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October 15, 2007

VIA TELECOPY (202) 233-0121)
AND U.S. MAIL

Eurika Durr, Clerk of the Board
U.S. Environmental Protection Agency
Environmental Appeals Board (1103B)
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460-0001

Re: Christian County Generation, LLC (PSD Appeal No. 07-01)

Dear Ms. Durr:

Enclosed please find an original and six copies of the following documents:

(1) *Massachusetts v. EPA*, 415 F.3d 50 (D.C. Cir. 2005);

(2) Public Comments of the Utah Chapter of the Sierra Club and other environmental groups, *Draft PSD permit for Major Modifications to the Bonanza Power Plant in Utah* (July 2006);

(3) USEPA Response to Public Comments, *Bonanza Power Plant* 1-9 (August 2007).

The *Massachusetts v. EPA* appeals court decision is referenced, but not cited, in Petitioner's Reply Brief (at 2). The Deseret/Bonanza PSD permit proceeding is referenced at page 5 of Petitioner's Reply Brief. If the Board decides to accept Petitioner's unsolicited brief, Permittee respectfully requests permission to refer to these three documents at oral argument.

The two Deseret/Bonanza documents are already on file with the EAB and publicly available on the EAB's website as Exhibits 2 and 3 to the Sierra Club's pending Petition for Review in *In re Deseret Power Electric Cooperative*, PSD Appeal No. 07-03.

Because Petitioner relies on the D.C. Circuit opinion in *Massachusetts v. EPA* in its Reply Brief, and because the latter two documents are already on file with the EAB in Petitioner's related appeal, there should be no objection to referring to these documents at oral argument.

Please do not hesitate to contact me at the above number if you have any questions. Thank you.

Sincerely,

James H. Russell

JHR:lwg

cc: Counsel of Record (Attached)
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Luke Goodrich (W&S)
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RESPONSE TO PUBLIC COMMENTS

ON

Draft
Air Pollution Control
Prevention of Significant Deterioration (PSD)
Permit to Construct

Permit No. PSD-OU-0002-04.00

Permittee:
Deseret Power Electric Cooperative
10714 South Jordan Gateway
South Jordan, Utah 84095

Permitted Facility:
110-Megawatt Waste Coal Fired Unit
at Bonanza Power Plant

United States Environmental Protection Agency
Region 8
Air & Radiation Program
Denver, Colorado
August 30, 2007

B. COMMENTS AND RESPONSES

The descriptions of public comments below are a paraphrasing of the originally submitted comments. The full text of each public comment may be found in the Administrative Record for issuance of the WCFU permit, available at the same locations as the draft permit package was available (the Uintah County Clerk's office in Vernal, Utah, the Ute Indian Tribe office in Fort Duchesne, Utah, and the EPA Region 8 office in Denver, Colorado).

1. CARBON DIOXIDE/GREENHOUSE GAS EMISSIONS

Comment #1:

One group of commenters requested that EPA address carbon dioxide (CO_2) and other greenhouse gas (GHG) emissions from the proposed Deseret Bonanza WCFU. The commenters stated that the Clean Air Act requires EPA to do so in two ways.

Comment #1.a. First, the commenters believe EPA has a legal obligation to regulate CO_2 and other GHGs under the Clean Air Act and thus should set CO_2 emission limits in this permit.

Comment #1.b. Second, the commenters believe that EPA should consider emissions of CO_2 in its BACT analyses for other pollutants at the Bonanza WCFU.

In support, the commenters cited a U.S. Supreme Court case that was pending at the time, an Environmental Appeals Board decision, a draft EPA guidance document, and an article presenting a potential legal rationale for using PSD permits to limit CO_2 emissions.

Response #1:

Response #1.a. Disagree. EPA recognizes the importance of addressing the global challenge of climate change, and in light of the Supreme Court's decision in *Massachusetts v. EPA*, 127 S. Ct. 1438 (2007), the Agency is working diligently to develop an overall strategy for addressing the emissions of CO2 and other GHGs under the Clean Air Act. However, EPA does not currently have the authority to address the challenge of global climate change by imposing limitations on emissions of CO_2 and other greenhouse gases in PSD permits.

It is well established that "EPA lacks the authority to impose [PSD permit] limitations or other restrictions directly on the emission of unregulated pollutants." *North County Resource Recovery Assoc.*, 2 E.A.D. 229, 230 (EAB 1986). The Clean Air Act and EPA's regulations require PSD permits to contain emissions limitations for "each pollutant subject to regulation" under the Act. CAA § 165(a)(4); 40 C.F.R. § 52.21(b)(12). In defining those PSD permit requirements, EPA has historically interpreted the term "subject to regulation under the Act" to describe pollutants that are presently subject to a statutory or regulatory provision that requires actual control of

emissions of that pollutant. *See* 43 Fed. Reg. 26388, 26397 (June 19, 1978) (describing pollutants subject to BACT requirements); 61 Fed. Reg. 38250, 38309-10 (July 23, 1996) (listing pollutants subject to PSD review). In 2002, EPA codified this approach for implementing PSD by defining the term "regulated NSR pollutant" and clarifying that Best Available Control Technology is required "for each regulated NSR pollutant that [a major source] would have the potential to emit in significant amounts." 40 C.F.R. § 52.21(j)(2); 40 CFR 52.21(b)(50).

In defining a "regulated NSR pollutant," EPA identified such pollutants by referencing pollutants regulated in three principal program areas -- NAAQS pollutants, pollutants subject to a section 111 NSPS, and class I or II substance under title VI of the Act-- as well as any pollutant "that otherwise is subject to regulation under the Act." 40 CFR 52.21(b)(50)(i)-(iv). As used in this provision, EPA continues to interpret the phrase "subject to regulation under the Act" to refer to pollutants that are presently subject to a statutory or regulatory provision that requires actual control of emissions of that pollutant. Because EPA has not established a NAAQS or NSPS for CO_2, classified CO_2 as a title VI substance, or otherwise regulated CO_2 under any other provision of the Act, CO_2 is not currently a "regulated NSR pollutant" as defined by EPA regulations.

Although the Supreme Court decided the case cited by commenters and held that CO_2 and other GHGs are air pollutants under the CAA, *see Massachusetts v. EPA*, 127 S. Ct. 1438 (2007), that decision does not require the Agency to set CO_2 emission limits in the PSD permit for the Deseret Bonanza WCFU. Notably, the Court did not hold that EPA was required to regulate CO_2 and other GHG emissions under Section 202, or any other section, of the Clean Air Act. Rather, the Court concluded that these emissions were "air pollutants" under the Act, and, therefore, EPA could regulate them under Section 202 (the provision at issue in the *Massachusetts* case), subject to certain Agency determinations pertaining to mobile sources.

EPA is currently exploring options for addressing GHG emissions in response to the Supreme Court decision. EPA is taking the first steps toward regulating GHG emissions from mobile sources, but the Agency has not yet issued regulations requiring control of CO_2 emissions under the Act generally or the PSD program specifically. Accordingly, EPA cannot include emissions limitations for CO_2 (or other GHGs that are not otherwise regulated NSR pollutants) in the Deseret PSD permit because it has long been established that "EPA lacks the authority to impose [PSD permit] limitations or other restrictions directly on the emission of unregulated pollutants." *North County*, 2 E.A.D. at 230. At this time, we believe that any action EPA might consider taking with respect to regulation of CO_2 or other GHGs in PSD permits or other contexts should be addressed through notice and comment rulemaking, allowing for a process which is public and transparent and based on the best available science.

Response #1.b: Disagree. EPA recognizes the importance of addressing the global challenge of climate change, and in light of the Supreme Court's decision in *Massachusetts v. EPA*, 127 S. Ct. 1438 (2007), the Agency is working diligently to develop an overall strategy for addressing the emissions of CO2 and other GHGs under the Clean Air Act. Nevertheless, with regard to the present permitting decision, the

record before the Agency does not suggest, and commenters have not provided any evidence showing, that the outcome of our BACT analysis for the regulated NSR pollutants emitted by the Deseret Bonanza WFCU would have been resulted in a different choice of control technologies had we considered the potential collateral environmental impacts of CO_2 emissions.

The CAA defines BACT as "an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation under this Act emitted from or which results from any major emitting facility, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs determines is achievable for such facility through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of such pollutant." CAA § 169(3) (emphasis added); *see also* 40 CFR 52.21(b)(12). EPA has established a five-step, top-down process for determining BACT emission limits for each PSD-regulated pollutant considered in a permitting decision: (1) identify all potentially applicable control options (2) eliminate technically infeasible control options; (3) rank remaining technologies by control effectiveness; (4) eliminate control options from the top down based on energy, environmental, and economic impacts; and (5) select the most effective option not eliminated as BACT. *See Prairie State Generating Co.*, 13 E.A.D. ___, PSD Appeal No. 05-05, slip op. at 14-18 (EAB Aug. 24, 2006) (summarizing and describing steps in the top-down BACT analysis). *Accord Three Mountain Power, L.L.C.*, 10 E.A.D. 39, 42-43 n.3 (EAB 2001); *Knauf Fiber Glass, GmbH*, 8 E.A.D. 121, 129-31 (EAB 1999); *Hawaii Electric Light Co.*, 8 E.A.D. 66, 84 (EAB 1998). Thus, EPA has traditionally considered the collateral impacts (energy, environmental, and economic) of each BACT option at Step 4 of this analysis.

The CAA does not specify how EPA should weigh these collateral impacts when determining BACT for a particular source. The Agency's longstanding interpretation is that "the primary purpose of the collateral impacts clause is to temper the stringency of the technology requirements whenever one or more of the specified collateral impacts – energy, environmental, and economic – renders use of the most effective technique inappropriate." *Columbia Gulf Transmission Co.*, 2 E.A.D. 824, 826 (EAB 1989). Accordingly, the environmental impacts analysis "is generally couched in terms of discussing which available technology, among several, produces less adverse collateral effects, and, if it does, whether that justifies its utilization even if the technology is otherwise less stringent." *Old Dominion Electric Cooperative*, 3 E.A.D. 779, 792 (EAB 1992).

In this case, the commenters have not shown that consideration of the environmental impacts of CO_2 emissions in the collateral impacts step of the EPA's BACT analysis for the regulated NSR pollutants would lead to a different result in our selection of BACT for the Deseret facility. The record before the Agency does not suggest that the Agency should have selected a less stringent option as BACT in order to reduce the potential collateral environmental impacts of CO_2 emissions. Although there may be some differences in the CO_2 emissions resulting from use of the technologies we evaluated at step 4 of the BACT analysis, we do not have information indicating such

differences would be significant enough to necessitate changing our selection of BACT for other pollutants. *See Hillman Power Co., L.L.C.*, PSD Appeal Nos. 02-04 (July 31, 2002) ("collateral environmental impacts analysis need only address those control alternatives with any significant or unusual environmental impacts that have the potential to affect the selection or elimination of a control alternative."). Commenters have not given EPA cause to believe that comparisons of the CO_2 emissions from various control technologies considered in the BACT analysis for the Deseret Bonanza WCFU would render unacceptable any of the options we have identified as BACT for this PSD permit.

