0.12	Acadia NP

Table 1: Visibility Trends in the United States based on haziest days (80th percentile value) from 1988-1998.⁶

Slightly more recent data from the National Park Service, presented below in Table 2, confirms that visibility is deteriorating in many Class I areas around the United States.

Region	General Trend	Strength of Trend⁷	Example Trend in Haziest Days Deciview / yr⁸	Airshed
Northern Great Plains	Improvement	p<=0.15	- 0.14	Badlands NP
Great Basin	Deterioration	p>0.15	+ 0.09	Jarbridge W
Colorado Plateau	Deterioration	p>0.15	+ 0.03	Bryce Canyon NP
Central Rocky Mountains	Deterioration	p<=0.15	+ 0.10	Rocky Mountain NP
Sonoran Desert	Deterioration	p<=0.15	+ 0.04	Chiracahua NM
West Texas	Deterioration	p<=0.15	+ 0.14	Big Bend NP
Appalachian Mountains	Improvement	p<=0.15	- 0.17	Great Smoky Mountains NP
Far West	Deterioration	p<=0.15	+ 0.15	Yosemite NP
Northeast	Improvement	p<=0.15	- 0.26	Acadia NP

Table 2: Visibility Trends in the United States based on haziest days (80th percentile value) from 1993-2002.⁹

⁶ CIRA/COLORADO STATE UNIVERSITY, SPATIAL AND SEASONAL PATTERNS AND TEMPORAL VARIABILITY OF HAZE AND ITS CONSTITUENTS IN THE UNITED STATES, REPORT III (May 2000) (hereinafter “CIRA”).

⁷ For areas with a p value that is less than or equal to 0.15, there is greater than 85% confidence in the direction of the visibility trend as expressed in column two (*i.e.*, there is a 15% or less probability that the trend is equal to zero).

⁸ See Appendix B: NPS GPRA 2003 Visibility Dataset (gpra2003 new pctile calc.xls).

⁹ The analysis underlying these trends can be found in the NPS Presentation on Current GPRA

In 1999, EPA originally promulgated the Regional Haze Rule (RHR), which directs state, regional, and federal efforts aimed at reversing these worsening visibility trends, particularly those caused by “the cumulative air pollutant emissions from numerous sources over a wide geographic area.”^{10,11} The 1999 RHR requires states to identify uniform rates of visibility improvement or progress that will be needed to attain natural background conditions by the year 2064.¹² It also requires states to identify all sources subject to the “best available retrofit technology” (BART) requirements of Section 169A of the Clean Air Act (the Act or CAA) and to determine whether BART must be installed to control visibility-impairing pollutants from those sources. The proposed BART requirements were elaborated on in EPA’s original proposed BART Guidelines in 2001.¹³

Certain aspects of the Regional Haze Rule were litigated by industry. While the US Court of Appeals for the D.C. Circuit rejected a number of industry challenges in the *American Corn Growers* case, it did find that EPA’s approach to BART applicability and determination was in part inconsistent with the Act.¹⁴ Specifically, the Court found that: (1) EPA could not require the states to subject BART-eligible sources to BART controls “without any empirical evidence of the particular source’s contribution to visibility impairment in a Class I area ”,¹⁵ and (2) EPA could not require the states to bifurcate the

Trends From 1993-2002 (<http://www2.nature.nps.gov/air/who/GPRA/GPRA19932002trends.ppt>)

¹⁰ “Regional Haze Regulations,” 64 Fed. Reg. 35714 (July 1, 1999).

¹¹ In 1980, the Agency issued guidelines for BART to correct visibility impairment that is reasonably attributable to a single source or small group of sources. U.S. EPA OFFICE OF AIR QUALITY PLANNING AND STANDARDS, GUIDELINES FOR DETERMINING BEST AVAILABLE RETROFIT TECHNOLOGY FOR COAL-FIRED POWER PLANTS AND OTHER EXISTING STATIONARY FACILITIES, EPA-450/3-80-009b (November 1980) (hereinafter “1980 BART Guidelines”). These guidelines (which are slightly revised by the current proposal) were the first of EPA’s two-phased approach to the problem of visibility inhibiting emissions from stationary sources. The current proposal addresses visibility problems due to regional haze. See *Maine v. Thomas*, 874 F.2d 883 (1st Cir. 1989).

¹² 64 Fed. Reg. 35714 at 35732.

¹³ “Proposed Guidelines for Best Available Retrofit Technology (BART) Determinations Under the Regional Haze Regulations,” 66 Fed. Reg. 38108 (July 20, 2001).

¹⁴ *American Corn Growers Ass’n v. EPA*, 291 F.3d 1 (DC Cir. 2002) (hereinafter “*American Corn Growers*”).

¹⁵ *American Corn Growers*, 291 F.3d at 8; see also *id.* at 5.

BART determination process by requiring four of the five relevant statutory factors¹⁶ to be assessed on a source-specific basis while requiring visibility improvement to be assessed exclusively on a cumulative basis.¹⁷ In part to address the Court's decision in *American Corn Growers*, EPA has proposed changes to the RHR and repropoed the BART guidelines.

On October 5, 2001, CATF and Environmental Defense filed written comments (the "2001 BART Comments") on behalf many of the same commenters with respect to the BART Guidelines EPA originally proposed in 2001. The 2001 BART Comments, its references and the appendices thereto remain largely pertinent to the repropoed 2004 BART Guidelines, and we hereby incorporate them in full in these comments. The 2001 BART Comments are attached to these comments as Appendix A. We also incorporate as part of the administrative record all references herein and appendices accompanying these comments.

I. Overview.

As we stated in the 2001 BART Comments, regional haze and the resultant visibility impairment in our national parks and other Class I areas is primarily caused by sulfates and other pollutants from power plants and other BART-eligible sources.¹⁸ We will not repeat those comments here, but we wish to again stress that full and rigorous application of BART will be absolutely necessary to help states reach the difficult goal of achieving natural visibility conditions by 2064. The poor conditions found in our nation's national parks and wilderness areas – where the loss in visibility from the clearest days to the haziest days ranges from 43-80 percent – illustrates how much we need to do before realizing that goal.¹⁹

¹⁶ The five statutory factors involved in a determination of appropriate BART controls are set forth at 42 U.S.C. §7491(g)(2) as follows: "the costs of compliance, the energy and nonair quality environmental impacts of compliance, any existing pollution control technology in use at the source, the remaining useful life of the source, and the degree of improvement in visibility which may be reasonably anticipated to result from the use of [BART]."

¹⁷ *American Corn Growers*, 291 F.3d at 6-7.

¹⁸ See Appendix A: 2001 BART Comments at 6-15.

¹⁹ See 2001 BART Comments, Appendix 2 (Regional Haze Summary: Selected Class I Airsheds); see also EPA OAR, *Final Regional Haze Regulations for Protection of Visibility in National*

Our comments are divided into two main sections. First, we address EPA’s proposed “better than BART” trading alternative to rigorous application of BART pursuant to Section 169A of the Act. EPA only suggests in the re-proposed BART guidelines that are the subject of these comments that it is considering substituting projected emission reductions from power plants under EPA’s recently proposed Interstate Air Quality Rule (IAQR)²⁰ (subsequently renamed the “Clean Air Interstate Rule”) for BART reductions from those plants.²¹ However, in its supplemental interstate rule (CAIR or CAI Rule) proposal, the Agency explicitly proposes to exempt from BART those BART-eligible sources that are covered by the CAI Rule.²² While we will provide our full objections to this proposed BART exemption in the CAIR docket, we will express some of those concerns here. The second section of our comments addresses aspects of the BART Guidelines themselves that we believe must be improved – areas where the proposal falls short of statutory requirements and lawful, reasoned decision-making.

A. EPA Must Abandon Its Proposal to Replace the Statutory BART Requirement With the CAI Rule.

The Agency’s proposed substitution of CAIR for BART is illegal and unsound. EPA’s approach here is similar to the approach employed in the CAI Rule to set the levels of the emission caps. That is, it appears that EPA designed its proposed BART exemption to match the repeal of BART in the Bush administration’s “Clear Skies” legislative proposal.²³ Implementing the current Clean Air Act based upon, and constrained by, a not-yet-enacted legislative proposal—rather than the requirements of the Act itself—is the essence of unlawful action. In effect, rather than implementing the Act, EPA is attempting to amend it.

Parks and Wilderness Areas: Fact Sheet (filed April 22, 1999) (<http://www.epa.gov/ttn/oarpg/tifs.html>).

²⁰ Interstate Air Quality Rule, 69 Fed. Reg. 4566 (Jan. 30, 2004).

²¹ *See, e.g.*, 69 Fed. Reg. 25184 at 25229.

²² 69 Fed. Reg. 32683, 32702 (June 10, 2004).

²³ S.485, “The Clear Skies Act of 2003.”

The visibility program mandated by Congress in Section 169A has two major components. The first requires the states to submit state implementation plans (SIPs) that are adequate to reduce visibility-impairing pollutants in order to make reasonable progress toward the national goal of remedying visibility impairment in all Class I areas. Those SIPs must meet certain requirements and receive EPA approval, but states have substantial discretion in choosing the sources that must be controlled.²⁴ In the second component, however, Congress defined an explicit subset of pollution sources that would be subjected to emission controls by states and EPA; Congress not only defined the sources, it also defined the degree of control—*i.e.*, best available retrofit technology, or BART—and mandated specific procedures and factors to be considered in establishing those controls.²⁵

Neither EPA nor the states can ignore these statutory BART mandates. While EPA’s initial “better than BART” proposal contained in the RHR itself was relatively general, the more detailed version set forth in the repropose BART Guidelines and applied to the CAI Rule is plainly inconsistent with Section 169A of the Act and the recent judicial gloss added to those provisions by the D.C. Circuit Court of Appeals in *American Corn Growers*. EPA and the states cannot use a cap-and-trade program (or any other emission reductions program) as a substitute for or exemption from the explicitly mandated BART provisions of the Act, unless, among other things, the alternate program (a) results in emission reductions that are truly “better than BART” with respect to *each and every* individual Class I area impacted by the exempted BART sources, (b) does not completely usurp the states’ role in implementing the BART requirements and reasonable progress provisions of Section 169A, and (c) does not include reductions that are otherwise required under other CAA regulatory control programs, but does include reductions from all sources that are subject to BART. The EPA’s proposed alternative does not meet these requirements and is therefore illegal.

Furthermore, EPA has not demonstrated that the emission reductions that would be produced from a rigorous application of BART are unnecessary for states to reach their visibility improvement goals, even during the initial planning period ending in 2018.

²⁴ 42 U.S.C. §7491(b)(2).

²⁵ 42 U.S.C. §§ 7491(b)(2)(A), 7491(g).

Rather, such BART reductions clearly are necessary. Restoring natural visibility in our national parks and other Class I areas will be a long and difficult task. Substantial reductions from nearly all significant sources will be necessary. EPA must not provide a broad BART exemption to power plants at the beginning of this effort. If states are to have a meaningful chance of accomplishing that task, they will need to obtain substantial reductions of visibility impairing pollutants, *both* through rigorous application of BART to power plants and other BART sources, *and* through implementation of other emission reduction programs, including but not limited to the NO_x SIP Call and the CAI Rule.

B. The Re-Proposed BART Guidelines Must Be Strengthened.

With respect to the re-proposed BART guidelines themselves, EPA must strengthen them to consider all visibility-impairing contaminants, to properly identify all BART-eligible sources, to assure that all major stationary sources meeting the age criteria of BART and reasonably anticipated to cause or contribute to any visibility impairment are subject to the BART requirement, and to require rigorous control of their emissions with the best available retrofit technology. Among other things, EPA must:

- In determining BART-eligible sources—
 - Properly aggregate fossil-fuel fired boiler capacity.
 - Properly aggregate all visibility-impairing pollutants.
 - Properly address rural VOC emissions.
 - Remove the proposed *de minimis* emission exemption.
- In determining sources subject to BART—
 - Maintain the proposed 0.5 deciview (dv) threshold (on a 24 hour basis) for determining visibility impairment (and improvement) *based on natural visibility conditions*.
 - Require states to evaluate whether a major stationary source “*may be reasonably anticipated to cause or contribute to any impairment of visibility*” by setting the threshold for *contribution* from an individual source as low as modeling or other analysis is capable of determining or

based on a source's contribution to some reasonable percentage of the 0.5 dv threshold.

- In this context, require states either to: (a) conduct modeling for each BART-eligible source to determine its individual contribution level, (b) require each BART-eligible source to conduct such modeling itself, or (c) presume that each such source is subject to BART unless and until such source demonstrates the contrary through such modeling.
- Require states to apply BART requirements to a major stationary source that contributes more than either a measurable amount (*i.e.*, 0.1 dv or less) to visibility impairment or a certain percentage of aggregate impairment (*i.e.*, 4 to 10%), unless the cumulative impact of the source in combination with all other contributing sources has been demonstrated by the state or the source to not be perceptible—that is, below 0.5 dv.
- Eliminate the proposed alternative methods for determining visibility impairment since they are not at least as protective of the national visibility goal, nor as accurate and reliable as appropriate modeling.
- Provide states with specific modeling protocol and criteria for to assure that modeling tools are properly utilized for nearby and distant sources that affect Class I airsheds.
- Establish an interstate reconciliation process coordinated by the regional planning organizations to ensure consistency and integrity in the application of modeling across regions.
- In considering the BART factors that make up a BART determination—
 - Require “top down” approach for BART determination, rather than some other less disciplined approach.
 - Retain the proposed presumption of a 95% SO₂ reduction (or a 0.10 lbs/MMBtu SO₂ emission rate) for BART EGUs.

- Establish a presumption that all BART EGUs (including those outside the NO_x SIP Call region) can reduce NO_x emissions to no greater than 0.15 lb/mmBtu (as opposed to the current proposed level of 0.20 lb/mmBtu).
- Consider all non-air quality environmental impacts of BART.
- Insure that any consideration of projected remaining useful life is consistent with actual operational life.
- Modify its approach to evaluating visibility improvement to address the same issues described above in connection with the determination of visibility impairment.
- Assure that reasonable progress toward the national visibility goal is in fact achieved by requiring sources subject to BART requirements to utilize a sulfur dioxide allowance ratio that is adjusted appropriately upward to reflect BART and limit leakage in achieving visibility protection.
- Assure that federal land managers have an integral role in the implementation of this program, and provide for FLM and state consultation early in the visibility SIP development process. It is essential for FLMs to retain the right to certify impairment under the attributable BART rules. Those rules must be maintained for potential use in the future as the means to assess source-impairment attribution problems.
- Establish stringent presumptive emission limits for EGUs under the 1980 BART Guidelines.

II. EPA’s Proposed “Better than BART” Alternative, as Clarified by the Reproposed BART Guidelines and as Applied in the Context of the CAI Rule, is Unlawful and Unsound.

A. EPA’s Substitution of CAIR for BART Violates the Clean Air Act.

EPA’s proposed exemption of BART-eligible power plants that are subject to a state cap-and-trade program under the CAI Rule is in plain violation of Section 169A of

the Act.²⁶ As mentioned above, EPA actually proposes this exemption as part of the supplemental CAIR proposal, and we will address it in detail in the CAIR docket. However, EPA also mentions the potential for such an exemption in this proposed rulemaking, and indicates that such exemption would be based on the “better than BART” alternate compliance mechanism set forth in the RHR and the re-proposed BART guidelines.²⁷ Therefore, we will briefly address in these comments some of our primary objections to EPA’s proposal.