Specifically, the comments did not contain any information on CO_2 emissions that would lead EPA to reach a different conclusion in its BACT analysis for this facility. The commenters state only that "EPA must consider emissions of CO_2 in its BACT analysis for the Bonanza WCFU," but they do not address how the particular control technologies considered for the Bonanza WCFU would have resulted in substantially differing CO_2 emissions. Nor do they discuss how any such differences would have resulted in differing impacts that would have necessitated our selecting a different technology as BACT. Such comparisons are at the heart of the BACT analysis, and thus are required by a commenter alleging a deficiency in the analysis. *See Old Dominion*, 3 E.A.D. at 793 (finding no error based on petitioner's lack of "specificity and clarity" because they provided "no specific comparison" of differences in the environmental impacts of the various technologies considered in the BACT analysis). *See also Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc.*, 435 U.S. 519, 553 (U.S. 1978) (explaining that comments regarding an Agency's analysis of environmental impacts "cannot merely state that a particular mistake was made, ...[but] must show why the mistake was of possible significance in the results"). Accordingly, commenters have failed to show how consideration of CO_2 emissions in the BACT environmental impacts analysis would have changed the Deseret Bonanza permitting decisions.

Moreover, because EPA has historically interpreted the phrase "environmental impacts" to focus on local environmental impacts that are directly attributable to the proposed facility, the collateral impacts analysis of this BACT determination is not the appropriate mechanism for addressing the potential global impacts of CO_2 emissions from the Deseret Bonanza WCFU. *See Columbia Gulf*, 2 E.A.D. at 829-30 (finding that the environmental impacts analysis "focuses on local impacts that constrain the source from using the most effective technology"). Any predicted impacts in the area surrounding the Deseret facility that are potentially due to global climate change – to which the CO_2 and other GHG emissions from the proposed source may contribute generally – are not the type of local environmental impact that is readily traceable directly back to the particular source subject to PSD review.

EPA's interpretation that the collateral environmental impacts analysis should focus on local impacts that are directly attributed to construction and operation of the proposed source is supported by relevant statutory language, legislative history, EAB decisions, and EPA policies and permitting decisions. Both the "case-by-case" language of the BACT definition and Congress' stated reason for adding the collateral impacts analysis to that definition suggest that a facility-centered, locally-focused analysis is

appropriate. *See Kawaihae Cogeneration Project*, 7 E.A.D. 107, 116-17 (EAB 1997) (describing how the collateral impacts analysis considers factors unique to the specific source); Senate Comm. on Environment And Public Works, A Legislative History of the Clean Air Act Amendments of 1977 (Comm. Print August 1978), vol. 6 at 4723-24 (explaining that the collateral impacts clause was added to provide permitting authorities with flexibility to consider the impact of a specific facility on the character of the community in which it was located). While the EAB's *North County* decision directed permitting authorities to look at the effect of emissions from non-PSD regulated hazardous air pollutants (i.e., HAPs) in the collateral impacts analysis, the Board's opinion did not specify that all emissions not directly regulated under PSD – such as CO_2 – had to be considered as well. *See id.*, 2 E.A.D. at 230 (stating that the "exact form" and "level" of the BACT environmental impacts analysis would depend on the facts of the individual permitting decision). In subsequent policy guidance, EPA did not interpret *North County* to call for consideration of global impacts, *see, e.g.*, Memorandum from Gerald Emison, OAQPS Director entitled *Implementation of North County PSD Remand,* pp. 3-4 (Sept. 22, 1987), and the EAB later determined that EPA did not have to consider CO_2 and other GHG emissions in the BACT environmental impacts analysis. *Interpower of New York*, 5 E.A.D. 130 (EAB 1994); *Kawaihae Cogeneration Project*, 7 E.A.D. 107 (EAB 1997). Consistent with these prior EAB decisions and Agency policy, EPA has not previously considered the environmental impact of CO_2 and other GHG emissions in setting the BACT levels for permits,[1] and for the reasons discussed above, we do not consider it necessary to do so in issuing the PSD permit for the Deseret Bonanza WFCU.

[1] Although one draft of EPA's 1990 *NSR Workshop Manual* referenced "greenhouse gas emissions" as an example of environmental impact that a reviewing authority might consider in the BACT analysis, EPA has not done so in practice. The Agency never finalized the draft guidance cited by commenters, and other drafts of that same document do not include the phrase "greenhouse gas emissions" as an example of the type of environmental impact to be considered in the BACT analysis. *See* http://www.epa.gov/region07/programs/artd/air/nsr/nsrmemos/1990wman.pdf, at B49. Moreover, both of these drafts of the *NSR Workshop Manual* also indicate that the BACT environmental impacts analysis should focus on "consideration of site-specific circumstances," which contrasts with the notion that such analysis should be used to consider the source's impact on what is a global issue. *Id.* at B47.

***Western Resource Advocates * Environmental Defense ***
Utah Chapter of the Sierra Club * Southern Utah Wilderness Alliance *
Western Colorado Congress * Wasatch Clean Air Coalition *
HEAL Utah*

By email owens.mike@epa.gov
Mike Owens
US EPA Region 8
Air and Radiation Program Office (8P-AR)
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RE: Draft PSD Permit for Major Modifications to the Bonanza Power Plant in Utah

Dear Mr. Owens:

Western Resource Advocates, Environmental Defense, Utah Chapter of the Sierra Club, Southern Utah Wilderness Alliance, Western Colorado Congress, Wasatch Clean Air Coalition, and HEAL Utah respectfully submit the following comments on the EPA's draft prevention of significant deterioration (PSD) permit authorizing the construction of a new Waste Coal Fired Unit (WCFU) at Deseret Power Electric Cooperative's (Deseret) Bonanza Power Plant near Vernal, Utah.

1. THE DRAFT AIR QUALITY PERMIT DOES NOT ADDRESS CARBON DIOXIDE AND OTHER GREENHOUSE GAS EMISSIONS

The draft permit for the Bonanza WCFU does not address carbon dioxide (CO_2) or other greenhouse gases to be emitted from the proposed power plant. However, such emissions can be quite significant from coal-fire boilers and, in particular, from circulating fluidized bed (CFB) boilers such as is proposed for the Bonanza WCFU. The National Coal Council identifies fluidized bed combustion as an especially large source of the greenhouse gas nitrous oxide (N_2O), a problem that is not shared by the most common form of coal combustion technology, pulverized coal (PC):

> "N_2O has a GWP (Global Warming Potential) 296 times that of CO_2. Because of its long lifetime (about 120 years) it can reach the upper atmosphere, depleting the concentration of stratospheric ozone, an important filter of UV radiation. N_2O is emitted from fluidized bed coal combustion; global emissions from FBC units are 0.2 Mt/year, representing approximately 2% of total known sources. N_2O emissions from PC units are much lower. Typical N_2O emissions from FBC units are in the range of 40-70 ppm (at 3% O_2). This is significant because at 60 ppm, the N_2O emission from the FBC is equivalent to 1.8% CO_2, an increase of about 15% in CO_2 emissions for an FBC boiler. Several

techniques have been proposed to control N_2O emissions from FBC boilers, but additional research is necessary to develop economically and commercially attractive systems."[1]

The Bonanza WCFU has a potential to emit approximately 1.8 million tons of carbon dioxide each year and 3,609 tons of nitrous oxide each year.[2] The nitrous oxide that would be released from the Bonanza WCFU is equivalent, in Global Warming Potential, to an additional 1 million tons per year of carbon dioxide.

We believe that the EPA has a legal obligation to regulate CO_2 and other greenhouse gases as pollutants under the Clean Air Act. Indeed, twelve states, fourteen environmental groups and two cities filed suit stating that EPA must regulate greenhouse gas emissions under the Clean Air Act. The parties appealed the U.S. EPA's decision to reject a petition that sought to have the federal government regulate greenhouse gas emissions from new motor vehicles.[3] This issue is now before the U.S. Supreme Court. If the Supreme Court agrees that greenhouse gases, such as CO_2, must be regulated under the Clean Air Act, such a decision may also require the establishment of CO_2 emission limits in this permit for the Bonanza WCFU.

At the minimum, EPA must consider emissions of CO_2 in its BACT analysis for the Bonanza WCFU. The federal Environmental Appeals Board (EAB) has interpreted the definition of BACT as requiring consideration of unregulated pollutants in setting emission limits and other terms of a permit, since a BACT determination is to take into account environmental impacts.[4] A recently issued paper entitled *Considering Alternatives: The Case for Limiting CO_2 Emissions from New Power Plants through New Source Review* by Gregory B. Foote (Attachment 2) discusses the regulatory background to support consideration of CO_2 impacts when permitting a new source and, in particular, a new coal-fired power plant. This paper indicates that it is entirely appropriate to consider CO_2 emissions when evaluating environmental impacts under the new source review permit program, and the paper also suggested approaches for evaluating technologies in terms of CO_2 emissions. This paper and all other documents cited herein are incorporated by reference as part of our comments. Support for consideration of greenhouse gas emissions in new source permitting can also be found in EPA's own New Source Review Workshop Manual which states, "significant differences is noise levels, radiant heat, or dissipated static electrical energy, or greenhouse gas

[1] "Coal-Related Greenhouse Gas Management Issues", National Coal Council, May 2003 at page 7. Attachment 1.

[2] Emissions of CO_2 and N_2O were calculated based on AP-42 emission factors for bituminous coal combustion in fluidized bed boilers, the average carbon content of the waste coal and on the expected annual coal feed rate at the Bonanza WCFU (from page 19 and from Appendix A of Deseret's November 1, 2004 PSD permit application).

[3] Commonwealth of Massachusetts, et al. v. U.S. EPA, No. 03-1361 (Consolidated with Nos. 03-1362-1368) U.S. Court of Appeals for the District of Columbia Circuit, *cert. granted* U.S. Supreme Court Docket 05-1120.

[4] See *In Re North County Resource Recovery Associates*, 2 E.A.D. 229, 230 (Adm'r 1986), 1986 EPA App. LEXIS 14.

emissions may be considered" in permitting a new source or in the application of a specific technology. *See,* Attachment 22 hereto.

2. THE DRAFT AIR QUALITY PERMIT DID NOT ADEQUATELY EVALUATE INTEGRATED GASIFICATION COMBINED CYCLE AS AN AVAILABLE METHOD TO LOWER AIR EMISSIONS IN THE BACT ANALYSIS

EPA's Statement of Basis for the draft Bonanza WCFU permit explains that it did not require evaluation of IGCC as BACT because consideration of IGCC would be redefining the source. Statement of Basis at 29.

EPA made a similar determination on December 13, 2005 that IGCC did not need to be reviewed as BACT for a supercritical pulverized coal boiler because it would be redefining the source. This December 2005 determination has been challenged and that challenge has not yet been resolved. NRDC v. EPA, D.C. Circuit, No. 06-1059.

The EPA's determination that IGCC need not be considered because it would be redefining the Bonanza WCFU source, similar to EPA's December 2005 determination, is wrong. BACT by its Clean Air Act definition requires consideration of inherently lower emitting processes.

Integrated Gasification Combined Cycle (IGCC) is an available, demonstrated cleaner coal combustion technology with significant emission reduction benefits. There are numerous benefits to IGCC, including fewer emissions of criteria and hazardous air pollutants, the opportunity for capturing greenhouse gases, such as CO_2, that cause global warming, and a general increase in efficiency over other coal burning technologies and thus lower overall emissions.

Federal Law Requires a Thorough Evaluation of IGCC as Part of the BACT Analysis.

Section 165(a)(4) of the Clean Air Act (CAA) provides that "no major emitting facility on which construction is commenced after August 7, 1977, may be constructed in any area to which this part applies unless...the facility is subject to the best available control technology for each pollutant subject to regulation under this chapter emitted from, or which results from, such facility."[5] The requirement for conducting a BACT analysis is codified in the federal PSD regulations at 40 C.F.R. § 52.21(j). 40 C.F.R. § 52.21(n) further requires that "the owner or operator of a proposed source. . . shall submit. . .all information necessary to perform any analysis or make any determination" required under the PSD regulations."

> BACT is then defined under federal law as follows:
> an emissions limitation (including a visible emissions standard) based on the maximum degree of reduction for each pollutant subject to regulation under the [Clean Air] Act which would be emitted from any proposed

[5] 42 U.S.C. §7475(a)(4).

> major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application or production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.[6]

This definition includes coal gasification. The legislative history of the amendment adding the term "innovative fuel combustion techniques" to the Clean Air Act's definition of "BACT" is clear. Coal gasification must be considered. The relevant passage of the debate is excerpted below:

> Mr. HUDDLESTON. Mr. President, the proposed provisions for application of best available control technology to all new major emission sources, although having the admirable intent of achieving consistently clean air through the required use of best controls, if not properly interpreted may deter the use of some of the most effective pollution controls. The definition in the committee bill of best available control technology indicates a consideration for various control strategies by including the phrase "through application of production processes and available methods systems, and techniques, including fuel cleaning or treatment." And I believe it is likely that the concept of BACT is intended to include such technologies as low Btu gasification and fluidized bed combustion. But, this intention is not explicitly spelled out, and I am concerned that without clarification, the possibility of misinterpretation would remain. It is the purpose of this amendment to leave no doubt that in determining best available control technology, all actions taken by the fuel user are to be taken into account--be they the purchasing or production of fuels which may have been cleaned or up-graded through chemical treatment, gasification, or liquefaction; use of combustion systems such as fluidized bed combustion which specifically reduce emissions and/or the post-combustion treatment of emissions with cleanup equipment like stack scrubbers. The purpose, as I say, is just to be more explicit, to make sure there is no chance of misinterpretation. Mr. President, I believe again that this amendment has been checked by the managers of the bill and that they are inclined to support it.
>
> Mr. MUSKIE. Mr. President, I have also discussed this amendment with the distinguished Senator from Kentucky. I think it has been worked out in a form I can accept. I am happy to do so. I am willing to yield back the remainder of my time.[7]

EPA and federal courts have consistently interpreted the BACT provisions found in the CAA and the agency's regulations as embodying certain core criteria that require the permit applicant either to implement the most effective available means for minimizing air pollution or justify its selection of less effective means on grounds

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[6] 40 C.F.R. §52.21(b)(12), emphasis added. See also 42 U.S.C. §7479(3).
[7] 95th Congress, 1st Session (Part 1 of 2) June 10, 1977 Clean Air Act Amendments of 1977 A&P 123 Cong. Record S9421.

consistent with the purposes of the Act. In *Citizens for Clean Air v. EPA*,[8] the Ninth Circuit held that "initially the burden rests with the PSD applicant to identify the best available control." As stated in long-standing EPA guidance, "[r]egardless of the specific methodology used for determining BACT, be it 'top-down,' 'bottom-up,' or otherwise, the same core criteria apply to any BACT analysis: the applicant must consider all available alternatives, and [either select the most stringent of them or] demonstrate why the most stringent should not be adopted."[9] Accordingly, the PSD permit applicant not only must identify all available technologies, including the most stringent, but it must also provide adequate justification for dismissing any available technologies.

Consistent with these core criteria, the EPA's New Source Review (NSR) Workshop Manual establishes that, as the first step in the "top-down" BACT analysis, the applicant *must* consider all "available" control options:

> The first step in a "top-down" analysis is to identify, for the emissions unit in question (the term "emissions unit" should be read to mean emissions unit, process or activity), all "available" control options. Available control options are those air pollution control technologies or techniques with a practical potential for application to the emissions unit and the regulated pollutant under evaluation. Air pollution control technologies and techniques include the application of production process or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of the affected pollutant. This includes technologies employed outside of the United States. As discussed later, in some circumstances inherently lower-polluting processes are appropriate for consideration as available control alternatives.[10]

"The term 'available' is used...to refer to whether the technology 'can be obtained by the applicant through commercial channels or is otherwise available within the common sense meaning of the term.'"[11] In keeping with the stringent nature of the BACT requirement, EPA has repeatedly emphasized that "available"

> is used in the broadest sense under the first step and refers to control options with a "practical *potential* for application to the emissions unit" under evaluation. . . . The goal of this step is to develop a comprehensive list of control options.[12]

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[8] 959 F.2d 839, 845 (9th Cir. 1992)

[9] Memorandum from John Calcagni, Director of EPA Air Quality Management Division, to EPA Regional Air Directors (June 13, 1989), at 4 (emphasis added).

[10] NSR Manual, at p. B.5 (emphasis added).

[11] In re: Maui Electric Company, PSD Appeal No. 98-2 (EAB September 10, 1998), at 29-30 (quoting NSR Manual at B.17).

[12] In re: Knauf Fiber Glass, PSD Appeal Nos. 98-3 – 98-20 (EAB February 4, 1999), at 12-13 (quoting NSR Manual at B.5) (emphasis added by EAB); see also In re: Steel Dynamics, Inc., PSD Appeal Nos. 99-4 and 99-5 (EAB June 22, 2000), at 29 n.24 (citing Knauf with approval); NSR Manual at B.10 ("The

EPA adjudicatory decisions also examine the core requirements for the BACT determination process. "Under the top-down methodology, applicants must apply the best available control technology unless they can demonstrate that the technology is technically or economically infeasible. The top-down approach places the burden of proof on the *applicant* to justify why the proposed source is unable to apply the best technology available."[13]

Whatever analytical process is utilized for determining BACT, these core criteria – the requirement to consider all available technologies, including the most stringent, and to provide adequate justification in the administrative record for dismissing any of the technologies based on relevant statutory factors – must be satisfied.

Thus, to conduct a BACT analysis consistent with the requirements of federal law for the Bonanza WCFU, EPA must thoroughly evaluate all available control measures. IGCC is commercially available today. Federal law therefore require that this technology be thoroughly evaluated as part of the Bonanza WCFU BACT analysis.

Recent State Actions Requiring Consideration of Cleaner Coal Technology Establish Irrefutable Precedence for the Consideration of IGCC.

In recent PSD permitting actions implementing the federal PSD permitting program (either through a direct delegation from EPA or via approval of equivalent state rules in a state implementation plan (SIP)), several states have required consideration of IGCC in the BACT review process for new coal-fired power plants. These state decisions implementing the federal PSD program validate the plain language of the definition of BACT described above.

Specifically, in March 2003, the State of Illinois required the applicant for a proposed CFB coal-fired electric generation facility to conduct a robust analysis of IGCC as a core element of its BACT analysis:

> Additional material must be provided in the BACT demonstration to address Integrated Gasification Coal Combustion (IGCC) as it is a `production process' that can be used to produce electricity from coal. In this regard, the Illinois EPA has determined that IGCC qualifies as an alternative emission control technique

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objective in step 1 is to identify all control options with potential application to the source and pollutant under evaluation."); id. at B.6 (emphasizing that a proper Step 1 list is "comprehensive").

[13] In re: Spokane Regional Waste-to-Energy Applicant, PSD Appeal No. 88-12 (EPA June 9, 1989), at 9) (internal quotation marks omitted) (emphasis in original); see also In re: Inter-Power of New York, Inc. PSD Appeal Nos. 92-8 and 92-9 (EAB March 16, 1994) ("Under the 'top-down' approach, permit applicants must apply the most stringent control alternative, unless the applicant can demonstrate that the alternative is not technically or economically achievable."); In the Matter of Pennsauken County, New Jersey Resource Recovery Facility, PSD Appeal No. 88-8 (EAB November 10, 1988) ("Thus, the 'top-down' approach shifts the burden of proof to the applicant to justify why the proposed source is unable to apply the best technology available.")

that must be addressed in the BACT demonstration for the proposed plant. In addition, based on the various demonstration projects that have been completed for IGCC, the Illinois EPA believes that IGCC constitutes a technically feasible production process.

Accordingly, Indeck must provide detailed information addressing the emission performance levels of IGCC, in terms of expected emissions rates and possible emission reductions, and the economic, environmental and/or energy impacts that would accompany application of IGCC to the proposed plant. This information must be accompanied by copies of relevant documents that are the basis of or otherwise substantiate the facts, statements and representations about IGCC provided by Indeck. In this regard, Indeck as the permit applicant is generally under an obligation to undertake a significant effort to provide data and analysis in its application to support the determination of BACT for the proposed plant.[14]

In an ensuing letter, the State of Illinois then formally informed EPA that Illinois has "concluded that it is appropriate for applicants for [proposed coal-fired power plants] to consider IGCC as part of their BACT demonstrations."[15]

Similarly, the Georgia Department of Natural Resources, in a March 2002 letter regarding the permit application of Longleaf Energy Station, also relied, in part, on the failure of the permit applicant to consider cleaner coal combustion technology in finding the application deficient. In making its determination of deficiency, Georgia stated that the applicant did not "discuss any other methods from generating electricity from the combustion of coal, such as pressurized fluidized bed combustion or integrated gasification combined cycle."[16] Georgia further stated that the applicant "should discuss these technologies and explain why you elected to propose a pulverized coal-fired steam electric power plant instead."[17]

Reflecting the viability of IGCC, the State of New Mexico issued a letter on December 23, 2002 requiring the permit applicant for a new coal-fired power plant to conduct a site-specific analysis of IGCC as well as CFB as part of the BACT analysis for the proposed facility: "The Department requires a site-specific analysis of IGCC and CFB in order to make a determination regarding BACT for the proposed facility." The New Mexico determination goes on to provide: "The analysis must include a discussion of the technical feasibility and availability of IGCC and CFB for the proposed site in McKinley County, including a discussion of existing IGCC and CFB systems."[18]

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[14] Letter from Illinois Division of Air Pollution Control to Jim Schneider, Indeck-Elwood, LLC (March 8, 2003). Attachment 3.