It would be contrary to law and an abuse of discretion for EPA to conclude that the reductions required by the CAIR categorically satisfy BART requirements for all affected Class I areas. While the reductions required under the CAI Rule may improve visibility on the 20% worst days at some Class I areas, such reductions cannot supplant the manifest protections under the Clean Air Act’s visibility program. Section 169A(b)(2) of the Clean Air Act requires states to adopt plans that “contain such emission limits, schedules of compliance and other measures as may be necessary to make reasonable progress toward meeting the national goal.” The plans must, at a minimum, include the requirement to “procure, install, and operate, as expeditiously as practicable . . . the best available retrofit technology” for each major source that is in existence on August 7, 1977 but which has not been in operation for more than fifteen years as of that date and that emits any air pollutant which may reasonably be anticipated to cause or contribute to any impairment of visibility in a Class I area.²⁸ The statute, in turn, delineates relevant factors that must be considered in determining reasonable progress and BART.²⁹ It also prescribes the 26 source categories—including power plants with more than 250 million BTU/hour heat input—that constitute “major

²⁶ The CAI Rule was designed to mitigate downwind contribution to unhealthy particulate and ozone pollution levels and to help local areas achieve attainment of the PM_{2.5} and 8-hour ozone NAAQS, while the regional haze rule is required to protect scenic vistas in specially protected national parks and wilderness areas. While states may consider the reductions under the CAI Rule in determining whether BART is satisfied for a particular major stationary source under the visibility program, EPA may not categorically displace the statute’s visibility protections with the CAI Rule.

²⁷ 69 Fed. Reg. at 25203-204.

²⁸ 42 U.S.C. §7491(b)(2)(A).

²⁹ 42 U.S.C. §7491(g)(1)-(2).

stationary sources” for purposes of BART, provided they have the potential to emit 250 tons or more of any pollutant.³⁰

Thus, Congress plainly required that, at a minimum, state implementation plans address all 26 source categories contributing to regional haze and meeting the BART size and age requirements. These sources were singled out by Congress for the application of BART and EPA cannot now categorically exempt them from the visibility protection requirements. There is no basis in law or fact for such a far-reaching exemption to plain statutory commands.³¹

The plain language of the statute and the *American Corn Growers* decision also confer on *the states* the authority to adopt visibility implementation plans and enforce the BART requirement. Indeed, the D.C. Circuit decision in *American Corn Growers* was firmly rooted in a recognition that EPA may not usurp states’ authority in carrying out the BART requirement. EPA’s proposal to categorically exclude sources from BART – without any opportunity for the states to evaluate the adequacy of the reductions in light of the BART requirement, to consider their overall visibility protection needs, or to effectuate the core requirements and purposes of the visibility protection program – tramples roughshod over Section 169A, the relative roles and responsibilities of federal and state governments embodied in Section 110 of the Act, and the court’s affirmance of state prerogatives in *American Corn Growers*.

Section 169A of the Act sets forth explicit conditions pursuant to which EPA may grant an exemption from the BART requirements. To the extent that EPA’s “better than BART” provision purports to exempt BART-eligible sources from BART, it is arbitrary and capricious and in clear violation of the Act. Furthermore, to the extent that EPA’s “better than BART” provision can be interpreted as not providing an exemption from BART, but rather an alternate approach, it must nevertheless meet the mandates of

³⁰ 42 U.S.C. §7491(g)(7).

³¹ We also note that EPA sought comment in its original IAQR proposal on whether the IAQR reductions should be deemed to satisfy the first long term strategy requirement to achieve reasonable progress for regional haze. 69 Fed. Reg. 4566 at 4587. EPA has not proposed to do so, either in this docket or in its Supplemental CAIR proposal. In the event that EPA does make such a proposal, we hereby reserve the right to provide detailed written objections thereto, once we have reviewed the outline and details of such proposal. At this point we can simply say that any such proposal would violate the Act and the RHR, and would also be arbitrary and capricious and an abuse of discretion.

Section 169A as interpreted by the federal courts, including the recent D.C. Circuit Court of Appeals decision in *American Corn Growers*.

EPA’s application of the “better than BART” alternate to power plants subject to the CAI Rule is clearly an exemption from BART that does not meet the requirements of Section 169A(c)—and is thus unlawful. Under EPA’s proposal, “BART-eligible EGUs in any State affected by CAIR may be *exempted* from BART if that State complies with the CAIR requirements through adoption of the CAIR cap-and-trade programs for SO₂ and NO_x for affected EGUs.”³² Section 169A(c), which provides the sole basis for an exemption from BART, allows EPA to grant an exemption only where the Agency determines that the exempted source “does not or will not, 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 area.”³³ Compliance with the CAIR cap-and-trade program plainly does not meet the requirements for such an exemption, as it does not impact the threshold BART issue of contribution to visibility impairment.³⁴

Moreover, compliance with CAIR by a source subject to BART is relevant under Section 169A only in the context of the determination of appropriate BART controls for that source. As we pointed out in our 2001 BART Comments, reductions from other emissions control programs such as the Title IV Acid Rain Program and the NO_x SIP Call must be achieved in addition to, not as a substitute for, BART controls.³⁵ CAIR, of course, is another such emissions control program. Therefore, such reductions cannot be used as the basis for exempting sources from BART or for declining to apply BART to such sources; rather, such reductions are relevant only in determining the appropriate level of BART control by evaluation of the statutory BART factor relating to “existing pollution control technology in use at the source.”³⁶

³² 69 Fed. Reg. 32684 at 32689, 32702-706 (emphasis supplied).

³³ 42 U.S.C. §7491(c).

³⁴ Furthermore, there is no evidence that EPA has complied with Section 169A(c)(3), which requires EPA to obtain “concurrence by the appropriate Federal land manager or managers” to its proposed CAIR-based exemption.

³⁵ 2001 BART Comments at 21-27.

³⁶ 42 U.S.C. §7491(g)(2).

EPA’s “better than BART” provision also violates the explicit language of Section 169A(b)(2)(A), which requires BART for sources that emit any pollutant that may contribute to any visibility impairment in *any* Class I area. In proposing a BART exemption in the CAIR context, EPA did not find superior visibility improvement resulting from application of CAIR compared to source-by-source BART controls in *each and every* Class I area that may be impacted by BART-eligible sources in the CAIR region. Rather, EPA evaluated the comparative visibility impact³⁷ of BART and CAIR in some—but not all—relevant Class I areas.³⁸ Then, EPA *averaged* those impacts over the selected areas that had been evaluated, and simply pronounced that because *overall average* visibility improvement was projected to be greater under CAIR than under BART, power plants subject to CAIR could be exempted from BART requirements.³⁹ In so doing, EPA has essentially fundamentally changed the BART requirements as currently set forth in the Clean Air Act, and has superseded the role of the states in establishing the reasonable progress goals and implementing BART requirements. There is simply no basis in the Act—or the RHR, for that matter—to support a BART substitute that has not been demonstrated to produce greater visibility improvement in *all* Class I areas. This is so because Section 169A and the RHR are designed to reduce and eventually eliminate visibility impairment in *each and every* Class I area. Congress explicitly made any eligible source that impacts visibility in *any* Class I area subject to BART requirements.⁴⁰ Furthermore, the RHR is structured—as it must be under the Act—to require states to prepare SIPs that establish reasonable progress goals, calculate baseline and natural visibility conditions and establish long-term regional strategies for

³⁷ We believe that the analysis offered to support the particular comparison of visibility improvement in particular Class I areas from source-by-source BART and CAIR as described in the supplemental CAI Rule is flawed in various technical respects. *See, e.g.*, 69 Fed. Reg. at 32704 *et seq.*; EPA’s “Supplemental Air Quality Modeling Technical Support Document (TSD) for the Clean Air Interstate Rule (CAIR), May, 2004.” We will address those problems in comments on the supplemental CAI Rule.

³⁸ Those Class I areas that EPA did and did not evaluate as part of its “better than BART” analysis in the supplemental CAIR proposal are set forth in Appendix C, attached hereto and made a part hereof. For those areas that EPA did evaluate, *see* EPA’s “Supplemental Air Quality Modeling Technical Support Document (TSD) for the Clean Air Interstate Rule (CAIR), May, 2004.”

³⁹ 69 Fed. Reg. 32684 at 32704-706.

⁴⁰ 42 U.S.C. §7491(b)(2)(A).

each relevant individual Class I area.⁴¹ EPA cannot declare these SIP requirements satisfied by fiat, by broadly averaging emissions or visibility over a number of different Class I areas, either in- or out-of-state. Rather, reasonable progress towards the visibility goal is to be measured on an area-by-area basis. This makes perfect sense, as visibility conditions and source contributions can vary substantially from area to area. For example, in measuring reasonable progress towards the natural visibility goal for each of its Class I areas, a state cannot exempt sources from emission reductions necessary to meet reasonable progress in that state by pointing to greater progress in Class I areas located in some other state—in other words, visibility improvement is not a commodity that can be “traded” among states or Class I areas—each state and park will have a different required rate of visibility progress and different emission reduction requirements to meet its specific visibility progress rate.

Finally, we note that because one effect of EPA’s CAIR-based exemption is to substitute emission reductions by non-BART sources for those from BART sources, BART sources will be controlled at levels less stringent than the application of source-by-source BART would require. EPA estimates that the CAIR SO₂ reductions will approximate 70% when the CAIR caps are fully implemented—sometime after 2020. Moreover, in 2015, EPA estimates an overall SO₂ reduction of about 58%.⁴² This is substantially lower than the 95% SO₂ reduction presumed by EPA for uncontrolled sources in the reposed BART Guidelines.⁴³

B. EPA’s Substitution of CAIR for BART is Poor Public Policy.

EPA’s “better than BART” proposal to substitute CAIR for BART not only violates the explicit BART requirements of the Clean Air Act, it also is seriously flawed as a matter of policy. In order to reach the national goal of restoring visibility in our national parks and other Class I areas, dramatic reductions of visibility-impairing pollutants will be necessary. This includes rigorous implementation of BART, a more stringent CAI Rule, and reductions from sources other than power plants (*e.g.*, diesel

⁴¹ *See, e.g.*, 51 C.F.R. §51.308(d).

⁴² 69 Fed. Reg. 4566 at 4579.

⁴³ 69 Fed. Reg. 25184 at 199-201.

engines). In particular, since SO₂ is the primary visibility-impairing pollutant in most of the country, states will need to reduce SO₂ to extremely low levels—essentially all major sources will need to be rigorously controlled. Power plants are *the* major source category for SO₂ emissions in the US, emitting about two-thirds of all US SO₂ emissions.⁴⁴ BART-eligible EGUs account for over half of the SO₂ emitted by all EGUs, as well as about 40% of *all* SO₂ emissions in the United States.⁴⁵ These emissions must be virtually eliminated to reach the national visibility goal. EPA’s proposed exemption of these sources from stringent BART controls will remove *the most significant* opportunity for SO₂ reductions and tie the states’ hands in their efforts to obtain the necessary emissions reductions.

As mentioned above, EPA has not demonstrated that states can achieve the initial interim visibility goal in 2018 or the ultimate goal of natural visibility in 2064 *without* also applying BART controls to sources that are subject to BART. It is not surprising that EPA has not produced such a demonstration because it must await the process of state long-term visibility planning as set out in the RHR.⁴⁶ But EPA has not even taken a simple first step—that is, EPA has not projected what emission reductions might be obtained with the application of *both* BART *and* the CAI Rule.

CATF, however, has projected potential emission reductions from these combined efforts based on presently available information. This analysis indicates that substantial additional reductions will likely be obtained from power plants subjected to BART above and beyond those projected from the CAI Rule. The following is a brief overview of the CATF analysis, which is described in greater detail in Appendix D attached hereto and made a part hereof. For the CAIR case, CATF used the IPM modeling conducted for EPA to support the January 30, 2004, IAQR proposal. CATF identified the 142 BART-eligible EGUs located in the CAIR region that EPA’s modeling projected would continue to emit SO₂ in 2015 and that would not install flue gas desulfurization (FGD) controls. CATF then assumed that to comply with BART, these 142 units would use FGD to

⁴⁴ See, e.g., 69 Fed. Reg. 4566 at 4589-90.

⁴⁵ CATF estimates that the 577 BART-eligible units at power plants emitted about 5.28 million tons of SO₂ in 2002. This is slightly more than half of the 10.2 million tons of SO₂ emissions of all power plants in the country in 2002.

⁴⁶ Visibility SIPs implementing the RHR (and BART requirements) are generally not due until 2008. See, e.g., 69 Fed. Reg. at 25187.

reduce SO₂ by 95%. This approach is quite conservative in that it assumes that BART-eligible EGUs presently (or projected by EPA in 2015 to be) controlling emissions to some degree, but less than presumptive BART control levels, would not be required to tighten their controls.

Based on this analysis, CATF projects that the combined application of BART to BART-eligible sources plus implementation of the CAI Rule will produce about 6.1 million tons/year of SO₂ reductions from the power plant sector—an additional 1.5 million tons of SO₂ reductions in 2015 over and above those that would result from implementation of CAIR alone, or about one-third of the entire emission reductions projected from the CAI Rule.

Table 3. SO₂ Emissions Under BART and CAIR in the CAIR Region
2002 Emissions – 9.4 million tons <ul style="list-style-type: none"> • BART-Eligible Units – 5.0 million tons • Non-BART Units – 4.4 million tons
2015 Emissions Under CAIR Modeling – 4.8 million tons <ul style="list-style-type: none"> • BART-Eligible Units – 2.0 million tons • Non-BART Units – 2.8 million tons <p style="text-align: center;">• CAIR Reductions from 2002 level – 4.6 million tons</p>
2015 Emissions Under Both CAIR and BART (CAIR/BART) – 3.3 million tons <ul style="list-style-type: none"> • BART-Eligible Units – 0.5 million tons • Non-BART Units – 2.8 million tons <p style="text-align: center;">• CAIR plus BART Reductions from 2002 level– 6.1 million tons</p>
Additional BART Reductions As Compared to CAIR Only – 1.5 million tons

Furthermore, EPA’s “better than BART” proposal will force states to make up these foregone BART emission reductions from other sources. Significantly, those reductions are likely to be much more costly. EPA recognizes that available controls for BART-eligible power plants can reduce SO₂ emissions by about 95% in a very cost-effective manner—EPA estimates that these units can reduce SO₂ for between \$200 and

\$1300 per ton.⁴⁷ EPA also acknowledges that these BART control costs are “well within the levels considered for application under many CAA regulatory programs.”⁴⁸

III. The Proposed BART Guidelines Themselves Must be Strengthened.

The BART process, as established by the RHR and the BART guidelines—assuming it is not usurped by the implementation of EPA’s proposed “better than BART” CAIR alternative—consists of three basic steps:

First, States identify those sources which meet the definition of “BART-eligible source” set forth in 40 CFR 51.301. Second, States determine whether such sources “emit[] any air pollutant which may reasonably be anticipated to cause or contribute to any impairment of visibility [in a Class I area].” A source which fits this description is “subject to BART.” Third, for each source subject to BART, States then identify the appropriate type and the level of control for reducing emissions.⁴⁹

EPA’s repropoed BART guidelines address certain aspects of each of these steps. We believe that EPA’s proposal (apart from the attempt to apply CAIR as “better than BART”) is a needed step in the direction of finally implementing the visibility protection and restoration provisions of the Clean Air Act. While we support many aspects of the proposal, other elements must be modified to assure reasonable progress toward the national visibility protection goal and to bring it into compliance with the Act.

A. Determining BART-Eligible Sources.

1. EPA Must Consider All Visibility-Impairing Contaminants, Including VOCs, in Determining Whether a Major Stationary Source is Subject to BART.

The EPA’s proposed rule fundamentally errs in proposing to exclude rural VOCs from the list of pollutants used to determine whether a source is BART-eligible. Organic

⁴⁷ 69 Fed. Reg. 25184 at 25199; in fact, the December 29, 2000 note to EPA Docket A-2000-28 from Tim Smith (referenced by EPA at 69 Fed. Reg. at 25200 (note 32)), at page 4, estimates scrubber costs ranging from \$145 per ton of SO₂ removed to \$965 per ton.

⁴⁸ 69 Fed. Reg. 25184 at 25199.

⁴⁹ 69 Fed. Reg. 25184 at 25188.

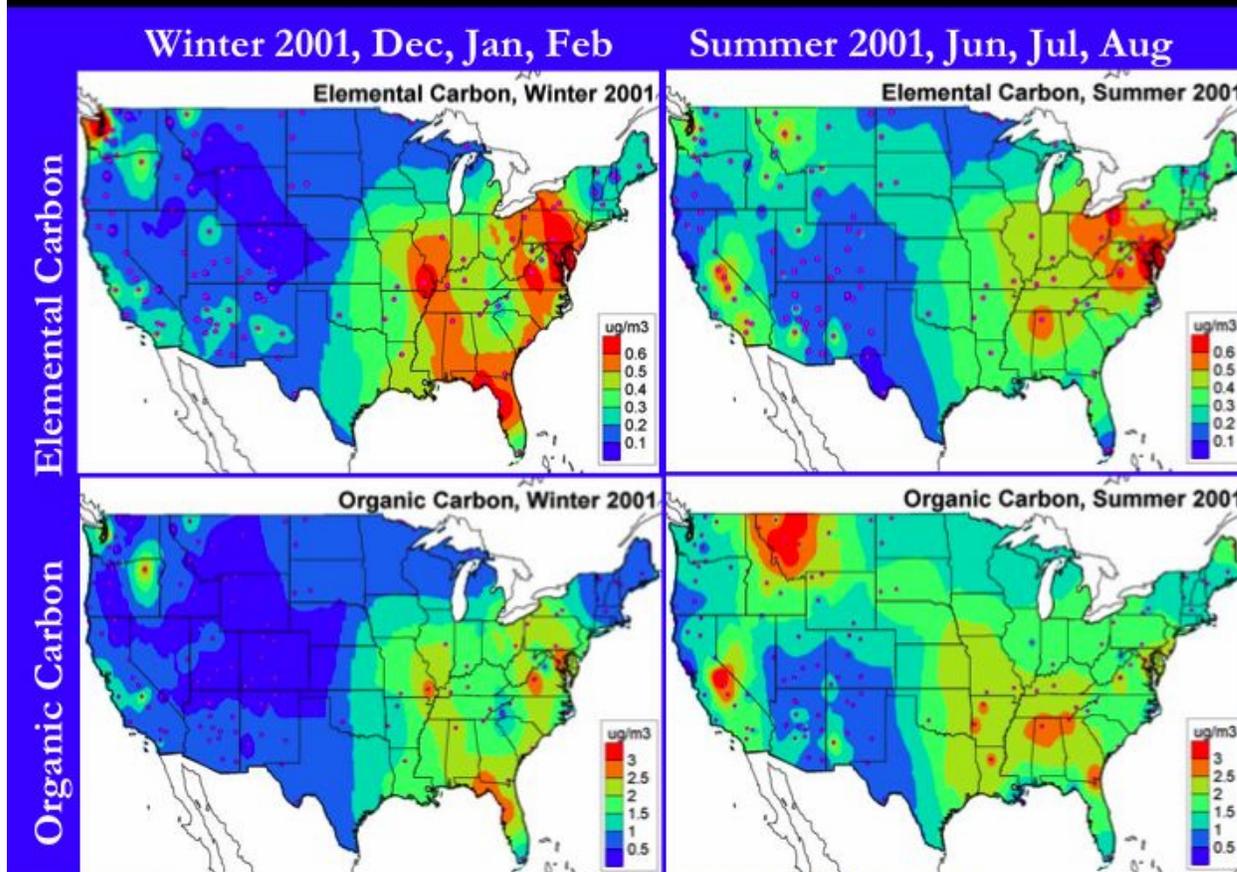
aerosols also are a major constituent of visibility reducing aerosols as indicated by monitoring over the past several years.⁵⁰ Organic aerosols result from direct emissions of fine organic particulates and from the formation of organic aerosols from VOC emissions. Studies of the chemical pathways leading from emissions of VOC to organic aerosols on local to global scales indicate that both anthropogenic and natural VOC emissions are important for organic aerosol formation.⁵¹ Recent detailed studies using the IMPROVE database indicate that both anthropogenic and natural VOC emissions are important precursors for secondary organic aerosols with the anthropogenic emissions being particularly important during the winter.⁵² These temporal and spatial variations are depicted below.

⁵⁰ EPA (1999) EPA Air Quality Report - Chapter 6 - Visibility Trends (<http://www.richmond.edu/~cstevens/EnviroWeb/Documents/AirQuality/>); EPA (2003) Air Trends Particulate Matter (<http://www.epa.gov/airtrends/pm.html>); Visibility, at (<http://www.epa.gov/airtrends/vis.html>); Special Studies: Chemical speciation of PM2.5 in Urban and Rural Areas (www.epa.gov/airtrends/studies.html).

⁵¹ Cabada, J.C., Pandis, S.N., Subramanian, R., Robinson, A.L., Polidori, A., Turpin, B. Estimating the Secondary Organic Aerosol Contribution to PM2.5 Using the EC Tracer Method, *Aerosol Science and Technology*, 38 (S1) 140-155 (2004); Dechanpanya, W., Russell, M., Allen, D.T. Estimates of anthropogenic secondary organic aerosol formation in Houston, Texas, *Aerosol Science and Technology*, 38 (S1) 156-166 (2004); Strader, R., Lurmann, F., Pandis, S.N. Evaluation of secondary organic aerosol formation in winter, *Atmospheric Environment*, 33, 4849-4863 (1999); Schell, B., Ackermann, I.J., Hass, H., Binkowski, F.S., Ebel, A. Modeling the formation of secondary organic aerosol within a comprehensive air quality model system, *J. Geophys. Res.*, 106, 28275-28293 (2001); Turpin, B. Huntzicker, J.J. Identification of secondary organic aerosols episodes and quantification of primary and secondary organic aerosol during SCAQS, *Atmospheric Environment*, 29, 3527-3544. *See also* Griffin, R. J., D. Dabdub, J.H. Seinfeld (2002) "Secondary organic aerosol 1. Atmospheric chemical mechanism for production of molecular constituents," *J. Geophysical Research*, 107: 17, 4332, doi: 10.1029/2001JD000541, 2002; Kleindienst, T.E., T.S. Conner, C. D. McIver and E. O. Edney (2004) "Determination of Secondary Organic Aerosol Products from the Photooxidation of Toluene and their Implications in Ambient PM2.5" *J. Atmospheric Chemistry* 47: 79-100; Tsigaridis, K. and M. Kannakidou (2003) "Global modeling of secondary organic aerosol in the troposphere: a sensitivity analysis," *Atmos. Chem. Phys.* 3, 1849-1869.

⁵² Schichtel, B., W. Malm, R. Ames (2003) "Organic and Elemental Carbon Spatial and Long-Term Trends in Rural United States." Presented at "History of Carbonaceous Aerosols in the Industrial Era" which was held at NASA/GISS in New York City November 24-25, 2003

IMPROVE Seasonal EC and OC



The study concludes that the largest carbon concentrations are in the southeastern US, but the largest carbon fine mass fractions are in the northwestern US and the urban carbon “excess” appears to have a limited spatial extent. The ratios of organic to elemental carbon imply that winter carbon aerosol is not biogenic (*i.e.*, the result of fire or secondary organics from biogenic VOC). The summer carbon aerosol appears to have a high organic to elemental ratio in the Northwest, which suggests forest fire as a major source; low ratios in the Ohio River Valley which suggest more urban/industrial sources; and middling ratios in the Southeastern US suggesting a mix of urban, fire and biogenic sources.

EPA must include the contribution VOC emissions in implementing the BART requirement. Individual sources with VOC emissions will need to be examined. Sources that are emitting more than one of the pollutants of concern (*i.e.*, SO_2 , NO_x , particulates, and VOC), need to aggregate the emissions of all of these pollutants in determining

BART-eligibility since all of the pollutants are significant precursors to visibility degradation.

2. EPA Must Aggregate all Visibility-Impairing Pollutants for Purposes of Determining the Amount of Potential Emissions Per Year for a Major Stationary Source.

Section 169A of the Clean Air Act addresses visibility-impairing pollution from “major stationary sources,” which are defined in Section 169A(g)(7) as “stationary sources with the potential to emit 250 tons or more of any pollutant.” Although Section 169A does not provide a definition for “pollutant,” the general Clean Air Act definitions in Section 302 define “air pollutant” as: “any air pollution agent or *combination* of such agents...which is emitted into or otherwise enters the ambient air. Such term includes any *precursors* to the formation of any air pollutant, to the extent the Administrator has identified such precursor or precursors for the particular purpose for which the term ‘air pollutant’ is used.”⁵³ Therefore, a major stationary source is one that potentially emits 250 tons per year (tpy) of any pollutant or its precursors. Since the Administrator has identified NO_x, SO₂, VOCs, and PM as either precursors to or part of the combination of agents which form visibility-impairing particulate matter, the EPA must aggregate those pollutants in determining whether a source potentially emits 250 tons or more of particulate matter or its precursors.

The EPA should exercise this authority so as to avoid the absurd outcomes which will occur under the proposed rule. Under the proposed rule, source A, which emits 250 tpy of NO_x and 20 tpy of SO₂, is BART-eligible. Source B, on the other hand, which emits 200 tpy of SO₂, 200 tpy of NO_x, 200 tpy of VOCs, and 200 tpy of PM, is *not* BART-eligible because no particular pollutant surpasses the 250 tpy threshold even though all of these contaminants contribute to visibility-impairing particulate matter. If both source A and source B contribute the same percentage of their total emissions to a Class I area, then clearly source B causes and contributes much more visibility-impairing pollution to that area. In order not to contravene the “reasonable progress” mandate of

⁵³ 42 U.S.C. § 7602(g).

Section 169A, EPA must aggregate all visibility-impairing pollutants and their precursors when determining which sources potentially emit 250 tpy of visibility-impairing pollution.

3. EPA's Proposal to Exempt "De Minimis" Emission Levels is Unlawful.

EPA proposes to empower states to exempt from the requirement to install BART so-called "de minimis" levels of pollution discharged from BART-eligible sources. The EPA suggests that the "de minimis" values should be set at a level where the emissions are so minimal that they are "unlikely to contribute to regional haze." EPA also indicates any "de minimis" levels must not be higher than the PSD applicability thresholds for the various pollutants. The proposed de minimis exemption contravenes the judicial limits on administrative exemptions established in *Alabama Power Co. v. Costle*,⁵⁴ exceeds the EPA's authority as evidenced by the language, structure, and purpose of Section 169A of the Clean Air Act, and is arbitrary and capricious in setting the de minimis ceilings equal to the PSD applicability levels.

The D.C. Circuit, in *Alabama Power*, enunciated the criteria upon which categorical exemptions based on the de minimis doctrine are allowed. The court held that an agency's de minimis authority "is not available for a situation where the regulatory function does provide benefits, in the sense of furthering regulatory objectives, but the agency concludes that the acknowledged benefits are exceeded by the costs."⁵⁵ Given the numerous variables (distance, topography, meteorological conditions, etc.) that go into determining whether a source's pollution is reasonably anticipated to contribute to visibility impairment in a particular Class I area, it is unreasonable to categorically rule out a certain level of emissions without modeling or meaningfully assessing the impacts of the emissions in particular circumstances. The EPA's proposed de minimis exemption provides no safeguards that would prevent a state from setting de minimis thresholds at levels which would eliminate or significantly reduce the benefits of applying the BART requirement to particular emissions at particular sources. Although the *Alabama Power*

⁵⁴ 636 F.2d 323 (D.C. Cir. 1979) (hereinafter "*Alabama Power*").

⁵⁵ *Id.* at 361.

analysis focuses solely on the benefits to be realized by regulation, EPA’s proposal allows states the unfettered discretion to exempt emissions from the BART requirement without analyzing the benefits to be realized from applying BART.

In *Alabama Power*, the D.C. Circuit disallowed the expansion of the EPA’s exemption powers to include new sources when the statute specifically exempted only existing sources.⁵⁶ The proposed de minimis exemption here suffers from the same flaw. Section 169A authorizes a source-specific BART determination by states as well as granting specific exemption powers to the Administrator. It is manifest from the language and structure of the statute that the threshold for determining which emissions are BART-eligible is extremely low and that the later stages in the BART process allow for exemptions for non-contributing emissions. The authority for the BART-eligibility stage in the proposed rule originates in the first half of Section 169A(b)(2)(A) – a BART-eligible source is “each major stationary source which is in existence on August 7, 1977.” Section 169A(g)(7) in turn defines a “major stationary source” as any stationary source “with the potential to emit 250 tons or more of any pollutant” and which falls into one of the 26 listed categories. There are no qualifiers in the statutory text here, such as “significant,” which would allow for de minimis exemptions at this stage in the applicability determination. The lack of such qualifiers is dispositive given the fact that Congress deliberately used qualifiers in other sections of the statute governing the applicability of BART.

Indeed, Section 169A(c) of the Act explicitly authorizes exemptions from the BART requirement if EPA determines a source’s emissions may not “*reasonably* be anticipated to cause or contribute to a *significant* impairment of visibility.” (emphasis added). The qualifying language in this section—“significant”—demonstrates that this is to be the highest threshold for determining which BART-eligible sources are subject to BART. When comparing the Administrator’s exemption authority in these sections to the expansive definition of what constitutes a major stationary source, it is clear that the BART applicability determination is a very low threshold which does not permit de minimis exemptions unless the operative statutory exemption requirements are satisfied.

⁵⁶ *Id.* at 356.

The use of PSD applicability levels for determining the upper bound for de minimis exemptions is arbitrary and capricious. The PSD applicability levels are set at levels that aim to prevent significant deterioration of air quality generally. The Regional Haze Rule and BART Guidelines, on the other hand, aims to not only prevent deterioration of visibility in Class I areas but also to restore visibility in those areas by remedying existing source impairment. EPA has made no showing that the PSD applicability levels are an appropriate threshold to further the congressionally-enunciated goal of visibility restoration in Class I areas.

4. EPA Must Aggregate Fossil-fuel Boiler Capacity at Each Source to Determine if that Source is BART-Eligible.

In determining which sources are BART-eligible under the BART Guidelines, the EPA interprets the category of “fossil-fuel boilers of more than 250 million BTU/hr heat input” as covering only those boilers that are individually greater than 250 million BTU/hr.