[15] Letter from Illinois EPA Director to EPA Regional Administrator, Region V (March 19, 2003). Attachment 4.

[16] Letter from James A. Capp, Manager, Stationary Source Permitting Program, Georgia DNR, to D. Blake Wheatley, Assistant Vice President, Longleaf Energy Associates, LLC (March 6, 2002). Attachment 5.

[17] Id.

[18] Letter from New Mexico Environment Department to Larry Messinger, Mustang Energy Corporation (Dec. 23, 2002). Attachment 6

On August 29, 2003, New Mexico issued its evaluation of the applicant's response. New Mexico found that the applicant's BACT analysis had in fact indicated that IGCC is commercially available but that the applicant had improperly relied on cost to find that the technology was infeasible:

> Mustang concludes that neither IGCC nor CFB are technically feasible control options for the Mustang site. After careful review of the revised BACT analysis, as well as information gathered from independent sources, the Department determines that Mustang's conclusion is not supported by the evidence. Accordingly, the Department finds that Mustang has not demonstrated the technical infeasibility of IGCC and CFB. Moreover, applying the criteria in the NSR Manual, the Department determines that IGCC and CFB are technically feasible at the Mustang site, and must be evaluated in the remaining steps of the top down BACT methodology.
>
> (a) IGCC and CFB are technically feasible at the Mustang site. A technology is considered to be technically feasible if it is commercially available and applicable to the source under consideration. *See* NSR Manual at B.17-18. A technology is commercially available if it has reached a licensing and commercial sales stage of development. *Id.* A technology is applicable if it has been specified in a permit for the same or a similar source type. *Id.* Mustang's revised BACT analysis indicates that IGCC is commercially available, and IGCC has been specified in air quality permits for coal-fired power plants. *See, e.g.,* Lima Energy Facility, 580 megawatt coal-fired power plant. Similarly, CFB is commercially available and has been specified in air quality permits for coal-fired power plants. *See, e.g.,* AES Puerto Rico 454 megawatt coal-fired power plant; Reliant Energy Seward 584 megawatt coal-fired power plant.
>
> (b) For both IGCC and CFB, Mustang improperly relies on cost to determine technical infeasibility. A technology is technically feasible when the resolution of technical difficulties is a matter of cost. *See* NSR Manual at B.19-20. Mustang's revised BACT analysis indicates that the resolution of technical difficulties for both IGCC and CFB are a matter of cost. These costs do not support a finding of technical infeasibility, but may be considered during Step 4 of the top down BACT methodology. *See* NSR Manual at B.26.[19]

In addition, the Montana Board of Environmental Review found that Montana Department of Environmental Quality must consider IGCC as an available technology in the BACT review for a coal-fired power plant. Specifically, the Board of Environmental Review stated ". . .the Department should require applicants to consider innovative fuel

[19] Letter from New Mexico Environment Department to Larry Messinger, Mustang Energy Company (Aug. 29, 2003), at p. 3, Attachment 7.

combustion techniques in their BACT analysis and the Department should evaluate such techniques in its BACT determination in accordance with the top-down five-step method."[20]

While we recognize that state decisions on this matter do not necessarily set the bar for EPA, it is noteworthy that these states determined it was entirely appropriate to require consideration of IGCC in the BACT review for a coal-fired power plant. The aforementioned state determinations are attached hereto.

EPA Region 8 Previously Determined It Was Appropriate to Evaluate IGCC in the BACT Analysis for a CFB Coal-Fired Power Plant

Further, EPA Region 8 submitted comments to the Utah Division of Air Quality in an April 6, 2004 letter on Utah's proposed permit for NEVCO Energy's Sevier Power Company Project in which EPA requested that further documentation on costs be provided to support Utah's claim that IGCC was too costly.[21] EPA did not indicate that IGCC didn't need to be considered as an alternative for the proposed Sevier CFB boiler. Instead, EPA stated "It is our understanding that IGCC is a potentially lower polluting process than Circulating Fluidized Bed combustion." EPA's comments requesting more documentation of the costs of IGCC provide strong indication that EPA found it appropriate to consider IGCC in the BACT analysis. In addition, EPA also found IGCC to be a lower polluting process to a CFB boiler such as the boiler to be used at the Bonanza WCFU.

EPA Region VIII also initially requested Deseret to provide information regarding IGCC as an alternative to its planned CFB boiler. Specifically, at an April 28, 2004 meeting with Deseret, EPA requested an explanation of why Deseret ruled out IGCC.[22] Although EPA Region 8 and Deseret exchanged correspondence on IGCC several times, EPA Region 8 ultimately decided that IGCC was *not* a BACT option ". . .because it would fundamentally change the basic design of the proposed source."[23] For all of reasons discussed above, we contend that IGCC *is* an option that is required to be evaluated in a BACT determination under the Clean Air Act and associated regulations for a new coal-fired power plant such as the Bonanza WCFU. EPA unlawfully eliminated IGCC from review in the BACT determination as redefining the source.

3. EPA FAILED TO REQUIRE CONSIDERATION OF A SUPERCRITICAL CFB BOILER IN THE BACT ANALYSIS FOR THE BONANZA WCFU

[20] Montana Board of Environmental Review, Findings of Fact, Conclusions of Law, and Order In the Matter of the Air Quality Permit for the Roundup Power Project (Permit No, 3182-00), Case No. 2003-04 AQ (June 23, 2003) at 18-19

[21] April 6, 2004 letter from Richard R. Long, EPA, to Rick Sprott, Utah Division of Air Quality, at 1 (Attachment 8).

[22] See Enclosure 1 to November 22, 2004 letter from Richard R. Long, EPA, to Ed Thatcher, Deseret Power, at 1.

[23] Statement of Basis at 29.

Deseret and EPA should have also considered the construction of a supercritical CFB boiler. Supercritical CFB boilers are more efficient and thus use less fuel and emit less carbon dioxide emissions. This technology is discussed in the Western Governor's Association Technology Working Group's report on advanced clean coal technologies (Attachment 9). EPA must require evaluation of this inherently lower emitting technology in its BACT review for the Bonanza WCFU.

4. THE PROPOSED BACT EMISSION LIMITS FAIL TO REFLECT THE MAXIMUM LEVEL OF CONTROL THAT CAN BE ACHIEVED

EPA Did Not Properly Analyze Whether Cleaner Coals Could Be BACT

While EPA did provide a cost analysis of using all "run-of-mine" coal from the Deserado mine and the resultant additional pollutant reductions (Statement of Basis at 24-28), EPA did not provide a comparison of the cost of using "run-of-mine" coal, either in part or wholly, compared to the cost other coal-fired electric utility CFB boilers in the region are paying for coal. EPA also did not provide any comparative cost analysis for use of coal from other mines in the region, either wholly or in part as a blend with the Deserado waste coal. Such analyses are necessary to give context to this evaluation. (See, e.g., In RE Inter-Power of New York. Inc., PSD Appeal Nos. 92-8 and 92-9, Decided March 16, 1994). In determining whether the cost of a control technology is reasonable, the cost must be compared to what other similar sources have had to bear.[24]

For example, EPA should have provided a comparison to the recently permitted Sevier Power Company's CFB power plant to be located in Sigurd, Utah. That facility will be burning a higher quality bituminous coal than the waste coal proposed for the Bonanza WCFU, which will be from the Sufco Mine or other Utah coal sources with coal heating value in the range of 10,200 – 12,000 Btu/lb, sulfur content in the range of 0.25-0.9%, and ash content in the range of 6.5-12%.[25] It also will be equipped with virtually the same pollution control equipment as proposed for the Bonanza WCFU. The Sevier Power Company's CFB boiler is subject to lower emission limits for SO_2 (0.022 lb/MMBtu, 30-day average limit, as compared to the Bonanza WCFU proposed variable limit of 0.04 – 0.055 lb/MMBtu), total PM/PM_{10} (0.0154 lb/MMBtu as compared to the Bonanza WCFU proposed limit of 0.03 lb/MMBtu), carbon monoxide (CO) (0.115 lb/MMBtu as compared to the Bonanza WCFU proposed limit of 0.15 lb/MMBtu), and sulfuric acid (H_2SO_4) (0.0024 lb/MMBtu as compared to the Bonanza WCFU proposed limit of 0.0035 lb/MMBtu). A copy of the Sevier Power Company permit is attached. (Attachment 10).

EPA must analyze and provide data on the cost and quality of coal that the Sevier Power Company and other recently proposed power plants in the region are required to incur before it can determine that the cost of using "run-of-mine" fuel from the Deserado mine – either wholly or in part – is unreasonable. EPA also must provide a similar

[24] See U.S. EPA, New Source Review Workshop Manual, October 1990 Draft, at B.29.
[25] See Utah Division of Air Quality New Source Plan Review for the Sevier Power Company, December 29, 2003, at 8, 13. (Attachment 11).

analysis for using other higher quality coal available in the region, either wholly or as a blend with the waste coal.

The SO_2 Emission Limit Does Not Reflect BACT

The proposed BACT limit for SO_2 and BACT analyses are flawed because they do not reflect the maximum degree of reduction that can be achieved. EPA has proposed an SO_2 emission limit of 0.055 lb/MMBtu (30-day average) when the uncontrolled SO_2 emissions are 1.9 lb/MMBtu or greater. (Condition III.D.1.b.(ii) of the draft permit). EPA has also proposed a calculated 30-day average SO_2 limit which is based on a 0.055 lb/MMBtu emission rate for the number of days at which the uncontrolled SO_2 emissions were 1.9 lb/MMBtu or higher, and a 0.04 lb/MMBtu limit for the number of days at which the uncontrolled SO_2 emissions were less than 1.9 lb/MMBtu.

Neither of these limits in EPA's proposed variable BACT limit reflect the maximum degree of reduction that can be achieved at a CFB boiler. First, two different coal-fired CFB power plants have been required to meet an SO_2 BACT limit of 0.022 lb/MMBtu, which is much lower than the proposed BACT limit at the Bonanza WCFU which would range from 0.040 to 0.055 lb/MMBtu. Specifically, the Sevier power plant in Utah, a 270 MW bituminous coal-fired CFB power plant to be equipped with a circulating dry scrubber, was required in its October 2004 PSD permit to meet an SO_2 BACT emission limit of 0.022 lb/MMBtu on a 30-day average. A copy of the final permit for the Sevier power plant is attached. (Attachment 10).

In addition, the 2 unit, 454 megawatt AES-Puerto Rico CFB plant, also equipped with a circulating dry scrubber, is required to burn low sulfur coal (1% or less) and meet a 0.022 lb/MMBtu SO_2 limit *on a three-hour average*. A copy of the final permit for AES-Puerto Rico is attached (Attachment 13). Based on the worst-case coal quality to be used at AES-Puerto Rico (0.8% and 12,000 BTU/lb), the uncontrolled SO_2 emission rate of AES-Puerto Rico is 1.6 lb/MMBtu, thus this emission limit equates to a 98.6% reduction in SO_2 emissions. The AES-Puerto Rico permit is significant in that the worst case uncontrolled emissions are much less than the worst case uncontrolled emissions and also less than the average uncontrolled SO_2 emission rate expected at the Bonanza WCFU, and yet still a very high level of SO_2 control is required. This limit, especially given the short averaging time, counters Deseret's arguments that SO_2 removal efficiency will decrease with decreasing uncontrolled SO_2 emissions.[26]

While EPA claimed in its Statement of Basis that 98.8% SO_2 removal could be achieved with the CFB boiler and the spray dry absorber (Statement of Basis at 72, 73), the proposed BACT emission limit for SO_2 does not reflect this level of control because it is based on the absolute worst case uncontrolled SO_2 emission rate. The 0.055 lb/MMBtu limit reflects 98.8% SO_2 removal from the worst case design coal of 3,000 Btu/lb and 0.71% sulfur (which thus equates to an uncontrolled SO_2 emission rate of 4.73 lb/MMBtu). However, the expected *average* uncontrolled SO_2 emission rate is 1.71 (EPA's Statement of Basis at 15). Based on the average uncontrolled SO_2 emission rate,

[26] See November 9, 2005 email from Ed Thatcher, Deseret, to Mike Owens, EPA Region 8, at 1.

the 0.040 lb/MMBtu SO_2 limit (which would apply when the uncontrolled emission rate is lower than 1.9 lb/MMBtu) only represents a 97.7% SO_2 removal rate from average uncontrolled SO_2 emissions, over a percentage point lower than the maximum degree of reduction that can be achieved.

EPA Region 8 previously made a similar comment to the Montana Department of Environmental Quality regarding the proposed Roundup power plant. Indeed, EPA stated "[w]hile use of the worst-case coal scenario might be appropriate for establishing a short-term (3-hour or 24-hour) SO_2 emission *limit*, we *consider* it inappropriate for establishing a 30-day average emission limit, especially considering that coal blending can be used at minimal additional cost (and is routinely used in the power plant industry) to eliminate or reduce the effect of coal sulfur 'spikes.'"[27] The Bonanza WCFU has requested to be authorized to burn washed or run-of-mine coal which will have lower uncontrolled SO_2 emissions than the worst case waste coal and thus which could be used to eliminate coal sulfur spikes.[28] Also, Deseret has indicated that the Bonanza WCFU will have continuous SO_2 monitoring at the inlet to the dry scrubber.[29] Thus, Deseret will know on a fairly instantaneous basis when the coal sulfur content is spiking and thus could adjust the fuel accordingly. Consequently, the 30-day average BACT limit should reflect this level of control off of the average uncontrolled SO_2 emission rate of 1.71 lb/MMBtu, which equates to a BACT emission limit of 0.021 lb/MMBtu. Or, at worst, the 30-day average SO_2 emission limit should reflect the percent reduction required at the AES-Puerto Rico facility which has a similar level of uncontrolled emissions (albeit, worst case coal at AES-Puerto Rico is similar to average coal at the Bonanza WCFU). That facility's SO_2 emission limit reflects 98.6% reduction from uncontrolled emissions of 1.6 lb/MMBtu, on a three-hour average basis. Thus, the Bonanza WCFU SO_2 BACT limit should no higher than 0.024 lb/MMBtu, on a 30-day average to allow for the wide variability in sulfur content of the fuel.

As discussed further below in our comment letter, EPA must also impose shorter term averaging time BACT limits consistent with the averaging times of the SO_2 NAAQS and PSD increments (i.e., 3-hour and 24-hour). As EPA stated to Montana, we believe it is more appropriate to base shorter term average BACT limits on worst case uncontrolled emissions. Thus, the proposed BACT limit of 0.055 lb/MMBtu would be appropriate on a shorter term averaging time such as a three-hour average (similar to the AES-Puerto Rico permit). In addition, with a 30-day average SO_2 BACT limit based on average coal quality and a 3-hour average SO_2 BACT limit based on worst case coal quality, this would eliminate the need for EPA's proposed variable SO_2 limit which we find would not result in the maximum degree of SO_2 emission reduction that could be achieved. This is because EPA allows applicability to the variable SO_2 BACT limit to be based on a 30-day average of the uncontrolled SO_2 emission rate (Condition III.J.2. of the draft permit),

[27] See December 18, 2002 letter from Richard R. Long, EPA Region 8, to Steve Welch, Montana Department of Environmental Quality, at 2. (Attachment 12).
[28] Indeed, Deseret has requested the ability to blend waste coal with "run-of-mine" coal in order to comply with emission limits. See April 10, 2006 email from Ed Thatcher, Deseret, to Mike Owens, EPA Region 8.
[29] See Attachment to January 9, 2006 email from Ed Thatcher, Deseret, to Mike Owens, EPA Region 8, entitled "SO2 Control for the Deseret Circulating Fluidized Bed Boiler" at 1.

which will allow the Bonanza WCFU to only have to comply with the higher SO_2 BACT limit with just a few days of spiked coal sulfur content over a 30-day period. Further, the 5-day lag in comparing 30-day average uncontrolled SO_2 emissions to 30-day average controlled emission rates (Condition III.D.1.b.(ii)*(b)* of the draft permit) means that the proposed BACT emission limits would not ensure maximum SO_2 emission reductions on a continuous basis.

The draft permit also fails to address BACT requirements when Deseret is using "run-of-mine" coal either in lieu of waste coal, or as a blend with waste coal, from the Deserado mine. (As allowed by Condition III.E.2.c. of the draft permit). As indicated by EPA in correspondence to Deseret, BACT needs to be met "for the entire range of operating conditions."[30] Yet, EPA did not provide any review of BACT or propose any emission limits to address BACT when the Bonanza WCFU is burning the much higher quality coal either wholly or in part. To address this variation expected in uncontrolled SO_2 emissions at the Bonanza WCFU, EPA must include a SO_2 removal efficiency requirement as BACT in addition to the BACT emission limits that reflects the maximum degree of emission reduction that can be achieved given the variability in uncontrolled SO_2 emissions. EPA Region 8 recommended a similar approach in its comments on the proposed Roundup power plant in Montana. Specifically, EPA stated "[a] minimum required SO_2 scrubber efficiency should be included in the permit, to ensure proper operation and maintenance of the scrubber, and to ensure that SO_2 emissions are minimized at all times, regardless of the sulfur content in the coal."[31] However, contrary to EPA's approach in the proposed limits in this permit, the percent reduction BACT requirement must be based on at least a daily average. Given the wide variability of uncontrolled SO_2 emissions allowed by the permit, calculating uncontrolled SO_2 emissions on a 30-day average would not ensure the maximum degree of SO_2 emissions reductions on those days when 100% "run-of-mine" coal is being burned. Thus, to be meaningful, a 24-hour average percent SO_2 removal required as part of the BACT determination would effectively cover all of the various operating scenarios at the Bonanza WCFU.

For all of the above reasons, the SO_2 BACT analysis is flawed and must be revised accordingly.

The NO_x BACT Limit Does Not Reflect BACT

EPA Region 8 did not adequately evaluate all of the technologies that could be employed at the Bonanza WCFU to reduce NO_x emissions and, thus, its NO_x BACT determination does not reflect the maximum degree of NO_x reduction that can be achieved at the Bonanza WCFU.

First, EPA eliminated evaluation of several NO_x control options as infeasible for a CFB boiler. Those options eliminated include flue gas recirculation and overfire air. See Statement of Basis at 30. Yet, a 1999 EPA guidance document identifies these two

[30] See April 7, 2006 email from Mike Owens, EPA Region 8, to Ed Thatcher, Deseret.
[31] *Id.* at 3.

controls as options for NO_x control at CFB boilers.[32] Further, this 1999 EPA guidance document also identifies several other options for NO_x control at fluidized bed boilers that were not evaluated in the Bonanza WCFU NO_x BACT analysis, including natural gas reburn, low excess air, reduced air preheat, as well as reducing residence time at peak temperature through injection of steam, fuel reburning, non-thermal plasma reactor, and sorbent in combustion chamber/duct.[33] Thus, these technologies should have been evaluated by EPA, possibly in combination with SCR and SNCR, to determine the maximum degree of NO_x reduction that can be achieved.

While EPA required evaluation of selective catalytic reduction (SCR) on the proposed CFB boiler, SCR was improperly eliminated from the BACT review. First, EPA required evaluation of low temperature SCR, but Deseret apparently found that low temperature SCR was only applied to natural gas applications.[34] In a memorandum from Don Shepherd to John Notar, both of the National Park Service Air Resources Division, regarding the NEVCO Energy – Sevier Power – *Engineering Analysis*, Mr. Shepherd stated "[w]hen the question of application of SCR to a CFB was raised at the Pittsburgh workshop [on selective catalytic reduction and non-catalytic reduction for NO_x control], one consultant stated that he knew of no reason why it could not be done. (In fact, one presenter in Pittsburgh suggested that addition of limestone, as would be inherent in a CFB, is desirable in counteracting the potential catalyst-poisoning effects of arsenic found in many coals)."[35] Thus, the question that should have been posed is if SCR *could* be applied to coal-fired CFB boilers. As discussed in the EPA's New Source Review Workshop Manual, opportunities for technology transfer must be identified and evaluated in the BACT analysis.[36]

In addition, while EPA did require the evaluation of whether the flue gas downstream of the baghouse could be reheated to the temperature range "known to be effective for SCR use (650-750 F)" (Statement of Basis at 32), EPA should also have required evaluation of reheating the gas stream to the temperature range at which low temperature SCR could be used. According to the Institute of Clean Air Companies, low temperature catalysts can work in the range of 350 – 550 F.[37] Thus, EPA should have required Deseret to evaluate heating the gas stream up to 350 F and using low temperature SCR, which would use considerably less fuel than needed to reheat the gas stream to 650 F.