To begin with, EPA must clarify that the repropoed BART Guidelines do require aggregation of smaller boilers at power plants that generate and sell electricity. Although the proposed regulatory language provides that smaller boilers at “steam electric plants” must be aggregated,⁵⁷ EPA also states in its preamble language that only fossil fuel-fired boilers at a “power plant” individually greater than 250 million BTU/hr are BART eligible and that aggregation of such boilers is not required.⁵⁸ EPA must make clear that states must aggregate smaller fossil fuel-fired boilers at power plants that generate and sell electricity.

In any event, EPA must, in addressing the aggregation issue for fossil fuel-fired boilers, use the same interpretation that it adopted in the PSD regulations. The PSD regulations require the aggregation of fossil-fuel boiler capacities at an industrial source to determine whether or not the 250 million BTU/hour threshold is met. But EPA proposes to adopt differing interpretations of the fossil-fuel boiler category in the PSD and regional haze regulations even though the relevant sections of the Clean Air Act (Sections 169(1) and 169A(g)(7), respectively) utilize the same language and structure in

⁵⁷ Appendix Y to Part 51, §II.1 (69 Fed. Reg. 25184 at 25215).

⁵⁸ 69 Fed. Reg. 25184 at 25191.

describing the categories subject to regulation. Under the plain language in both provisions, the terms major emitting facility or major stationary source are defined to include “boilers,” providing strong textual grounding for a cumulative test. Indeed, EPA’s long-standing interpretation of the PSD definition strongly suggests that any deviation must be subject to close scrutiny.

In this case, EPA’s proposed departure from the aggregate methodology under the PSD program is contrary to law. The EPA argues that this inconsistency is justified by the fact that the PSD program regulates new sources while the regional haze rule is directed at existing sources. But this misplaced policy rationale misses the mark, and in any event cannot overcome the clear statutory language. Under the PSD program, the EPA wanted to prevent new plants from circumventing the regulation by using multiple fossil-fuel boilers that have less than 250 million BTU/hr heat input individually, but exceed the 250 million BTU/hr threshold in the aggregate. Presumably the EPA adopted this interpretation not merely to close a potential loophole that could be exploited by new sources, but because such circumvention would curb the EPA’s ability to fulfill the core goals, purposes and requirements set forth by the Clean Air Act. We see no principled difference between the circumvention prevented by the PSD regulations and the circumvention that EPA would allow under the proposed BART Guidelines. Congress deliberately sought to regulate major sources of pollution because of their distinct contribution to air pollution problems and because of the well-documented cost-effectiveness of pollution controls for such sources. In promulgating its PSD regulations, the EPA recognized that the law, in order to be effective, should not treat differently one source that has a single boiler with 250 million BTU/hr heat input and another source that has five boilers with 200 million BTU/hr heat input each. The principle of treating similarly-situated sources similarly so as to meet core statutory goals and requirements should apply with equal force under the 2004 BART Guidelines.

Not only is EPA’s proposed interpretation of the fossil-fuel boiler category inconsistent with the EPA’s interpretation under the PSD program, but it is also inconsistent with the EPA’s broad definition of stationary sources in the Regional Haze Rule itself. The RHR defines a “stationary source” as a “building, structure, facility or

installation which emits or may emit any air pollutant.”⁵⁹ “Building, structure or facility” is further defined as: “All of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person.”⁶⁰ Therefore, all recognized emission units (*i.e.*, that fall within one of the 26 listed categories) within a source are aggregated for purposes of determining whether the source meets the 250 ton-per-year emission threshold. The EPA properly recognizes that in order to effectively meet the “reasonable progress” mandate of Section 169A, it must apply the 250 ton-per-year threshold to entire sources and not just the emission units within those sources. So too should the 250 million BTU/hr threshold apply to the sum of the fossil-fuel boilers within a source as defined above. This would ensure that all sources which use fossil-fuel boilers to generate power are treated similarly – whether the 250 million BTU/hr heat input is achieved using one boiler or multiple boilers.

In addition to the inconsistent treatment of fossil-fuel boilers as compared to other sections of the Clean Air Act and the same provisions of the Regional Haze Rule, the proposed 2004 BART Guidelines are internally inconsistent. The proposal arbitrarily requires that only some individual fossil-fuel boilers smaller than 250 million BTU/hr be subject to BART.⁶¹ These smaller boilers are properly subject to BART if they are part of a “process description” at a plant that is in a different BART category. For example, a 200 million BTU/hr boiler at a chemical process plant is BART-eligible and its emissions should be aggregated with the other emission units in that plant for determining if the 250 ton-per-year BART-eligibility threshold is met. The aggregation of fossil fuel-fired boilers across BART categories is correct and rational. But it is arbitrary and capricious for the EPA, in determining BART-eligibility, not to aggregate smaller fossil-fuel boilers within their own category.

Aggregation of smaller boilers is also supported by the general structure of the clean air provisions of the Act. As EPA notes, the aggregation of all units or boilers at power plants supporting industrial facilities is a requirement under the PSD rules. The BART requirement and the PSD BACT requirement are brothers in arms– PSD being

⁵⁹ 40 C.F.R. § 51.301.

⁶⁰ *Id.*

⁶¹ 69 Fed. Reg. 25184 at 25191.

aimed at new sources and BART at retrofitting existing sources as of 1977, but toward the same general goal of preserving and enhancing clean air areas. It is therefore necessary that EPA include consistent source definition interpretations.

B. Determining Which BART-Eligible Sources Are Subject to BART.

1. EPA Must Maintain the Proposed 0.5 Deciview Threshold Level for Determining Visibility Impairment.

We strongly support EPA's use of the threshold level of 0.5 deciview (dv) to establish visibility *impairment*. That level is supported in the literature and is appropriate, especially given the extremely low triggering threshold for visibility impairment established by Congress.⁶²

The deciview, based on rigorous descriptions of just noticeable differences, represents the development of a formal metric which captures some key components of human perception of changes in contrast and is directly related to standard physical/chemical characteristics of visual impairment – in particular, light extinction. The relationship of the deciview (dv) to light extinction (bext) in units of inverse megameters (1/Mm) is given as $Dv = 10 \ln (bext / 10)$. Light extinction is the scattering and absorption of light by aerosols combined with the absorption of light by NO₂ and the scattering of light by air molecules. Each aerosol component and NO₂ has different light scattering and/or absorption efficiencies. The total bext for a given area is the sum of each contributing component's concentration weighted by its efficiency factor.

The dv scale for use as a metric to gauge perceptible changes was introduced over a decade ago by Malm and Pitchford.⁶³ The scale is based on a quadratic detection model used to predict threshold of perceived image sharpness. From the first introduction of

⁶² See, e.g., *Central Arizona Water Conservation District, et al. v. EPA*, 990 F.2d 1531, 1541 (9th Cir. 1993).

⁶³ Malm, W. National Acid Precipitation Assessment Program (NAPAP) (1991), Acid Deposition: State of Science and Technology, Report 24, "Visibility: Existing and Historical Conditions— Causes and Effects" Appendix D: 24-D2. Pitchford, M. and W. Malm "Development and applications of a standard visual index," *Atmospheric Environment*, 28 (5) 1049-1054 (1994); also summarized at vista.cira.colostate.edu/IMPROVE/Publications/NewsLetters/apr_93.pdf

the dv scale, it was noted that perceptible changes could be noticeable at $dv=0.5$ and even lower.⁶⁴

The dv metric is a useful but not comprehensive in capturing the full range of human judgment involved in perceiving visual air quality. Visibility impacts are in fact directly related to human judgments of visual air quality. How people judge the visual quality of a scene or vista depends on many perceptual factors such as:

- color of the air
- how far one can see
- clarity with which distant objects can be seen
- clarity with which nearby-objects can be seen
- presence or absence of a border between clear air and discolored air
- texture of objects being observed

These relationships have been studied extensively in rural and urban settings.⁶⁵ Urban studies of perception⁶⁶ provided the basis for the development of the Denver visibility standard.⁶⁷ The relationship between human judgments and various perceptual judgments as well as the long standing judgment of visual range and measurement of physical/chemical properties of the air also has been established and summarized.⁶⁸

Depending on the scene and conditions, a change in human judgment may be triggered by changes in various combination and weights of different factors such as the color of the air, the contrast close-by and at a distance, and the border between clear and colored air. The direct relationship between human judgments as represented by perception of change captured by contrast, which is one of the components of human

⁶⁴ Malm, NAPAP (1991).

⁶⁵ *Id.* at 24-41.

⁶⁶ Middleton, P., T. R. Stewart, D. Ely and C. E. Lewis (1984): Physical and Chemical Indicators of Urban Visual Air Quality Judgments, *Atmos. Envir.*, 18, 861-870; Stewart, T. R., P. Middleton and D. W. Ely (1983): Urban Visual Air Quality Judgments: Reliability and Validity, *J. of Environmental Psychology*, 3, 129-145.

⁶⁷ Ely, D., Leary, J. T., Stewart, T. R., & Ross, D. M. (1991); "The establishment of the Denver visibility standard," Proceedings of the Air and Waste Management Association, 84th Annual Meeting, Vancouver, B. C., June 16-21.

⁶⁸ Malm, NAPAP (1991) at 24-41; National Research Council, "Protecting Visibility in National Parks and Wilderness Areas" (1993).

judgments of visual air quality, and extinction is the essence of the deciview metric developed by Pitchford and Malm. Given that other factors, not captured in the dv metric, may in fact effect human judgments of changes in visual air quality, the dv can be considered to be a useful but not entirely complete measure of the fundamental visual air quality. It is therefore essential, as a matter of science, policy and law, that EPA use a protective threshold – no more lax than 0.5 dv – in relying on the dv metric as an indicator of visual air quality.

Congress pointedly employed precautionary language that does not require certainty in establishing the relationship between a source's emissions and visibility impairment in a Class I area. The phrase “reasonably anticipated to cause or contribute” on its face only requires a reasonable likelihood. This language was the subject of considerable congressional discussion in the 1977 amendments to the Clean Air Act that established the visibility program. It originated from Judge Skelly Wright's landmark opinion in the *Ethyl Corp v. EPA* case affirming EPA's regulations removing the lead from gasoline which propounded the “precautionary principle” in interpreting the Clean Air Act:

“Where a statute is precautionary in nature, the evidence difficult to come by, uncertain, or conflicting because it is on the frontiers of scientific knowledge, the regulations designed to protect the public health, and the decision that of an expert administrator, we will not demand rigorous step-by-step proof of cause and effect. Such proof may be impossible to obtain if the precautionary purpose of the statute is to be served. . . . The Administrator may apply his expertise to draw conclusions from suspected, but not completely substantiated, relationships between facts, from trends among facts, from theoretical projections from imperfect data, from probative preliminary data not yet certifiable as “fact,” and the like.”⁶⁹

Congress was fully aware of this decision when it enacted the 1977 Clean Air Act Amendments, and explicitly revised the statutory language governing the regulation of fuels in 1977 to graft upon the statute the precautionary principle enunciated by the *Ethyl* court:

“In order to emphasize the precautionary or preventive purpose of the act (and, therefore, the Administrator's duty to assess risks rather than wait for proof of actual harm), the committee not only retained the concept of endangerment of health; the committee also added the words “may

⁶⁹ *Ethyl Corp. v. EPA*, 541 F.2d 1, 28 (D.C. Cir. 1976) (*en banc*).

reasonably be anticipated”. In evaluating what “may reasonably be anticipated”, the limitations and difficulties inherent in environmental medical research referred to above must be considered. By its use of the words “cause or contribute to air pollution”, the committee intends to require the Administrator to consider all sources of the contaminant – food, water, air, etc. – in determining health risk.”⁷⁰

This interpretation has been affirmed by the U.S. Court of Appeals for the Ninth Circuit, in a case construing the same provisions of the Clean Air Act’s visibility protection program:

“Congress mandated an extremely low triggering threshold, requiring the installment of stringent [BART] emission controls when an individual source “emits any air pollutant which may reasonably be anticipated to cause or contribute to any impairment of visibility.” 42 U.S.C. §7491(b)(2)(A). The National Academy of Sciences correctly noted that Congress has not required ironclad scientific certainty establishing the precise relationship between a source’s emission and resulting visibility impairment.”⁷¹

Thus, the statutory standard for determining which sources are subject to BART is precautionary and does not require certainty. Indeed, only in circumstances in which emissions from a source are not, in any reasonable way, anticipated to cause or contribute to “any” visibility impairment in a Class I area may EPA allow a state to exempt such source from the BART requirement.

Turning to another matter, we urge EPA to calculate that 0.5 dv impairment threshold (and the lower individual contribution threshold that we describe below) on the basis of a 1-hour maximum reading or an average no longer than 24 hours. Using a longer average will simply serve to weaken the robustness of the threshold. Furthermore, national park visitors experience instantaneous, not average, visibility conditions; the form of the threshold should reflect this actual experience as closely as practicable.

2. EPA Must Retain Natural Visibility Conditions as the Baseline Against Which to Measure a Source’s Contribution to Visibility Impairment in a Class I Area.

⁷⁰ H.R. Rep. No. 95-294, at 51 (1977).

⁷¹ *Central Arizona*, 990 F.2d at 1541.

Under the repropoed BART Guidelines, a source is subject to BART if it causes visibility impairment *as measured against natural background visibility conditions*.⁷² EPA must retain the use of natural visibility conditions as the baseline in its final rule. Reliance on natural visibility conditions is the only way to ensure that “reasonable progress” will be “assured” in achieving the restoration of natural visibility conditions required by Section 169A of the Clean Air Act. In Section 169A(a)(1), Congress declared that the “remedying of any existing” visibility impairment in Class I areas is a “national goal.” The visibility impairment to be remedied as part of this national goal is that which “results from manmade air pollution.”⁷³ The provision that BART-eligible sources are subject to BART if they are reasonably anticipated “to cause or contribute to *any impairment of visibility*”⁷⁴ refers to visibility impairment vis-à-vis natural conditions (*i.e.*, the absence of manmade pollution) rather than impairment in relation to current conditions or some other arbitrary baseline. Therefore, the benchmark against which impacts are analyzed and progress is measured must coincide with the level of visibility to be achieved by the regional haze program.