In addition, the presumed emission limit that could be met with SCR should have been lower than 0.04 lb/MMBtu. Statement of Basis at 33. EPA did not provide any rationale for this presumed NO_x emission rate with SCR, except to cite to the level assumed by North Dakota in its BACT analysis for Gascoyne. *Id.* Instead, EPA should have evaluated a NO_x emission limit based on the maximum degree of emission

[32] Technical Bulletin Nitrogen Oxides (NOx), Why and How They Are Controlled, US E.P.A., EPA456/F-99-006R (November 1999), at 28.
[33] *Id.*
[34] Statement of Basis at 32.
[35] See November 4, 2003 Memorandum from Don Shepherd to John Notar, at 2, Attachment 14.
[36] See New Source Review Workshop Manual, U.S. EPA, October 1990 Draft, at B.11.
[37] http://www.icac.com/i4a/pages/index.cfm?pageid=3399 (Under NOx Control Technologies)

reduction that can be achieved with SCR. According to Babcock & Wilcox, commercial SCR installations have shown that 90% NO_x reductions can be achieved with low ammonia slip.[38] Indeed, Babcock & Wilcox states that up to 95% NO_x control can be achieved with SCR. Thus, considering the NO_x emission rate without SCR of 0.15 lb/MMBtu, which EPA indicated was an overestimate of NO_x emissions expected from the Bonanza WCFU (Statement of Basis at 34-35), the appropriate NO_x emission rate with SCR to evaluate would be at most 0.015 lb/MMBtu rather than the assumed 0.04 lb/MMBtu.

Thus, the analysis for SCR must be re-evaluated to consider whether low temperature SCR could work on the Bonanza CFB boiler, either without or with flue gas reheating, and considering a NO_x emission rate that reflects the maximum degree of emission reduction that can be achieved. Further, in determining whether the costs are reasonable, the costs must be compared to the costs other coal-fired electric utility boilers have had to bear for NO_x control under BACT determinations.[39] It is not appropriate to compare to the cost of SNCR, which is less effective in reducing NO_x.

If EPA determines that SCR can be eliminated, after revising the BACT review in light of our comments above, then its evaluation of SNCR and the associated NO_x emission limit must be based on the maximum degree of emission reduction achievable with SNCR. SNCR should be able to reduce NO_x emissions by at least 50%[40] Yet, EPA's proposed 0.080 lb/MMBtu NO_x emission limit for SNCR reflects only a 47% NO_x reduction.[41] Assuming 50% NO_x reduction with SCNR would equate to an emission limit of 0.075 lb/MMBtu, or even lower considering that EPA believes the 0.15 lb/MMBtu uncontrolled NO_x emission rate is an overestimate. Statement of Basis at 34-35. Further, as EPA pointed out to Deseret in its July 8, 2005 letter, there are several other proposed CFB boilers using SNCR with proposed NO_x emission limits of 0.07 lb/MMBtu including the Estill County Energy Partners Project in Kentucky, the Kentucky Mountain Power Project in Kentucky and the River Hill project in Pennsylvania[42]. As EPA commented to Deseret, the Estill County project is most similar to Bonanza in size and coal quality, and thus Deseret should be able to meet a similar limit at the Bonanza WCFU. Although Deseret later pointed out that no PSD permit had been issued for the Estill County project yet,[43] that does not negate the point that the owners/operators proposed a 0.07 lb/MMBtu NO_x limit for their facility. Thus the NO_x BACT analysis for SNCR should be evaluated using a lower NO_x limit, in the range of 0.07 to 0.075 lb/MMBtu to ensure that the limit reflects the maximum degree of NO_x reduction that can be achieved.

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[38] See Bielawski, G.T., J.B. Rogan, and D.K. McDonald, How Low Can We Go? Controlling Emissions in New Coal-Fired Power Plants, Presented to the U.S. EPA/DOE/EPRI Combined Power Plant Air Pollutant Control Symposium: "The Mega Symposium," August 2001. (Attachment 17.)

[39] See U.S. EPA, New Source Review Workshop Manual, October 1990 Draft, at B.29.

[40] See May 2, 2005 Commonwealth of Pennsylvania's Plan Approval Application Review Memo for the River Hill Power Company, LLC, at 27, attached to the May 26, 2005 email from Don Shepherd, National Park Service, to Hans Buenning, EPA Region 8.

[41] Based on an uncontrolled NOx emission rate of 0.15lb/MMBtu, Statement of Basis at 34-35.

[42] July 8, 2005 letter from Richard R. Long, EPA Region 8, to Ed Thatcher, Deseret, at 3.

[43] December 20, 2005 email from Ed Thatcher, Deseret, to Mike Owens, EPA Region 8.

The draft permit also fails to address BACT requirements when Deseret is using "run-of-mine" coal either in lieu of waste coal, or as a blend with waste coal, from the Deserado mine. (As allowed by Condition III.E.2.c. of the draft permit). As indicated by EPA in correspondence to Deseret, BACT needs to be met "for the entire range of operating conditions."[44] Yet, EPA did not provide any review of BACT or propose any emission limits to address BACT when the Bonanza WCFU is burning the much higher quality coal either wholly or in part. As discussed above, such a BACT limit must be imposed on a 24-hour average basis to ensure the maximum degree of NO_x emission reduction is required when 100% "run-of-mine" coal is being burned.

EPA's Proposed Limit for Total PM/PM_{10} Does Not Reflect BACT

EPA has proposed a limit for total PM/PM_{10} of 0.03 lb/MMBtu, 30-day rolling average. However, as shown in the data provided by EPA in its Statement of Basis, this limit does not reflect the maximum degree of reduction that can be achieved. Specifically, EPA identifies several other CFB boilers with similar pollution controls as proposed for the Bonanza WCFU with lower total PM/PM_{10} limits. Statement of Basis at 57. Six of the 8 CFB boiler permits reviewed by EPA had lower total PM limits than the proposed 0.03 lb/MMBtu. Three of the 8 permits reviewed had limits on total PM of 0.012 lb/MMBtu. EPA readily discounted these emission limits, but without any review of the specific details behind these emission limits (such as how the sources calculated these emission limits). Statement of Basis at 58. While EPA did not discount the total PM emission limits of the three proposed facilities in Region 8 (Highwood, Gascoyne, and South Heart), which ranged from 0.0232 lb/MMBtu – 0.026 lb/MMBtu, EPA did not ultimately find that the methodology consistently used by these three facilities for calculating condensable PM emissions was appropriate for the Bonanza WCFU and instead allowed Bonanza's overestimate of ammonium sulfate to dictate the level of the total PM BACT limit. Statement of Basis at 55-56. Even the actual stack test data for similar sources is lower than EPA's proposed total PM BACT limit, with results ranging from 0.004 lb/MMBtu to 0.023 lb/MMBtu using EPA Method 202. Statement of Basis at 59. Thus, the majority of the data provided by EPA in its Statement of Basis indicate that its proposed total PM/PM_{10} BACT limit fails to reflect the maximum degree of emission reduction that can be achieved as required by the definition of BACT. While EPA claims its proposed 0.03 lb/MMBtu emission limit incorporates a "margin of safety," the margin of safety is too lenient.

In addition, due to the deficiencies in EPA's 0.03 lb/MMBtu BACT determination for total PM/PM_{10}, the permit must not allow for an even further relaxation of this limit up to 0.045 lb/MMBtu. This upper bound limit is wholly unjustified as BACT. Clearly, if Deseret obtains stack test data indicating that the total PM/PM_{10} BACT limit cannot reasonably be complied with, EPA can propose a revised total PM_{10} limit at a later time. Such a revised limit must be subject to public review and opportunity for comment.

[44] See April 7, 2006 email from Mike Owens, EPA Region 8, to Ed Thatcher, Deseret.

However, until such time, the evidence provided by EPA overwhelmingly indicates that the proposed total PM/PM_{10} BACT limit is too high.

The draft permit also fails to address BACT requirements when Deseret is using "run-of-mine" coal either in lieu of waste coal, or as a blend with waste coal, from the Deserado mine. (As allowed by Condition III.E.2.c. of the draft permit). As indicated by EPA in correspondence to Deseret, BACT needs to be met "for the entire range of operating conditions."[45] Yet, EPA did not provide any review of BACT or propose any emission limits to address BACT when the Bonanza WCFU is burning the much higher quality coal either wholly or in part. As discussed above, such a BACT limit must be imposed on a 24-hour average basis to ensure the maximum degree of PM emission reduction is required when 100% "run-of-mine" coal is being burned.

EPA Failed to Evaluate and Impose a BACT Limit for Visible Emissions

The BACT analysis for the Bonanza WCFU must also include a visible emission limit reflective of BACT for the source. The definition of BACT at 40 C.F.R. §52.21(b)(12) specifically indicates that BACT includes a "visible emission limitation." In the Statement of Basis, EPA indicated that, because EPA is proposing use of a PM continuous emission monitoring system (CEMS), "EPA does not consider it necessary to also propose an opacity limit as part of BACT for total filterable particulate." Statement of Basis at 47. EPA's reasoning is flawed for several reasons.

First and foremost, the definition of BACT in the Clean Air Act and associated federal regulations specifically mandate that BACT include a visible emission limitation. There are no exemptions provided for in the statutory or regulatory definition. Thus, EPA is without legal authority to decide not to impose an opacity limit because it is requiring PM CEMS for the PM limit. Second, the PM CEMs will only measure filterable particulate matter, while opacity measures all particulate matter that may block the transmission of light exiting the stack including condensable particulate matter. While compliance with the total particulate matter limit must be demonstrated on a rolling 30-day average basis at the Bonanza WCFU (Condition III.D.1.a. of the draft permit), this compliance determination will be based on a once-per-year stack test of the total PM emission rate (Condition III.I.4.b of the draft permit) . An opacity limit that can be continuously monitored will thus provide a much needed additional assurance that the total particulate matter emission limits are being complied with continuously. Further, a limitation on visible emissions serves as an indicator of proper operation and maintenance of all pollution control equipment. Last, compliance with both the filterable and total PM/PM_{10} limits is based on a rolling 30-day average basis, whereas compliance with opacity BACT limits are based on a six-minute averaging time. Thus, the 30-day rolling average filterable PM limit measured with CEMS is not an adequate replacement for a six-minute average opacity BACT limit.

With a fabric filter baghouse for PM_{10} control, an opacity BACT limit should be at least 10%. Indeed, the recently permitted Sevier CFB power plant in Utah is subject to

[45] See April 7, 2006 email from Mike Owens, EPA Region 8, to Ed Thatcher, Deseret.

a 10% visible emissions limit.[46] The River Hill Power Company proposed CFB power plant in Pennsylvania is also subject to a 10% opacity limit.[47] Similarly, the Gascoyne CFB facility will also be subject to a 10% opacity BACT limit.[48] Also noteworthy is the permit for the Longview power plant in West Virginia, which will utilize a pulverized coal boiler. This permit requires both PM CEMS to ensure compliance with its PM BACT limit *and* imposes a 10% opacity BACT limit.[49] Thus, EPA must include an evaluation of *opacity* BACT in its Statement of Basis and must impose a visible emission limit on the Bonanza WCFU that reflects the maximum degree of reduction achievable. Further, to ensure compliance on a continuous basis, a continuous opacity monitoring system (COMS) must be required.

5. THE BACT LIMITS MUST BE MET ON A CONTINOUS BASIS AND MEET ENFORCEABILITY CRITERIA

All BACT limits must be met on a continuous basis and must meet enforceability criteria, but the draft Bonanza WCFU permit does not adequately address EPA requirements for include such provisions. Specifically, as discussed in EPA's October 1990 Draft New Source Review Workshop Manual, "BACT emission limits or conditions must be met on a continual basis at all levels of operation (e.g., limits written in lb/MMBtu or percent reduction achieved), demonstrate protection of short term ambient standards (limits written in pounds per hour) and be enforceable as a practical matter (contain appropriate averaging times, compliance verification procedures and recordkeeping requirements)." (NSR Workshop Manual at B.56). EPA did not propose BACT limits consistent with this criteria.

With respect to all of the emission limits, there must be pound per hour emission caps established, in addition to lb/MMBtu limits, that must be reflective of BACT and consistent with what is modeled to show compliance with the NAAQS, PSD increments, and air quality related values. The October 1990 Draft NSR Workshop Manual indicates that it is best to express emission limits in two different ways, "with one value serving as an emissions cap (e.g., lb/hr) and the other ensuring continuous compliance at any operating capacity (e.g., lb/MMBtu)." See NSR Workshop Manual at H.5.. See also IN RE Steel Dynamics, Inc., PSD Appeal Nos. 99-4 & 99-5, Decided June 22, 2000, at 220-225. EPA only proposed BACT limits in terms of lb/MMBtu, and EPA did not evaluate or propose BACT limits in terms of lb/hr. While EPA did propose lb/hr "modeling limits" for SO_2 and total PM_{10} (Section G. of the draft permit), these modeling limits are not reflective of BACT for the Bonanza WCFU. Indeed, at full heat input capacity, the 3-hour average 872 lb/hr SO_2 modeling limit is equivalent to 0.6 lb/MMBtu, which would be only 87% SO_2 removal from worst case uncontrolled SO_2 emissions. The 24-hour total PM_{10} modeling limit of 75.4 lb/hr is equivalent to 0.052 lb/MMBtu at full heat

[46] See October 12, 2004 Approval Order for Sevier Power Company, Condition 12, at 10 (Attachment 10).
[47] See July 21, 2005 River Hill Permit, Condition 1., #005, at 17, attached to September 28, 2005 email from Don Shepherd, National Park Service, to Hans Buenning, EPA Region 8.
[48] See Air Pollution Control Permit to Construct for Gascoyne, Condition II.A. 3), at 8 (Attachment 18).
[49] See March 2, 2004 Permit to Construct for Longview Power, Conditions A.8. and A.18., at 4, 9. (Attachment 16).

input capacity - which is greater than the maximum level EPA has proposed the total PM_{10} limit could be raised to. Thus, these modeling limits clearly do not reflect BACT for these pollutants. EPA also failed to propose BACT limits in terms of lb/hr for NO_x, CO, or H_2SO_4.

Further, the averaging time of the BACT emission limits must be "of a short-term nature" and must be consistent with the averaging time of the short term NAAQS and PSD increments, including a 24-hour averaging time for PM_{10} limits, an 8-hour averaging time for CO limits, and an 8-hour averaging time for VOC limits, as well as the 24-hour averaging time for the pollutants modeled in the visibility modeling.[50] Yet, EPA's proposed lb/MMBtu BACT limits for SO_2, NO_x, CO, and PM_{10} for the Bonanza WCFU are all based on rolling 30-day averages. As stated above, while EPA has proposed short term average emission limits for SO_2 and PM_{10} as modeling limits, these limits are not reflective of BACT for these pollutants.

The EPA's Statement of Basis explains that the lb/hr emission rates used in the modeling analyses reflect short term emission peaks from startups. Statement of Basis at 135. EPA also admitted that the proposed BACT limits for SO_2 and PM_{10} do not adequately limit short term emissions for compliance with the NAAQS and PSD increments because the BACT limits are based on 30-day rolling averages. Statement of Basis at 136. Yet, as acknowledged by EPA in the Statement of Basis, BACT emission limits must be met on a continuous basis, and there are to be no exemptions for startup and shutdown. Statement of Basis at 23. In particular, EPA noted that the October 1990 draft New Source Review Workshop Manual states (at page B.56) "BACT emission limits or conditions must be met on a continual basis *at all levels of operation.*" [Emphasis added.] *Id.* Yet, EPA's proposed BACT limits violate these principles and essentially provide for startup and shutdown exemptions from BACT by providing such long averaging times for the BACT emission limits.

EPA's failure to proposed shorter averaging time emission limits reflective of BACT is also inconsistent with recently issued permits for coal-fired power plants. For example, the Roundup power plant permit issued by the state of Montana required 24-hour average BACT limits for NO_x and SO_2, and also a 1-hour BACT limit for SO_2. The Sevier power plant permit issued by the state of Utah includes rolling 24-hour average BACT limits for SO_2, NO_x, PM_{10}, and H_2SO_4. The Longview power plant permit issued by the state of West Virginia has a 3-hour average SO_2 BACT limit, 24-hour average NO_x and SO_2 BACT limits, a 6-hour average PM_{10} BACT limit and a 3-hour average H_2SO_4 BACT limit. All of these permits are attached to this letter.

For all of the above reasons, EPA must revise its proposed BACT limits for the Bonanza WCFU to require shorter averaging times consistent with the NAAQS, PSD increments, and air quality related values standards and to also set lb/hr emission limits reflective of BACT.

[50] See U.S. EPA, New Source Review Workshop Manual, October 1990 Draft, at H.5.

The permit must also specify appropriate compliance methods and recordkeeping requirements to show compliance with these emission limits. As discussed in the NSR Workshop Manual, "the construction permit should state how compliance with each limitation will be determined." (See NSR Workshop Manual at H.6.). The test methods must provide for continuous compliance where feasible. When compliance with BACT emission limits is determined over a 30-day averaging period – even if monitored with continuous emission monitoring systems, this does not ensure continuous compliance. Thus, as discussed above, BACT limits must be set for shorter averaging times, with compliance being monitored by continuous emission monitoring systems as proposed by EPA for SO_2, NO_x, and PM.

The draft permit for the Bonanza WCFU also lacks proper recordkeeping for some of the conditions of the permit. First, EPA must require Deseret to maintain records of all weekly Method 22 visible emissions evaluations of the unenclosed coal and limestone stockpiles required by Condition III.F.3. of the draft permit, in addition to maintaining records of all Method 9 opacity observations (per Condition III.I.8.c. of the draft permit). Second, regarding the monitoring of coal quality and sulfur content, EPA must require that heat content and sulfur content be tested and recorded on a daily basis for all coal used (i.e., washed or "run-of-mine" coal used during "emergencies" or in whole or blended in part during other times). This is necessary for comparison to a percent SO_2 removal requirement which we contend is necessary to ensure BACT is met over the wide variety of coal quality and sulfur content that will be used in the Bonanza WCFU.

6. EPA MUST PRESENT ITS ADJUSTMENTS TO DESERET'S MODELING ANALYSIS AND PROVIDE OPPORTUNITY TO COMMENT ON THE RESULTS

In its Statement of Basis, EPA indicated that Deseret improperly determined the maximum short term SO_2 emission rates expected from the Bonanza WCFU that were used in the modeling analyses. Statement of Basis at 135. EPA was apparently able to re-calculate worst case short term SO_2 emission rates based on data provided by Deseret, and found"[w]hen the higher emissions values are used as input for dispersion models, it still appears to EPA that the NAAQS and PSD Class I and II increments would not be exceeded." *Id.* However, EPA did not provide the results of its dispersion modeling analysis with the higher worst case short term SO_2 emission limits to the public for review and comment. EPA's revised 3-hour average SO_2 emission rate is almost six times greater than the 3-hour SO_2 emission rate modeled in Deseret's analyses, and the 24-hour average SO_2 emissions rate is close to 40% higher than what Deseret modeled. It is important to note that Deseret accepted EPA's revised short term SO_2 emission rates as an amendment to its PSD permit application.[51] These increased emission rates should have been taken into account in estimating the significant impact area of the Bonanza WCFU (which in turn would be used to determine which sources should have been included in cumulative NAAQS and increment analyses), and also in determining whether preconstruction monitoring and/or cumulative PSD increment analyses should

[51] November 3, 2005 email from Ed Thatcher, Deseret, to Mike Owens, EPA Region 8.

have been done. Further, it is not clear whether EPA determined that, cumulatively with other sources in the region, the NAAQS and PSD Class I and II increments would not be exceeded with EPA's recalculated worst case SO2 emission rates. Thus, EPA must present its revised modeling so the public can understand the true scope of short term average SO_2 impacts from the Bonanza WCFU and so that the public can ensure all CAA requirements will be complied with.

7. DESERET'S CUMULATIVE SO_2 NAAQS/INCREMENT ANALYSIS IS FLAWED

Deseret's cumulative SO_2 NAAQS and Class II PSD increment analysis is flawed because the 2002 SO_2 emission rate modeled for Bonanza Unit 1 is much lower than the peak short term SO_2 emission rate for this unit in 2002. Specifically, Deseret assumed an SO_2 emission rate, purportedly based on 2002 actual emissions, of 56.30 grams per second (g/s).[52] However, a review of the 2002 SO_2 emission data for Bonanza Unit 1 on EPA's Clean Air Market Database indicates that the maximum three-hour average SO_2 emission rate was 126 g/s (1000 lb/hr) and the maximum 24-hour average SO_2 emission rate was 115.9 g/s (920 lb/hr). Thus, Deseret greatly underestimated Bonanza Unit 1's impacts on the short term average SO_2 NAAQS and increment. Consequently, the NAAQS and increment analysis must be revised to model the highest 3-hour and 24-hour average emission rate of Bonanza Unit 1, as well as to model the EPA adjusted worst case 3-hour and 24-hour average SO_2 emission rates expected from the Bonanza WCFU. Further, the peak 3-hour and 24-hour SO_2 emission rates of Bonanza Unit 1 must be used in the cumulative Class I SO_2 increment modeling that is required, as discussed further below.

8. IT APPEARS DESERET SHOULD HAVE CONDUCTED PREAPPLICATION SO_2 MONITORING

It appears that Deseret was improperly exempted from one year of preconstruction ambient monitoring for SO_2. Although the PSD permit application shows that the SO_2 impacts from the Bonanza WCFU would be less than the monitoring significance levels, this modeling was based on Deseret's flawed approach of estimating worst case short term emission rates. As discussed above, EPA re-calculated maximum short term SO_2 emission rates but did not present the results of its revised modeling analyses. Considering that the emissions rate is all that would be changed in the revised modeling, one can simply adjust the results proportionately based on the EPA's revised emission rate as compared to Deseret's modeled SO_2 emission rate.