The designation of a visibility baseline is extremely important in implementing the statutory goals and requirements because of EPA’s proposed use of the deciview scale to measure visibility impacts. The relationship of the deciview (dv) to light extinction (bext) in units of inverse megameters (1/Mm) is given as

$$Dv = 10 \ln (bext / 10)$$

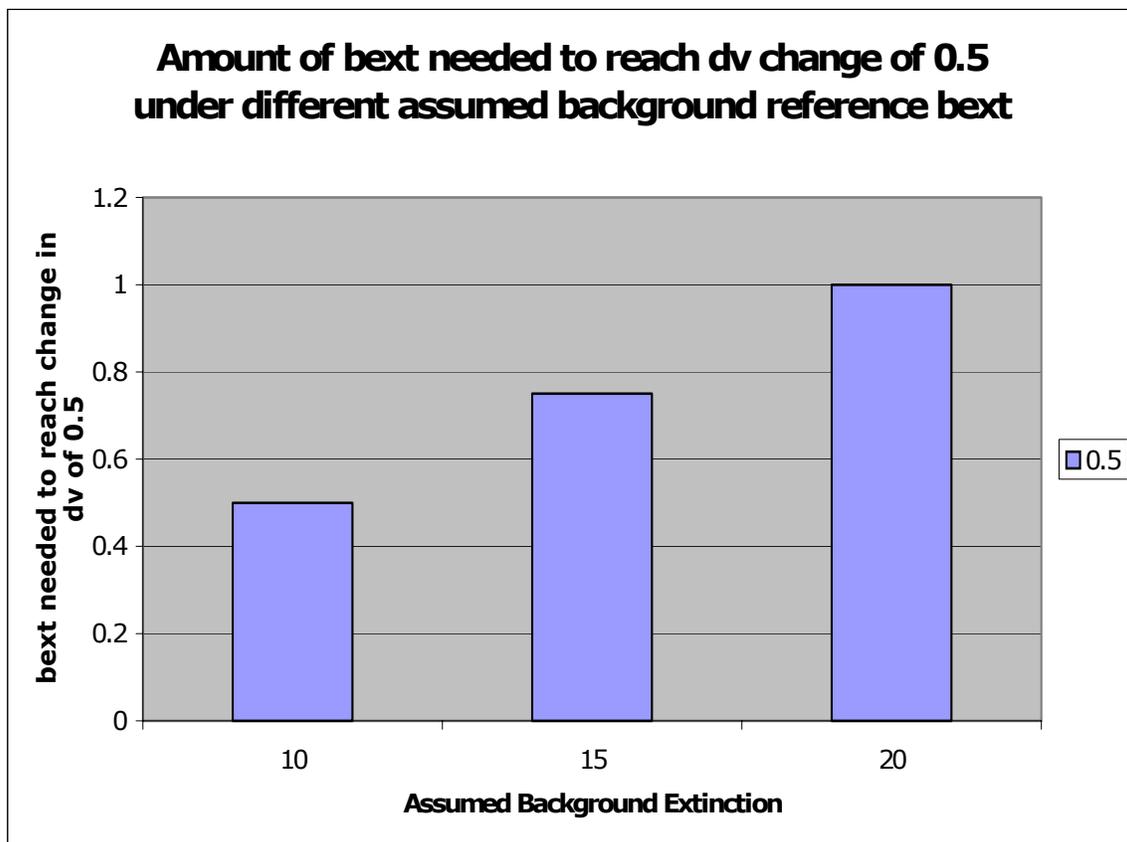
Light extinction is the scattering and absorption of light by aerosols combined with the absorption of light by NO₂ and the scattering of light by air molecules. Each aerosol component and NO₂ have different light scattering and/or absorption efficiencies. The total bext for a given area is the sum of each contributing component’s concentration weighted by its efficiency factor. In a totally natural environment, with only air molecules present, bext = 10 and dv = 0. The concentrations of aerosols and NO₂ are directly related to their emissions or gas precursor emissions. As emissions increase, concentrations increase and bext increases. The associated increase in dv is related logarithmically to these increases in light extinction, concentrations and emissions.

⁷² See, e.g., 69 Fed. Reg. 25184 at 25194.

⁷³ 42 U.S.C. §7491(a)(1).

⁷⁴ 42 U.S.C. §7491(b)(2)(A) (emphasis added).

When a totally natural background extinction is chosen as the reference point, then the change in dv is equal to the change in light extinction. However, if a background that is higher than natural is chosen as the starting reference point, then a higher level of light extinction change is required to reach the same change in dv . For example, when a background of 20 1/Mm is assumed instead of 10 1/Mm, then the amount of bext to achieve a 0.5 dv change is doubled. This implies that the emissions that are needed to reach the doubled bext are also much higher than would be needed when assuming the background of 10 1/Mm. These relationships are illustrated in the figure below.



Thus, due to the logarithmic nature of the deciview scale and its relationship to light extinction and pollution levels, the amount of pollution required to cause a 0.5 deciview visibility impact depends upon the background visibility levels against which the impact is measured. Therefore, a far greater amount of pollution is required to cause a 0.5 deciview degradation in visibility if the impact is measured

against very polluted air as opposed to relatively pristine air. Any increase in the baseline beyond natural visibility conditions will thus unlawfully distort and weaken the BART requirement by effectively raising the applicability threshold – notwithstanding the fact that these sources clearly are contributing to the very manmade visibility impairment that the Clean Air Act is explicitly designed to remedy. A different baseline would also arbitrarily and illogically make the applicability threshold less protective in highly polluted Class I areas. Not only would this create inequities among the regulated sources but it would severely undermine EPA’s regulatory responsibility in carrying out the BART requirement. Congress most certainly did not intend for the most polluted Class I areas to receive less protection. The use of any baseline other than natural visibility conditions would be arbitrary and capricious and would prevent EPA from assuring “reasonable progress” in carrying out its delegated rulemaking responsibilities and in fulfilling the statutorily-defined goals of the visibility protection program.

3. EPA’s Proposed 0.5 dv Threshold of Noticeable Visibility Impairment Is *Not* a Valid Measure of Individual Source Contribution to Such Impairment.

As mentioned above, we strongly support EPA’s use of the threshold level of 0.5 deciviews (dv) to establish visibility *impairment*. But EPA’s use of this level to determine individual *contribution* to—as opposed to *causation* of—visibility impairment is flatly inconsistent with the Act.

The repropoed BART Guidelines represent, among other things, EPA’s response to the D.C. Circuit’s opinion in *American Corn Growers*. As indicated above, that decision questioned certain aspects of EPA’s RHR relating to the determination of visibility impairment and visibility improvement for the respective purposes of identifying those sources that are subject to BART and establishing the appropriate level of control for those sources. In its attempt to correct the deficiencies identified by the D.C. Circuit, EPA is creating an entirely new set of legal infirmities. EPA’s proposed approach to assessing visibility impairment (and improvement) is flawed, and must be altered to comply with both *American Corn Growers* and the provisions of Section 169A of the Act. Language in the preamble suggests that EPA is aware of these flaws (see

discussion below), and knows what it must do to address them. We strongly encourage the Agency to do so now, so as to avoid even further delay in the implementation of BART Guidelines.

Section 169A explicitly provides that a BART-eligible source is subject to BART if it “emits any air pollutant which may reasonably be anticipated to cause or contribute to any impairment of visibility” in a Class I area.⁷⁵ In the original RHR, EPA required states to make such determination on a group basis, providing that a state should find a BART-eligible source subject to BART “if it can be shown that the source emits pollutants within a geographic area from which pollutants can be emitted and transported downwind to a Class I area.”⁷⁶ The court found this approach impermissible under the Act, observing that it effectively required states to “subject BART-eligible sources to BART requirements even absent empirical evidence of that source’s individual contribution to visibility impairment in a Class I area....”⁷⁷

EPA’s response to this aspect of the *American Corn Growers* decisions was to provide States with three options for determining which BART-eligible sources are subject to BART.⁷⁸ The first approach allows—but does not require—states to determine that all BART-eligible sources in the state are subject to BART, based on EPA’s conclusion that *all* such sources in transport areas upwind of Class I areas contribute to visibility impairment. Second, states may demonstrate, also using a cumulative impact approach, that *none* of its BART-eligible sources contributes to visibility impairment. Lastly, states may “use an air quality model for an individual source to demonstrate no contribution to visibility impairment in a Class I area.”⁷⁹

EPA’s proposed options go too far in allowing sources to be “exempted” from BART requirements. Initially, EPA needs to clarify that states may not permit a BART-eligible source to avoid BART requirements without an affirmative demonstration, either by the state or the source, that the source does not emit any air pollutant which *may reasonably be anticipated to cause or contribute to any impairment* of visibility in a

⁷⁵ 42 U.S.C. §7491(b)(2)(A).

⁷⁶ 64 Fed. Reg. at 35740.

⁷⁷ *American Corn Growers*, 291 F.3d at 5.

⁷⁸ 69 Fed. Reg. 25184 at 25193.

⁷⁹ *Id.*

Class I area. While it appears that EPA did not intend for sources to avoid BART in the absence of such a demonstration, the language of the proposal on this point must be made more clear so as to ensure meaningful implementation of the BART requirements of the Act.⁸⁰ Otherwise, a state or a BART-eligible source might attempt to avoid BART requirements simply by failing to conduct the proper analysis of visibility impairment contribution.

Even with this critical clarification, however, EPA's approach to assessing visibility impairment violates the Act in that it fails to apply BART requirements to all BART-eligible sources that "may reasonably be anticipated to ... *contribute to any*" visibility impairment [emphasis supplied].⁸¹ In order to assess the contribution to visibility impairment from an individual source, EPA used the deciview (dv), a metric derived from light extinction, an index commonly used to measure visibility degradation.⁸² As explained above, we support the use of the deciview. However, EPA then proposed to set the threshold level for determining visibility impairment at 0.5 dv, the level that "will evoke a just noticeable change in most landscapes."⁸³ In effect, EPA applied a threshold level suitable for a determination of visibility *impairment* to the determination of what may reasonably be anticipated to *contribute* to such impairment. In so doing, EPA has conflated the may "reasonably be anticipated to cause or contribute to any impairment of visibility" tests into a single test of causality. In short, EPA's proposed approach effectively reads the "contribution" element of the BART applicability test out of Section 169A(b)(2)(A) of the Act.

We note that EPA was aware of the serious deficiencies with its proposed approach for carrying out its statutory mandate to apply the BART requirement to sources which may "reasonably be anticipated to cause or contribute to any impairment of visibility" as it asked for comment on whether a lower threshold should be set for individual contribution where the aggregate of a number of BART-eligible sources

⁸⁰ See 69 Fed. Reg. at 29189/1. EPA must clarify that the first of the two approaches described in the preamble does not allow a state to presume that BART-eligible sources do not cause or contribute to visibility impairment until "such source meets the test set forth in the CAA of 'emitt[ing] any air pollutant that which may be reasonably anticipated to cause or contribute to any impairment of visibility in any [Class I] area.'"

⁸¹ 42 U.S.C. §7491 (b)(2)(A).

⁸² 69 Fed. Reg. 25184 at 25194.

⁸³ *Id.*

produce noticeable visibility impairment (*i.e.*, exceed the 0.5 dv threshold).⁸⁴ The Agency acknowledged:

“[W]e recognize that there may be situations where impacts from more than one BART-eligible source, when taken together, would adversely affect visibility at a particular Class I area even though the impact of each individual source would be below the visibility threshold. In this case, there would be a noticeable impact on visibility from BART-eligible sources because of the contribution of multiple sources, yet impacts from an individual source alone would not be noticeable. Given the statutory language that a source ‘which may reasonably be anticipated to cause or contribute to visibility impairment’ is subject to BART, a lower threshold may be appropriate as it would effectuate Congress’s intent that the BART applicability test not establish a high hurdle. We accordingly request comment on what threshold would be appropriate to address these issues.”⁸⁵

A lower threshold for individual source contribution to visibility impairment not only “may be appropriate,” but is manifestly required under the Act. The statutory BART applicability test contains two separate elements: *causation* of any visibility impairment or *contribution* to any such impairment. This is an unambiguously disjunctive test, intended by Congress to be precautionary and to subject a major stationary source to the BART requirement if either prong of the test is met. But EPA’s proposal would impermissibly exempt an eligible source from BART as long as the source can show it does not *cause* visibility impairment (*i.e.*, it impacts visibility by less than 0.5 dv). In contrast, the Act plainly allows a state to exempt a source if, and only if, it can be demonstrated that the source does not *contribute* to visibility impairment.⁸⁶ A single BART-eligible source can *contribute to* visibility impairment at much lower levels than 0.5 dv; if such a source contributes *any measurable amount* to visibility impairment (impact that in combination from contribution from other such sources exceeds 0.5 dv), that source *must* be subject to BART under the Act.

In view of the above, EPA must set the minimum threshold for individual source contribution to visibility impairment at the lowest level detectable by the modeling or other appropriate analysis. This minimum or threshold individual contribution level must

⁸⁴ 69 Fed. Reg. 25184 at 25194-95

⁸⁵ *Id* (internal citations omitted).

⁸⁶ 42 U.S.C. § 7491(c)(1).

in any event be set no greater than a 0.1 dv change relative to natural conditions, a clearly measurable level. EPA must require states to subject *all* BART-eligible sources that contribute this minimum level to BART requirements unless the visibility impairment resulting from the aggregate of the contributions of all such BART-eligible sources for a Class I area are less than 0.5 dv.

An alternative method to give meaning to the statutory text and intent of Congress would be to apply a two-step analysis that first assesses the cumulative impact of BART-eligible sources on a particular Class I area and then exempts individual sources based upon their percentage contribution to that cumulative impact. Under this approach, a state would run a CALPUFF analysis to determine if the cumulative visibility impact from all BART-eligible sources exceeded the 0.5 dv visibility impairment threshold as measured from natural visibility conditions. If so, the state would run individual CALPUFF analyses to determine which sources contributed more than a certain percentage to the cumulative visibility impairment.

The Federal Land Managers (FLM) use a similar method in evaluating the visibility impacts associated with proposed new sources under the PSD program. Under the Federal Land Managers' Air Quality Related Values Work Group (FLAG) guidelines for new sources, any source that makes a 4% contribution to a cumulative 10% change in light extinction is considered to be a significant contributor and the FLMs are likely to object to the permit. The 4% threshold was adopted from the proposed new source review rule revisions which proposed to define significant impact levels as 4% of the PSD increment.⁸⁷ If the EPA utilizes the 0.5 dv cumulative impact threshold that we recommend, we believe that a single source contribution threshold of between 4% and 10% will capture those sources which are truly contributing to visibility impairment while exempting those sources which may not reasonably be anticipated to do so.

EPA can fully implement the Act's "cause or contribute" language without substantially altering the overall approach laid out in its proposal. Thus, in those states that opt to presume that all eligible sources are subject to BART based on their collective

⁸⁷ FLAG (2000), USFS, NPS, US F+W, FLAG Phase I Report, Dec 2000.

contribution to visibility impairment,⁸⁸ a source could rebut that presumption by using CALPUFF (or some other appropriate model) to demonstrate that its emissions do not contribute a measurable amount to impairment in any Class I area.⁸⁹ Conversely, a state could still “demonstrate, using a cumulative approach, that none of its sources *contribute to* visibility impairment,”⁹⁰ by showing that the cumulative impact of all BART-eligible sources on a particular Class I area is less than 0.5 dv. Finally, in states that elect to consider the “individualized contribution” of BART-eligible sources to visibility impairment, an individual source would still have the opportunity to demonstrate through modeling that it should not be subject to BART because its emissions do not contribute a measurable amount to impairment in any Class I area or a small percentage of the 0.5 dv threshold.⁹¹ EPA must, however, require states to apply BART requirements to any BART-eligible source unless the source or the regulating state performs the analysis necessary to demonstrate that pollution from the source neither *causes* visibility impairment nor makes a *measurable* or small percentage (4-10%) *contribution* to noticeable impairment.

We underscore that a regulatory approach that accounts for all BART-eligible sources that contribute to visibility impairment is consistent with the D.C. Circuit’s reading of the statute in *American Corn Growers*. The court’s criticism of the EPA’s geography-determinative approach—*i.e.*, that it would impose BART on a source “even absent empirical evidence of that source’s individual contribution to visibility impairment in a Class I area so long as the source is located in a region that may contribute to

⁸⁸ EPA’s proposal establishes a clear and rational basis for allowing a state to presume that all of its BART-eligible sources contribute at least the minimum measurable amount to visibility impairment in a downwind Class I area. 69 Fed. Reg. at 25188/3 (“[T]here is ample technical evidence supporting a finding by a State that all BART-eligible sources within the State are subject to BART, without further analysis at that stage in the process.”). Furthermore, as EPA has recognized, “it would be an impermissible constraint of State authority to force States to conduct individualized analysis in order to determine that a BART-eligible source ‘emits any air pollutant which may reasonably be anticipated to cause or contribute to any impairment of visibility in any [Class I] area.’” *Id.* Thus, the proposed BART guidelines appropriately provide state permitting authorities with “the discretion to consider that all BART-eligible sources within the State are ‘reasonably anticipated to cause or contribute’ to some degree of visibility impairment in a Class I area.” *Id.*

⁸⁹ 69 Fed. Reg. 25184 at 25193.

⁹⁰ *Id.* (emphasis added).

⁹¹ 69 Fed. Reg. 25184 at 25193-94.

visibility impairment”⁹² – is inapplicable to the regulatory approach we outline above. Under the alternatives outlined above, a state would have the same “broad authority over BART determinations,” as found in EPA’s proposal.⁹³ The same three options for assessing BART applicability (collective contribution, collective non-contribution, and individualized contribution) would be available to the states, thereby preserving their ability to “exempt a BART-eligible source on the basis of an individualized contribution determination.”⁹⁴ Furthermore, under our approach, a source is determined to contribute to visibility impairment only if its impact on visibility is measurable or significant using CALPUFF (or some other EPA-approved modeling system). Thus, the court’s concern about the lack of “empirical evidence of a source’s contribution to visibility impairment” would be addressed. In sum, under the approach outlined above, states will retain the same contours of authority, consistent with EPA guidelines, to determine *contribution* to visibility impairment on an individual source basis in implementing the BART applicability test under Section 169A(b)(2)(A) of the Act.

4. Visibility Impairment Must Be Demonstrated Through Assessment of Appropriate Modeling or Other Method at Least as Effective and Reliable.

a. Choice and Use of Model.

EPA proposes that the extent to which a BART-eligible source causes or contributes to visibility impairment would be determined by using a CALPUFF modeling assessment.⁹⁵ In most cases, CALPUFF currently provides the most reliable means of determining which sources are and are not contributing to visibility impairment in a Class I area. Many different assumptions can be made, however, regarding modeling parameters when using CALPUFF as part of the BART determination. In order to ensure that states are using CALPUFF in a way that promotes the goals of the regional haze program, we strongly recommend that the EPA establish, as a core part of its final BART Guidelines, a CALPUFF evaluation protocol that must be followed by the states.

⁹² *American Corn Growers*, 291 F.3d at 5.

⁹³ *American Corn Growers*, 291 F.3d at 8.

⁹⁴ *Id.*

⁹⁵ 69 Fed. Reg. 25184 at 25194. Additional information regarding CALPUFF modeling is available on the internet at <http://www.calgrid.net/calpuff/calpuff1.htm>.

We recommend that the protocol be designed to ensure consistent, rigorous and protective implementation of the BART program among the states. Examples of criteria that should be included are:

- Meteorological Data—Where available, five years of data should be used to insure that meteorological variability is properly taken into account. Data from well-documented regional modeling analysis should be used.
- Emissions—Based on reported data for the same meteorological years chosen for the analysis
- Source Parameters—Documented by source plot plans
- Model physical parameters—Consistent with terrain and other local factors
- Assumed Background Concentrations for Ozone and Ammonia—Based on nearby reliable observations and/or regional modeling results
- For BART determination within the same region, the same meteorological data years and compatible regional air quality modeling analysis for ozone and ammonia concentrations should be used for all of the determinations within that region
- Choice of modeling domain must take into account any limits of the model
- Influence of all relevant BART-eligible sources within the modeling domain must be incorporated and tested in the model
- For BART determinations that involve the same sources and/or same impact areas, the multiple BART analysis results must be reconciled.

With respect to source-receptor distances of less than 50 km, we urge EPA to require either CALPUFF or some other air quality model approved by EPA for more local-scale use such as PLUVUEII.⁹⁶ For source-receptor distances substantially in

⁹⁶ Additional information regarding PLUVUEII is available on the internet at <http://www.epa.gov/scram001/tt22.htm>.

excess of 200km, we agree that states must determine visibility impact using an EPA-approved modeling protocol. However, once again, in order to produce consistent BART determinations among various sources and areas, we urge EPA to develop its own evaluation protocol for both these shorter and longer distances. EPA should continuously revise modeling protocols, considering new models for use such as CMAQ, by providing a modeling clearinghouse to states .

In order to foster consistency among states in the same region and integrity, we recommend working through the RPOs to reconcile all BART modeling results among the affected states. This could be readily accomplished by the regional modeling centers sponsored by the RPOs, utilizing available regional modeling data (*i.e.*, CMAQ). Regional modeling techniques, using state-of-the-art models like CMAQ, are being utilized or have been utilized throughout the United States. These techniques provide valuable data regarding background chemical levels (*e.g.*, ozone or ammonia) needed for CALPUFF modeling as well as verified meteorological data for plume model analysis.

A periodic formal multi-state review process would be a core function of an EPA clearinghouse and would involve the following stakeholders: state representatives, regional planning organizations, federal land managers, EPA representatives, industry representatives, environmental groups, and other relevant parties. The review process would be used to ensure the development and use of screening techniques in the BART determination process are scientifically defensible. It would also ensure that the EPA's modeling criteria are utilized as set forth in the BART Guidelines. Lastly, the multi-state review process would guarantee that BART determinations are being applied consistently across BART-eligible sources and that the modeling techniques incorporate the latest regional modeling data.

b. EPA's Examples of Alternative "Short-cuts" to Modeling Are Deeply Flawed.

EPA also indicates that it is considering, and requests comment on—but does not propose—the use of several alternative “short-cut” methods for determining visibility impairment, including a simpler CALPUFF “screening assessment,” “look-up tables,”

source ranking, and an emissions divided by distance metric.⁹⁷ We oppose the use of these alternative methods—since EPA has not demonstrated clearly in the record that any of these alternatives is at least as protective in assessing source-receptor relationships as CALPUFF.

Without ensuring that they are carried out conservatively to advance the core goals, purposes and requirements of the visibility protection program, the listed potential alternatives are fundamentally flawed due to the reliance on oversimplified, unreliable, or biased assumptions that are subject to potential result-oriented manipulation. In the examples provide by EPA, the lack of documentation of the basis for the many assumptions that are made using these short-cuts and the lack of any sensitivity analysis is especially problematic. The record contains no analysis of the sensitivity of results to assumptions made nor offers any procedure for conducting such analysis. Some of the flawed assumptions in the EPA analysis include:

- Changes in terrain are assumed to have no influence on visibility impact, even near the Appalachian Mountains. Instead, EPA selected a uniform “average value” elevation of 600m;
- Monthly ammonia and hydrogen peroxide concentrations in the atmosphere were assumed to be constant;
- Various source parameters were assumed to be uniform and “typical” for BART-eligible power plants, including uniform stack height, diameter, exit velocity and temperature, coal sulfur content, heat content, and thus SO₂ emission rate (NO_x and PM emissions are estimated based *only* on SO₂ emissions); and
- The use of CALPOST to calculate visibility assumes no contribution to visibility impairment from nitrate, organic carbon or elemental carbon.

EPA indicates that it is concerned about the resource burdens that the use of full modeling assessment might impose on states and sources.⁹⁸ We see no need to impose

⁹⁷ 69 Fed. Reg. 25184 at 25195-96. See also Kaufman, K. and Hawes, T., Memorandum to Docket OAR-2002-0076 re “Summary of Alternative Approaches for Individual Source BART Exemptions.”

⁹⁸ See, e.g., 69 Fed. Reg. 25184 at 25195. We note that EPA does not allege that use of the full modeling assessment is impractical or unjustified in view of the importance of the task.

greater burdens than necessary to do the job correctly. But EPA must not jeopardize the effectiveness and reliability of the BART applicability determinations by allowing an unreliable and unprotective methodology to be used to make such determinations. These applicability determinations are absolutely central to the effectiveness of the BART program, and must be made using the most reliable approach practicable—that is, the full and rigorous use of CALPUFF or other appropriate EPA-approved modeling.

Although we strongly support the use of CALPUFF in determining which sources are subject to BART, we recognize that CALPUFF does not currently provide accurate assessments of the impact of VOCs on visibility. For determining the contribution of VOC sources, we recommend the use of the “emissions divided by distance” method followed by the “source ranking” technique. These methods have severe limitations, however, as mentioned above, and should only be used until better modeling techniques for VOCs are developed.

C. Determining BART by Applying the Five Statutory Factors.

Once it has been determined that a BART-eligible source causes or contributes to visibility impairment and is therefore subject to BART, the state must determine what level of control constitutes the “best available retrofit technology.”⁹⁹ Section 169A(g)(2) of the Act lists five factors that must be considered together when performing this determination. The following comments focus on EPA’s proposed treatment of those factors.

1. EPA Must Strengthen its Approach to Evaluating the Degree of Visibility Improvement in the Same Manner as its Approach to Visibility Impairment.

In determining whether a control technology satisfies the BART standard, a state must take into account “the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology” at a source that is subject to BART.¹⁰⁰ Issues relating to the evaluation of the visibility improvement in determining

⁹⁹ 42 U.S.C. § 7491(b)(2); *American Corn Growers*, 291 F.3d at 5.

¹⁰⁰ 42 U.S.C. § 7491(g)(2).

BART controls are in many ways the same as issues relating to the evaluation of visibility impairment in determining which BART-eligible sources are subject to BART. That is certainly the case with respect to the issues addressed in Part III. B of these comments (see pages 28 to 44). Thus, our comments relative to EPA's:

- use of the 0.5 dv threshold for aggregate visibility impairment applied on a 24-hour average basis,
- use of a natural visibility baseline,
- use of a substantially lower dv threshold to determine the *contribution* by an individual source to visibility impairment, and
- demonstration of those thresholds by means of appropriate modeling rather than other less reliable and more subjective techniques

are all equally applicable here. We will not repeat those comments here

We will, however, add a few words relative to the D.C. Circuit's opinion in *American Corn Growers* and EPA's statutory mandate to consider the *contribution* of many individual sources to an aggregate level of visibility improvement at a given Class I area. In the 1999 RHR, EPA directed states to perform that task by analyzing the degree of improvement that would occur if BART controls were applied to all BART-eligible sources that contributed to visibility impairment at a given Class I area without any consideration of individual source impact.¹⁰¹ The D.C. Circuit struck down this approach in *American Corn Growers* after finding that Congress wanted each of the factors listed in Section 169A(g)(2) to be considered on a source-specific basis.¹⁰² The court reasoned that the impact of individual sources must be included in the analysis of the degree of visibility improvement if sources are to effectively perform the related analyses of the cost of new controls and the adequacy of existing controls.¹⁰³ In particular, the court noted that EPA's exclusively collective approach to visibility improvement failed to provide a method by "which it could be demonstrated that the degree of visibility improvement obtained from installing a particular set of emissions controls at a source

¹⁰¹ See 64 Fed. Reg. 35714, 35741 (July 1, 1999).

¹⁰² 291 F.3d at 6.

¹⁰³ *Id.* at 7.

with ‘exceedingly low’ or even merely theoretical visibility impacts is not justified by the cost of BART”¹⁰⁴

The court’s finding that EPA cannot prevent states from considering the impact of an individual source on visibility improvement does not undermine the basic concept embodied by Congress’s use of phrase “cause or contribute” in Section 169A(b)(2)(A). Because numerous sources cumulatively impact visibility at Class I areas, emissions reductions from “contributing” sources are an essential part of any strategy to address regional haze. Congress made it clear that BART applies to sources that *contribute* to haze, and nothing in *American Corn Growers* suggests otherwise. In fact, the court recognized that the words “or contribute” establish the actual threshold for BART applicability.¹⁰⁵

The visibility improvement prong is therefore similar to the visibility impairment test used in determining whether a source is “subject to BART,” in that both provisions require that emissions from sources that contribute to visibility impairment be reduced in order to achieve the statutory goal of natural visibility conditions. EPA cannot meet its obligation to regulate the panoply of sources that cumulatively account for regional haze if it allows states to discount the value of stringent pollution controls at sources that contribute to, but do not individually cause, visibility impairment. Accordingly, EPA’s proposed BART guidelines cannot authorize states to permit a source to avoid installing stringent controls simply because those controls will not in themselves result in noticeable (as opposed to measurable or detectable) improvement.

The Agency needs to ensure that sources which “contribute to any impairment of visibility” do their part to reduce regional haze by installing meaningful emissions controls. While states are ultimately responsible for determining what level of control constitutes BART, that determination must take into account Congress’s concern about the role played by “contributing” sources. Just as a source is legally subject to BART if it makes a measurable contribution to visibility impairment, the implementation of controls that will result in a measurable improvement in visibility (*i.e.*, 0.1 dv or greater at an

¹⁰⁴ *Id.*

¹⁰⁵ *See id* at 8.

impaired Class I area) or a small percentage contribution to visibility improvement (*i.e.*, 4-10% of the aggregate improvement) must be required under Section 169A.

The concerns raised by the court in *American Corn Growers* about an exclusively cumulative assessment of visibility improvement are addressed by the approach outlined in these comments, which considers the degree of visibility improvement that would result from the installation of controls at a specific source *and* appreciates the importance of controlling emissions from each of the numerous sources that contribute to regional haze.¹⁰⁶ Under a regulatory approach that recognizes the importance of controlling emissions that “contribute to any impairment of visibility,”¹⁰⁷ a measurable improvement in visibility of at least 0.1 dv (or 4-10% of the aggregate improvement) at an impaired Class I area is neither “theoretical” nor “exceedingly low.”¹⁰⁸ The final BART Guidelines should expressly provide that any such improvements in visibility require the installation of stringent BART controls.

2. EPA Must Consider All of the Collateral Benefits Associated with Different Control Technologies in Determining the Appropriate Level of BART Controls.

In determining the appropriate level of control to satisfy the statutory BART requirement, a state must take into consideration the “non-air quality environmental impacts of compliance.”¹⁰⁹ As we noted in our 2001 BART Comments,

The final BART guidelines should explicitly require, as part of the BART determination process, an assessment of the positive non-air quality impacts – *i.e.*, an estimate of the environmental benefits – that will result from applying BART. It is possible to estimate the ecosystem benefits in Class I areas associated with certain levels of lowered emissions of sulfur dioxide, nitrogen oxides, and particulate matter in upwind regions. Such an estimate, prepared as a qualitative assessment, must be included in the BART determination process.¹¹⁰

¹⁰⁶ See Part III.B., *supra*, at 28 *et seq.*

¹⁰⁷ See 42 U.S.C § 7491(b)(2)(A).

¹⁰⁸ See *American Corn Growers*, 291 F.3d at 7.

¹⁰⁹ 42 U.S.C. § 7491(g)(2).

¹¹⁰ Appendix A: 2001 BART Comments at 53.

In the proposed 2004 BART Guidelines, EPA correctly points out that “[i]t is important to consider relative differences between options regarding their beneficial impacts to non-air quality environmental media.”¹¹¹ As an example, the Agency indicates that states “may consider whether a given control option results in less deposition of pollutants, in particular nitrogen compounds, to nearby sensitive waterbodies (lakes, rivers, coastal waters).”¹¹² Nitrogen saturation in forests and waterways is but one of several environmental problems other than regional haze that would benefit from the application of BART controls. Effective BART controls would also:

- Reduce SO₂-related acid deposition, which is linked to a depletion in plant nutrients, decline in the number of fish and diversity of fish species, increased soil toxicity, and foliar damage that causes mortality and growth reductions among important tree species;
- Reduce the significant loss of biomass that has been associated with elevated ozone levels – a problem that has been particularly noticeable in Class I areas such as the Shenandoah and Great Smoky Mountains National Parks; and
- Reduce the amount of mercury discharged into the environment, where it threatens the health of humans and animals.

These impacts were described at length in Appendix 6 to our 2001 BART Comments.

While we commend the Agency for recognizing that the Act requires permitting authorities to analyze a control technology’s non-air quality environmental benefits when determining what constitutes BART, we are concerned that analysis has been overly compartmentalized. For example, the brief discussion of the impact of BART controls on water quality focuses on negative effects (*e.g.*, consumption, pollution), and ignores positive consequences (*e.g.*, reversal of the acidification process in lakes and streams).¹¹³ Similarly, the proposal suggests that states “may consider a trade off between short-term environmental gains at the expense of long-term environmental losses and the extent to which the alternative systems may result in irreversible or irretrievable commitment of

¹¹¹ 69 Fed. Reg. at 25227/2.

¹¹² *Id.*

¹¹³ *See* 69 Fed. Reg. at 25227/1.

resources (for example, use of scarce water resources).”¹¹⁴ It is not clear whether (and if so, why) EPA is characterizing visibility improvement as “a short-term environmental gain,” but, in any event, effective BART controls will result in long-term environmental gains aside from restored visibility in Class I areas. As discussed in our 2001 BART Comments, significant reductions in SO₂ and NO_x would allow the process of biological recovery to begin at stressed waterways throughout the country, thus reversing the damage caused by 150 years of acid deposition, nitrification, and episodic ozone pollution.¹¹⁵

3. Any Decision by a State to Require Less Than the Best Available Control Level for a Source Due to a Projected Retirement or Otherwise Interpreting the Source’s Remaining Useful Life, Must Be Reflected in a Binding Decree or Permit Limit That Requires Timely Shutdown.

As in its 2001 BART proposal, EPA has folded one of the Section 169A(g)(2) BART factors – “the remaining useful life of the source” – into the overall cost analysis.¹¹⁶ Under typical circumstances, a source would calculate the annualized cost of a retrofit control by amortizing the total cost over a predetermined period that would vary depending on the type of control under consideration. However, when the remaining useful life of a source is less than the amortization period for the control option being considered, EPA’s guidelines would allow the source to calculate the annual cost of that control by dividing the total cost by the shorter “remaining life” time period.¹¹⁷ This would result in higher projected annual costs, making it easier for a source to justify less costly (and less effective) controls.

EPA defines “remaining useful life” as the elapsed time between the year in which the BART analysis is made and “the date the facility permanently stops operations.”¹¹⁸ According to the Agency, “Where [the remaining useful life of a facility] affects the BART determination, this date must be assured by a federally-enforceable

¹¹⁴ *Id.* at 25227/2.

¹¹⁵ *See* Appendix A: 2001 BART Comments at 54.

¹¹⁶ *See* 69 Fed. Reg. at 25223/2.

¹¹⁷ *Id.*

¹¹⁸ *Id.*

restriction preventing further operation. A projected closure date, without such a federally-enforceable restriction, is not sufficient.”¹¹⁹ As we indicated in our 2001 BART Comments, we strongly support such a requirement.¹²⁰ A purported retirement date cannot be allowed to affect the outcome of a BART determination unless the source has committed to that date as an operating condition in its Title V permit. We also strongly support EPA’s decree that a source would not be able to operate more than five years after the relevant SIP has been revised unless the source has installed BART controls.¹²¹

We remain opposed, however, to the idea that a source can avoid committing to a federally enforceable shut-down date and still gain a partial exemption from BART.¹²² EPA’s proposed guidelines would allow as much, as long as the source identifies an appropriate emissions limit that would be applied in the event it decides against shutting down.¹²³ By allowing sources to take advantage of the “remaining useful life” provision without committing to an enforceable shut-down date, EPA is creating a loophole that has no legal, economic, or environmental basis. A source that relies on a remaining useful life demonstration to avoid the full application of BART and then decides not to shut down will have gained a temporary exemption from the statute where none is warranted. If operational flexibility is crucial to a source, it must purchase that flexibility through the payment of substantial noncompliance penalties that will ensure at a minimum that the source has not enjoyed any economic advantage by its failure to implement full BART controls in a timely manner.

4. BART Engineering Determinations Must Use a “Top-Down” Approach to Assure that the Best Available Controls for Reducing Regional Haze Are Selected.

EPA has proposed two alternative approaches for determining the appropriate level of control for a given source. The first option resembles the top-down approach

¹¹⁹ *Id.*

¹²⁰ See Appendix A: 2001 BART Comments at 50-52.

¹²¹ See *id.* at 25223/3; see also 42 U.S.C. §§ 7491(b)(2)(A), (g)(4) (requiring installation of controls “as expeditiously as practicable,” “but in no event later than five years after the approval of a plan revision under this section”).

¹²² See Appendix A: 2001 BART Comments at 51.

¹²³ 69 Fed. Reg. at 25223/2-3.

used in the New Source Review program to determine the “best available control technology” (BACT). Applied to BART, this approach would require a source to identify all available retrofit control technologies, rank them in descending order of effectiveness, and then examine them by beginning with the most stringent alternative. The most stringent alternative would be selected as BART unless the source can document that doing so would be technically infeasible.¹²⁴ Under EPA’s second proposed option for determining the appropriate level of control,

“[A source] could begin the BART determination process by evaluating the least stringent, technically feasible control option or by evaluating an intermediate control option drawn from the range or technically feasible control alternatives. Under this approach, you would then consider the additional emissions reductions, costs, and other effects (if any) of successively more stringent control options.”¹²⁵

If a source begins the engineering analysis at the middle or the bottom of the list of available controls and selects something other than the most stringent alternative as BART, it would have to justify its rejection of each of the successively more stringent control options.¹²⁶

As we explained at length in our 2001 BART Comments, “[w]e strongly support a top-down methodology for states’ use in making BART engineering determinations.”¹²⁷ Likewise, we are adamantly opposed to an alternative approach that allows sources to begin the BART analysis by considering controls that are not the “best,” most environmentally protective option. A bottom-up BART approach is, by its very nature, less likely to result in the “best available” controls for limiting haze-forming pollution. For the most part, the most stringent control technologies for reducing visibility impairing pollutants such as SO₂ and NO_x tend to be widely “available.”¹²⁸ Thus, by allowing a bottom-up approach, EPA would be increasing the complexity of the process, the likelihood of analytical mistakes, and the opportunities for “gaming.” Because a bottom-up approach will require sources to consider the full range of available control

¹²⁴ *Id.* at 25228/1-2.

¹²⁵ *Id.* at 25228/2.

¹²⁶ *Id.*

¹²⁷ Appendix A: 2001 BART Comments at 37.

¹²⁸ *See id.* at 42; *see also* Part III.D., *infra*, at 53.

technologies, it significantly increases the administrative burden on states involved in the BART process.¹²⁹ Finally, there simply is no substantive justification supporting the adoption of a bottom-up (or middle-both ways) approach to the selection of BART controls.

The idea that the BART engineering analysis should begin with the most environmentally stringent control option and proceed from there to less stringent controls is reinforced by the similarities between BART and the NSR BACT standard, which uses the top-down approach.¹³⁰ Both programs are set forth in Part C of the Clean Air Act, which Congress designed, *inter alia*, “to preserve, protect, and enhance the air quality in national parks, national wilderness areas, national monuments, national seashores, and other areas of special national or regional natural, scenic, or historic value.”¹³¹ Congress pursued this goal by targeting major new sources of pollution and certain existing sources that were already contributing to visibility impairment. Specifically, it required both sets of sources to install the “best” “available” technologies for reducing emissions.¹³² Given that Congress used similar language for BART and BACT, and that the two statutory programs were designed to achieve complementary goals, the two standards should be applied using the same analytical approach – *i.e.*, a top-down analysis.

The top-down approach allows EPA to certify that BACT determinations are made in accordance with the statutory command that new emissions sources must install the “best available control technology.”¹³³ The Supreme Court recently found that Congress intended EPA to play this role by giving the Agency a “broad oversight role ... to ensure that a State’s BACT determination is reasonably moored to the Act’s provisions.”¹³⁴

Like the Act’s BACT provisions, the BART requirement is marked by “strong, normative terms” that “empower [EPA] to check a state agency’s unreasonably lax”

¹²⁹ See Appendix A: 2001 BART Comments at 41-42.

¹³⁰ See *id.* at 38-41.

¹³¹ 42 U.S.C. § 7470(2).

¹³² See 42 U.S.C. §§ 7475(a)(4) (requiring the “best available control technology”), 7491(b)(2) (requiring the “best available retrofit technology”).

¹³³ 42 U.S.C. § 7475(a)(4) (emphasis added).

¹³⁴ *Alaska Department of Environmental Conservation v. EPA*, 124 S.Ct. 983, 994 (2004).

technology determination.¹³⁵ A top-down approach is essential to this process. As we wrote in 2001, “The top-down approach satisfies Congress’s intent and purpose to preserve and enhance air quality in clean air and Class I areas, as set forward in the structure and the language of the Clean Air Act, which the bottom-up approach ... does not.”¹³⁶ Any other approach simply satisfies industry’s desire for less stringent regulation.

D. Establishing Presumptive Control Limits that Truly Constitute BART.

Presumptively available emissions reductions levels are one of the most essential components of the BART guidelines, as they establish a starting point representing the “best available technology” in the required engineering analysis. Presumptively available sulfur dioxide removal efficiencies of 95 percent or emission rate of 0.10 lb/mmBtu should be set in the final rule, for all BART-eligible industrial boilers in the 26 source categories, and that the Agency also should establish presumptively available emissions rates for NO_x that do not exceed 0.15 lb/mmBtu.

1. A Presumptive Control Level for SO₂ Should Be Established in the BART Engineering Analysis at a 95% Removal Efficiency or an Emission Rate of 0.10 lb/MMBtu. Moreover, the Same Control Levels Should Also Be Presumed for All Fossil Fuel Boilers That Generate Electricity for Industrial Processes in All BART Source Categories.

The 2004 BART Guidelines propose that presumptive SO₂ control levels for EGUs with a capacity of 250 MW or greater be established at “either 95% control, or controls in the range of 0.1 to 0.15 lb/MMBtu. We strongly support this aspect of EPA’s proposal. The availability of pollution control technology that achieves reduction levels of 95 percent or greater for sulfur dioxide from electric utility boilers is clearly well-documented as described below and by EPA in the reproposal. Further, because of the extended SIP timeline, BART retrofits will not be applied until 2013 and therefore, it is

¹³⁵ *See id.*

¹³⁶ 2001 BART Comments at 38.

expected that the “best” available sulfur removal technologies will routinely be able to achieve in excess of 95 percent removal efficiencies and emission rates of lower than 0.10 lb/mmBtu by that time. Therefore, we believe that the presumptive level of 95 percent reduction or 0.10-0.15 lb/mmBtu SO₂ emission rate that is stipulated in the proposal should be strengthened to an SO₂ removal efficiency of 95% or better or an emission rate of 0.10 lb/mmBtu or better.

An EPA ORD Report issued November 2000¹³⁷ documents that retrofits of electric utility boilers burning coal over the past decade or more have systematically achieved 90 percent or greater reductions in SO₂ using flue gas desulfurization (FGD) techniques, as demonstrated by both dry and wet scrubbers. The report concludes that limestone spray drying (LSD) technology installed between 1999 and 1995 – a form of wet FGD and the most common existing technology adopted by sources that burn low to medium sulfur content coal – has removal efficiencies of greater than 90 percent.¹³⁸

We do not, however, believe that the technology of the 1980s or 1990s should be established as the presumptively “best available” where it would not be applied to boilers until late in this decade or beyond 2010. According to the EPA ORD report, advanced state-of-the-art wet scrubbers are now capable of achieving over 95 percent removal efficiency. For example, high velocity limestone forced oxidation (LSFO) technology is reportedly capable of removing more than 99.6 percent of SO₂ under test conditions.¹³⁹ Advances in technology have also demonstrated the effectiveness of ammonia scrubbing,¹⁴⁰ which is promising for high-sulfur coal, and which is capable of removing over 95 percent of sulfur. As a co-benefit, this technique also reduces acid gases such as hydrochloric acid and sulfur trioxide. While these technologies are under development

¹³⁷ *Controlling SO₂ Emissions: A Review of Technologies*, EPA-600/R-00-093 (<http://www.epa.gov/ORD/WebPubs/so2/EPA600R00093.pdf>).

¹³⁸ *Id.* at 32.

¹³⁹ *Id.*

¹⁴⁰ *Id.* at 39. Ammonia scrubbing, however, may create ammonia aerosol by-products if not precisely controlled. This process also produces ammonium sulfate that can then be utilized as fertilizer to reduce waste and improve cost/economics, as opposed to the standard wet FDG process which produces gypsum, typically used in manufacturing wall board. Gypsum is in oversupply and thus commands a low price in the United States.

today, by the beginning of the next decade, the earliest point when BART would be applied, they will be readily “available.”

Technologies to remove sulfur from boilers that have previously been retrofit to previously to meet the 1979 New Source Performance Standard (NSPS) of 70 percent but, as such, are currently under-controlled, can also meet removal efficiencies of levels of 95 percent or more according to the EPA report.¹⁴¹ The performance of boilers already using the wet limestone process can be improved through the application of “once-through wet FGD technology,” such as increasing sorbent, reactivity and other upgrades.

Furthermore, these removal efficiencies can be obtained on a highly cost-effective basis. EPA recognizes that available FGD control technologies can remove SO₂ from power plants at average costs of between \$200 and \$1300 per ton, which “are well within levels considered for application under many CAA regulatory programs.”¹⁴² In fact, EPA has estimated control cost for power plants with capacities ranging from 500 to 1500 MW using three common types of FGD technologies as follows:¹⁴³

	Limestone Forced Oxidation	Magnesium-Enhanced Lime	Lime Spray Drying
Average Cost –\$ per ton of SO₂ Removed	\$145-592	\$169-589	\$248-965

These costs are even lower than those stated above, are clearly cost-effective, and provide further support for the establishment of the rigorous presumptive SO₂ control levels of 95% or better control efficiency or 0.10 lb/mmBtu or lower emission rate.

2. A NO_x Control Level for Uncontrolled and Undercontrolled Power Plants of 0.15 lb/mmBtu Also Is Presumptively Available.

¹⁴¹ *Id.*

¹⁴² 69 Fed. Reg. 25184 at 25199.

¹⁴³ December 29, 2000 note to EPA Docket A-2000-28 from Tim Smith (referenced by EPA at 69 Fed. Reg. at 25200 (note 32)), at page 4.

Because power plants account for about one-quarter of the nitrogen oxide emissions nationally, and because the Agency also has and will have considerable “experience in evaluating NO_x control options for utility boilers,”¹⁴⁴ we believe a presumptive control level for nitrogen oxides should be presumed as “best available” at the outset of the required top-down BART analysis for both controlled and uncontrolled power plants. In order to provide support for such a presumption, we request that EPA undertake a similar analysis of NO_x removal technologies as was done by ORD for sulfur dioxide.

NO_x contributes significantly to the formation of regional haze, and therefore to visibility impairment in many Class I areas, particularly in the Northern Great Plains and western United States.¹⁴⁵ Once released, NO_x gases oxidize in the atmosphere to form ammonium nitrate aerosols. In some Class I areas, light scattering due to nitrate is increasing, contributing to deteriorating visual air quality. For example, trends in increasing nitrate-related haze have been documented in Badlands, Big Bend and Mesa Verde National Parks and Chiricahua National Monument.¹⁴⁶

Selective Catalytic Reduction (SCR) techniques currently represent the best available technology for removal of NO_x.¹⁴⁷ Recent installations suggest that removal efficiencies of over 90 percent are proven using SCR. We anticipate that the removal efficiencies of these technologies – and newer innovations – will only improve between now and the implementation of BART starting in the latter part of this decade. The following is brief review of the present capabilities of SCR to support our contention that a 90 to 95 percent presumptive removal efficiency for NO_x be included in the BART rule.

¹⁴⁴ See 66 Fed. Reg. 38,108, 38,130.

¹⁴⁵ CIRA, *supra* note 6.

¹⁴⁶ *Id.*

¹⁴⁷ Many technologies are available for the control of NO_x emissions. They can be divided into two major categories: (1) those that minimize the formation of NO_x during the combustion process (*e.g.*, smaller quantities of NO_x are formed); and (2) those that reduce the amount of NO_x formed during combustion prior to exiting the stack into the atmosphere. It is common to refer to the first approach as “Combustion Modifications” (*e.g.*, low NO_x burners), whereas technologies in the second category are termed “Post-Combustion Controls.”

Within each of these categories, several technologies and variations of the same technology exist. Most often combinations of some of these technologies are desirable as they may produce more effective NO_x control than the application of a stand-alone technology.

SCR, a post-combustion NO_x control technology widely used around the world, is rapidly gaining market penetration in the United States.¹⁴⁸ SCR is capable of reductions of NO_x in the 90-95 percent range. The technology was first deployed in Japan and Germany in the late 1970's and 1980's, and is currently applied to more than 40,000 MW of capacity.¹⁴⁹ Advances in the technology have continued over the years, mostly focused on the improvement of catalysts and process conditions (*e.g.*, better systems for maintaining uniform gas velocities, uniform ammonia-to-NO_x distribution).¹⁵⁰

While some of the earlier deployment of SCR in coal-fired applications in the US achieved reductions of 60-79 percent,¹⁵¹ the more recent wave of installations have both achieved and demonstrated 90-93 percent reductions.¹⁵² Based on this data, as well as the cumulative experience expected from new SCR installations in the next few years in the US, NO_x reductions from coal-fired plants, using SCR technology, can reasonably be expected in the 90-95 percent range.

Furthermore, these reductions can be obtained in a cost-effective manner. EPA's NO_x SIP Call and its recently proposed CAI Rule will require significant reduction of NO_x emissions from eastern power plants to levels of 0.15 lb/mmBTU (NO_x SIP Call)¹⁵³ and then 0.125 lb/mmBTU (IAQR/CAIR),¹⁵⁴ at costs estimated by EPA to be less than \$2000/ton.¹⁵⁵ This is substantially less than the cost of many of the alternative controls that states are and have been considering to control NO_x from other sources. For instance, in the March 30, 2004 comments of CATF and others on EPA's original IAQR

¹⁴⁸ See The McIlvaine Company, *Market Reports* (visited Oct. 2, 2001) <<http://www.McIlvainecompany.com>>

¹⁴⁹ IEA COAL RESEARCH, NO_x INSTALLATION ON COAL-FIRED PLANTS (March 1999).

¹⁵⁰ G. Bielawski, *How Low Can We Go?* (2001) (*presented at* EPA/DOE/EPRI MEGA Symposium, Chicago, August 2001); J. Cichaniwicz, *Twenty-Five Years of SCR Evolution: Implications for US Application and Operation* (2001) (*presented at* EPA/DOE/EPRI MEGA Symposium, Chicago, August 2001).

¹⁵¹ D. Bullock, *Long-Term SCR Operating Experience at PG&E Generating Coal-Fueled Power Plants* (2000) (*presented at* ICAC Forum, March 2000).

¹⁵² R. Glaser, *The SCR Retrofit at the Montour Steam Electric Station* (2001) (*presented at* EPA/DOE/EPRI MEGA Symposium, Chicago, August 2001); K. Robinsons, *Selective Catalytic Reduction of a 645 MW Boiler at AES Somerset* (2000) (*presented at* ICAC Forum, March 2000); J. Cochran, "Design and initial start-up results from the New Madrid SCR retrofit project," *presented at* ICAC Forum 2000 (March 2000).

¹⁵³ See, *e.g.*, 63 Fed. Reg. 57356 at 401-402.

¹⁵⁴ See, *e.g.*, 69 Fed. Reg. 4566 at 4618.

¹⁵⁵ See, *e.g.*, 63 Fed. Reg. 57356 at 399-402; 69 Fed. Reg. 4566 at 4614-15.

proposal, CATF described recent efforts in Washington, D.C. and Texas where local measures ranging in cost up to \$13,000 per ton of NO_x removed were being considered and in some cases employed.¹⁵⁶

IV. To Assure Reasonable Progress Under the National Visibility Protection Goal, EPA Must Address the Leakage Resulting from BART-Required SO₂ Reductions Sold as Allowances Under Title IV.

In order to ensure that the visibility gains realized through the RHR are not offset by trading of SO₂ allowances issued under Title IV of the Act, the EPA must adjust the allowance regime for those sources that are subject to BART. In its January 2004 proposed CAI Rule, the EPA recognized that more stringent SO₂ reductions in one region of the country would reduce the economic value of Title IV SO₂ allowances and would result in the “leakage” of SO₂ emissions into regions with less stringent regulations. In an effort to address this problem and realizing that it lacked the authority to alter the statutory requirements of Title IV, the EPA proposed that sources in the regions with more stringent regulations would be required to use more than one allowance for every ton of SO₂ emitted. This would serve not only to preserve the integrity of the allowance trading market, but would also ensure that the environmental gains realized through the CAIR would not be offset by increased air pollution elsewhere.

The EPA is confronted with a similar “leakage” problem in the context of the regional haze rule. Insofar as the proposed rule regulates SO₂ emissions from BART-eligible sources, such as EGUs, that also subject to Title IV of the CAA and that contribute to visibility impairment in Class I areas, these sources would accumulate excess allowances that could then be sold at a reduced cost¹⁵⁷ to non-BART-eligible sources that also contribute to visibility impairment in Class I areas. Thus, instead of an emissions “leakage” from one region to another as in the CAIR context, the EPA is faced with significant emissions leakages from sources subject to BART to those not subject to

¹⁵⁶ See Comments of CATF, et. al. on EPA’s Proposed IAQR, Document #OAR-2003-0053-0968, at pages 21-23 (March 30, 2004).

¹⁵⁷ Due to the aggregate impact of all excess allowances on the emissions trading market.

BART in a way that fundamentally fails to assure reasonable progress toward the nation's visibility protection goal. Given the integral role that SO₂ emissions play in the formation of visibility impairing pollution, the lack of SO₂ reductions could severely hamper the EPA's compliance with its statutory duty to issue regulations that "assure" the "reasonable progress" mandated by Section 169A. In addition to the leakage problem, of course, would be the problem of flooding the emissions trading market with the excess allowances realized by BART-eligible sources.

Sections 403(f) and 169A(b)(2) of the Clean Air Act empower EPA to regulate the use of SO₂ allowances by BART sources. Section 403(f), which describes the nature of Title IV allowances, states that an "allowance under this subchapter is a limited authorization to emit sulfur dioxide...Nothing in this subchapter or in any other provision of law shall be construed to limit the authority of the United States to terminate or limit such authorization."¹⁵⁸ This clear statement of the authority retained by the United States with respect to SO₂ allowances is augmented by Section 169A(b)(2)'s broad grant of authority to the EPA to issue regulations which assure reasonable progress toward the national goal of preventing and remedying visibility impairment in Class I areas. Section 169A(b)(2) provides that EPA regulations shall require state implementation plans "to contain such emission limits, schedules of compliance *and other measures as may be necessary* to make reasonable progress toward meeting the national goal" (emphasis added). Given the EPA's broad grant of authority to regulate the use of SO₂ allowances by BART sources, EPA must adopt a provision similar to that described in the proposed CAI Rule.

The CAIR proposal required sources to expend more than one Title IV allowance for every ton of SO₂ emitted. The EPA must similarly require that each BART source generating Title IV SO₂ allowances as a result of complying with BART would multiply its allowances by an appropriate factor such that the number of pre-BART allowances would be adjusted consistent with the amount of post-BART SO₂ pollution. For instance, if a source had 30,000 allowances to emit 30,000 tons of SO₂ before BART and BART resulted in the emission of only 3000 tons of SO₂, the source would be required to use 10 allowances for every ton of SO₂ emitted. Failure to require such adjustments in light of

¹⁵⁸ 42 U.S.C. § 7651b(f).

EPA's proposed approach to the analogous problem of leakage under EPA's CAIR proposal would be contrary to EPA's statutory duty to issue regulations that in fact assure reasonable progress toward the national visibility protection goal, would be arbitrary and capricious, and an abuse of discretion.¹⁵⁹

V. EPA's Proposal Fails to Recognize the Distinct Statutory Role of the Federal Land Managers (FLMs) as Required by the Clean Air Act.

Several key provisions of the Clean Air Act embody Congress's intent to give the FLMs an integral role in protecting visibility within Class I areas. Under Section 169A(d) of the Clean Air Act, for example, states are required to consult in person with the appropriate FLMs prior to holding public hearings on BART revisions to their state implementation plans (SIP). In addition, the Administrator cannot exempt a source from BART limitations under Section 169A(c)(3) without the concurrence of the appropriate FLM. Also under Title I, Part C of the CAA, Section 165(d)(2)(B) states that the "Federal Land Manager and the Federal official charged with direct responsibility for management of such lands shall have an affirmative responsibility to protect the air quality related values (including visibility) of any such lands within a class I area." Congress imposed this "affirmative responsibility" on the FLMs because the FLMs are uniquely positioned, as the trustees of these lands, to assess not only the negative impacts of air pollution on Class I areas, but also the benefits to be realized from cleaner air and increased visibility.

Even though the Clean Air Act mandates that FLMs are to have an integral role in protecting visibility in Class I areas, the EPA's proposed rule deprives the FLMs of any meaningful participation in the BART process. Given the almost unlimited exemption authority granted to states under the proposed rule, the consultation with FLMs during the

¹⁵⁹ We note that if EPA does not restrict a BART source's ability to sell excess allowances, this unlawful action will reduce the "costs of compliance" of imposing a particular BART level on that source. Under Section 169A(g)(2), states are required to consider the "costs of compliance" when determining BART. A source that is subject to BART can help offset the cost of achieving BART-required emissions reductions by selling any excess SO₂ allowances realized through the application of BART. The overall cost of compliance is therefore reduced and greater BART reductions will be warranted.

SIP process will occur after the critically important decisions about the scope and rigor of the state's visibility protection program have already been made. In order to be meaningful, FLM consultation must occur at a stage when it can timely confer with a state while it is evaluating which sources should be subject to BART and how to implement the BART requirement at affected major stationary sources.

As EPA properly recognized in its 1980 visibility protection rules, the Clean Air Act requires significant FLM participation throughout the process of incorporating Class I visibility protection into the SIPs. EPA's 1980 rulemaking called for close collaboration between the states and the FLMs throughout the SIP development process: "we expect the State and the Federal Land Manager to work closely during the *entire* SIP development process...[T]he State should consider carefully the Federal Land Manager's comments and recommendations. These two must work together to ensure that visibility in these areas is protected."¹⁶⁰ Furthermore, rather than limiting FLM participation to a perfunctory consultation a mere two months prior to public SIP hearings, the 1980 visibility protection rules authorized the FLMs to be actively and effectively engaged in key decisions. For example, the rule calls on the FLMs to "provide the State with a list of sources suspected of causing or contributing to visibility impairment in the mandatory Class I Federal area."¹⁶¹ In its notice of proposed rulemaking for the 1980 visibility protection regulations, EPA expressly interpreted CAA Sections 169A and 165(d)(2)(B) to provide a more robust and meaningful participation by FLMs in the SIP revision process. The EPA referred to the "affirmative responsibility" of FLMs to protect visibility under Section 165(d)(2)(B): "Because the Clean Air Act charges the Federal Land Managers with protecting air quality related values, including visibility, the State must adequately consider comments from the Federal Land Managers."¹⁶² The RHR relies on the same statutory authority as the 1980 visibility protection rule. EPA's significant diminution in the role of the FLM is therefore inexplicable and unreasonable change in the interpretation of these common statutory provisions. Congress envisioned a robust, integral role for the FLMs in protecting visibility in Class I areas, but the RHR

¹⁶⁰ 45 Fed. Reg. 80,086 (December 2, 1980) (emphasis added).

¹⁶¹ *Id.*

¹⁶² 45 Fed. Reg. 34,764 (May 22, 1980).

severely circumscribes and diminishes FLM input. This reversal in EPA's long-standing interpretation of the FLMs' role is without reasoned basis and contrary to law.

VI. EPA's Revisions to the 1980 BART Guidelines Must Establish Presumptive Emission Limits for EGUs that are at Least as Stringent as the Presumptive Limits under the Regional Haze Program.

EPA proposes to revise the 1980 BART guidelines by clarifying "that BART should not be interpreted under the 1980 regulations to preclude control options which are more stringent than NSPS standards."¹⁶³ We strongly support this clarification, although we believe it would be unlawful for EPA to interpret NSPS as reflecting the ceiling for BART under the 1980 guidelines. Indeed, EPA has long interpreted the 1980 guidelines as allowing the imposition of more rigorous emission limits than the NSPS based on a consideration of the relevant statutory factors for BART.¹⁶⁴ The statute, therefore, simply may not be categorically overridden by establishing NSPS as an alternative to BART.

However, EPA must go farther than its proposed clarification. As explained in detail in EPA's notice of proposed rulemaking and in these comments, it is well-documented that EGUs can presumptively achieve a 90-95 percent SO₂ removal and rigorous NO_x emission limitations. For the compelling technical, economic and legal reasons that EPA has proposed rigorous SO₂ and NO_x emission limits for EGUs under the regional haze program, EPA must likewise establish such limits for EGUs under the 1980 BART guidelines. There is no rational distinction that could justify disparate treatment. It would be arbitrary and capricious and an abuse of discretion for EPA to fail to harmonize the presumptive BART emission limits for EGUs under these dual, parallel guidelines. Therefore, we respectfully request that EPA establish presumptive 90-95 percent SO₂ removal and rigorous NO_x emission limitations for EGUs under the 1980 BART guidelines, consistent with our comments herein on EPA's proposed regional haze BART guidelines.

¹⁶³ 69 Fed. Reg. at 25187.

¹⁶⁴ 56 Fed. Reg. at 5177.

VII. Conclusion.

In conclusion, we urge EPA to abandon its proposal to exempt power plants that are subject to the CAI Rule from BART requirements, and to strengthen the BART Guidelines in the manner specified above.

Respectfully submitted,

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