Deseret's worst case SO_2 emission rates modeled was 146.99 lb/hr. Statement of Basis at 135. EPA's recalculated worst case 24-hour average SO_2 emission rate was 201.9 lb/hr. *Id.* Multiplying Deseret's original 24-hour maximum near field concentration modeled of 10.8 ug/m3 (as provided in the Statement of Basis at 128) by

[52] November 2004 Dispersion Modeling, Deposition and Visibility Analysis for Deseret Generation and Transmission Cooperative's Proposed Bonanza Site 110 MW Waste Coal-Fired Unit, prepared by Meteorological Solutions, Inc., at 3-19.

the ratio of the revised worst case short term emission rate to the originally modeled worst case SO_2 emission rate results in a maximum 24-hour average SO_2 concentration of 14.8 ug/m3. This exceeds the 24-hour SO_2 monitoring significance level of 13 ug/m3. Thus, it appears that Deseret should have conducted one year of preapplication monitoring for SO_2. Consequently, EPA must delay issuing the permit until this data is collected.

9. DESERET FAILED TO PROVIDE ANY CUMULATIVE PSD INCREMENT ANALYSIS FOR ANY CLASS I AREA (OR FOR ANY COLORADO CLASS I AREAS)

Deseret failed to provide any cumulative PSD increment analysis for any affected Class I area in its permit application for the Bonanza WCFU. Neither Deseret's PSD permit application or EPA's Statement of Basis explains why cumulative increment analyses were not completed for Class I areas. The PSD permitting regulations mandate that no PSD permit can be issued unless the source demonstrates that it will not cause *or contribute to* a violation of any PSD increment. 40 C.F.R. §52.21(k)(2). Since Deseret has not made that demonstration, EPA cannot issue the permit.

One possible reason that Deseret did not perform any cumulative Class I PSD increment analyses might be because Deseret considers the impacts of the Bonanza WCFU to be less than significance levels.[53] However, there are no Class I area significance levels authorized in any federal regulation. While EPA proposed use of such Class I significant impact levels in July of 1996[54], EPA never finalized promulgation of those significant impact levels. Thus, until EPA adopts significant impact levels for Class I increments, *any* impact must warrant a cumulative analysis.

Moreover, even if use of proposed but never finalized significant impact levels were appropriate to exempt the Bonanza WCFU from a cumulative increment analysis in affected Class I areas, cumulative SO2 increment analyses would be required because the SO_2 impacts of the Bonanza WCFU would be greater than the proposed Class I significant impact levels for SO_2 in several Class I areas as follows:

First, Deseret's own modeling showed that its impact on the Colorado portion of Dinosaur National Monument would be greater than the SO_2 3-hour and 24-hour average proposed significant impact levels and greater than the 24-hour average Class I proposed significant impact level in Colorado National Monument.[55] Colorado's regulations mandate that Dinosaur National Monument and Colorado National Monument, although Class II areas, will be subject to the more stringent Class I increments for SO_2. (Colorado

[53] See Class I area impact tables on pages 4-21 through 4-28 of November 2004 Dispersion Modeling, Deposition and Visibility Analysis for Deseret Generation and Transmission Cooperative's Proposed Bonanza Site 110 MW Waste Coal-Fired Unit, prepared by Meteorological Solutions, Inc., which identify the Bonanza WCFU's impact at each Class I area in terms of "Percent of EPA Class I Significance Levels."
[54] 61 Fed.Reg. 38291-38293 (July 23, 1996).
[55] November 2004 Dispersion Modeling, Deposition and Visibility Analysis for Deseret Generation and Transmission Cooperative's Proposed Bonanza Site 110 MW Waste Coal-Fired Unit, prepared by Meteorological Solutions, Inc., at 4-23, 4-24, and 4-30.

Regulation 3, Part B, Section VIII.B.1.b.). Thus, Deseret should have been required to perform a cumulative increment analysis for Dinosaur National Monument and Colorado National Monument.

Further, Deseret's analysis of the Bonanza WCFU's impacts on short term average SO_2 concentrations in Class I areas was flawed because, as noted by EPA, Deseret underestimated worst case short term SO_2 emission rates from the Bonanza WCFU. Statement of Basis at 135. As discussed in the above comment regarding the monitoring significance threshold, the predicted SO_2 impacts on the Class I areas can be proportionately adjusted based on the EPA's revised SO_2 emission rates as compared to Deseret's modeled SO_2 emission rate. EPA re-calculated Bonanza's WCFU worst case 3-hour average SO_2 emission rate to be 872 lb/hr, which is almost six times as high as the 146.99 lb/hr SO_2 emission rate modeled by Deseret. *Id.* Proportionately adjusting the 3-hour average SO_2 impacts of the Bonanza WCFU using EPA's revised worst case 3-hour average emission rate shows that the Bonanza WCFU would have an impact greater than the 3-hour average proposed significant impact level for SO_2 for most of the Class I areas in the region. The following table shows the revised Class I area 3-hour average SO_2 impacts based on EPA's revised worst case emission rates for those Class I areas where the Bonanza WCFU would exceed the proposed Class I significant impact levels. Thus, even if it were appropriate to exempt a facility from a cumulative Class I increment analysis based on its impacts being less than the proposed significant impact levels, the Bonanza WCFU would not be exempt from performing cumulative analyses of impacts on the 3-hour average SO_2 increment at Arches National Park, Canyonlands National Park, Capitol Reef National Park, Colorado National Monument, the Colorado portion of Dinosaur National Monument, the Flat Tops Wilderness area, and the Mt Zirkel Wilderness Area.

Thus, Deseret must be required to conduct cumulative Class I increment analyses for the nearby Class I areas. EPA must not issue a PSD permit for the Bonanza WCFU without ensuring that the facility will not cause *or contribute* to a violation of any PSD increment. Further, the cumulative Class I increment analyses must include the PSD increment consuming emissions of all other sources that could be affecting air quality in those Class I areas. This would include all large sources of air pollution within 200 kilometers of each Class I area, such as nearby coal-fired power plants (e.g., the Bonanza Unit 1, Hunter, Huntington, and Intermountain power plants in Utah, and the Craig, Hayden and Nucla power plants in Colorado). In addition, Deseret must be required to model those facilities which have submitted complete PSD permit applications and/or which have received air quality permits but which have not yet constructed. This would include NEVCO's Sevier Power plant, Unit 3 of the Intermountain Power Plant, and Unit 4 of the Hunter Power plant, all to be located in Utah. Deseret must also include the existing and proposed oil and gas development occurring near the Class I areas that Bonanza will affect. Until complete and thorough Class I increment modeling analyses are completed, EPA cannot issue the permit because it *will not know* whether the facility will cause or contribute to a Class I increment violation.

Table 1: Revised Class I Area SO_2 Impacts of Bonanza WCFU with EPA's Adjusted Worst Case SO_2 Rate

Class I area	Year of Met Data	Adjusted Predicted SO_2 Concentration, ug/m3	Averaging time	Proposed Class I SIL	% of SIL
Arches National Park	1992	1.4	3-hr, high	1.0	140.6%
	1992	1.3	3-hr, 2nd high[a]	1.0	129.3%
	1996	1.6	3-hr, high	1.0	160.2%
	1996	1.4	3-hr, 2nd high	1.0	142.4%
	1999	1.4	3-hr, high	1.0	141.2%
	1999	1.1	3-hr, 2nd high	1.0	114.5%
Canyonlands National Park	1992	1.5	3-hr, high	1.0	150.7%
	1992	1.3	3-hr, 2nd high	1.0	134.7%
	1996	1.3	3-hr, high	1.0	125.2%
	1996	1.2	3-hr, 2nd high	1.0	115.7%
	1999	1.3	3-hr, high	1.0	131.1%
	1999	1.2	3-hr, 2nd high	1.0	119.2%
Capitol Reef National Park	1992	1.0	3-hr, high	1.0	104.4%
	1992	0.9	3-hr, 2nd high	1.0	94.3%
	1996	1.1	3-hr, high	1.0	106.8%
	1996	0.7	3-hr, 2nd high	1.0	72.4%
	1999	0.4	3-hr, high	1.0	35.2%
	1999	0.3	3-hr, 2nd high	1.0	30.6%
Colorado National Monument	1992	4.4	3-hr, high	1.0	439.6%
	1992	3.6	3-hr, 2nd high	1.0	364.2%
	1996	2.0	3-hr, high	1.0	195.2%
	1996	1.9	3-hr, 2nd high	1.0	191.6%
	1999	3.6	3-hr, high	1.0	355.9%
	1999	3.1	3-hr, 2nd high	1.0	312.0%
Dinosaur National Monument (Colo)	1992	12.6	3-hr, high	1.0	1263.6%
	1992	10.9	3-hr, 2nd high	1.0	1091.6%
	1996	11.5	3-hr, high	1.0	1150.9%
	1996	9.7	3-hr, 2nd high	1.0	972.9%
	1999	11.1	3-hr, high	1.0	1109.4%
	1999	10.1	3-hr, 2nd high	1.0	1014.4%
Flat Tops Wilderness Area	1992	2.0	3-hr, high	1.0	204.7%
	1992	2.0	3-hr, 2nd high	1.0	195.2%
	1996	2.1	3-hr, high	1.0	211.2%
	1996	1.8	3-hr, 2nd high	1.0	180.9%
	1999	1.6	3-hr, high	1.0	163.1%
	1999	1.6	3-hr, 2nd high	1.0	160.8%
Mt. Zirkel Wilderness Area	1992	1.8	3-hr, high	1.0	179.2%
	1992	1.5	3-hr, 2nd high	1.0	152.5%
	1996	1.0	3-hr, high	1.0	102.0%
	1996	0.9	3-hr, 2nd high	1.0	90.8%
	1999	0.9	3-hr, high	1.0	93.1%
	1999	0.8	3-hr, 2nd high	1.0	82.5%

[a]In determining whether a source's impact is greater than significant impact levels, the highest predicted concentration is used. See EPA's October 1990 Draft New Source Review Workshop Manual at C.16, C.26, and C.51. Because Deseret provided both the high and 2nd high predicted concentrations, we revised both values using EPA's revised 3-hour SO2 emission rate.

10. EPA MUST NOT ISSUE THE PSD PERMIT FOR THE BONANZA WCFU IN LIGHT OF THE PSD SO_2 INCREMENT VIOLATIONS OCCURRING AT CAPITOL REEF NATIONAL PARK

During the permit review and proceedings for the proposed Unit 3 of the Intermountain Power Plant located in Delta, Utah, the National Park Service conducted a Class I SO_2 increment analysis and determined that **existing** sources in Utah are causing violations of the 3-hour average Class I SO_2 increment in Capitol Reef National Park. Specifically, on March 25, 2004, the National Park Service submitted a letter to the Utah Division of Air Quality that provided, among other things, the Park Service's formal findings that the 3-hour average SO_2 increment was being violated by existing sources in Utah at Capitol Reef National Park.[56] In May of 2003, the Assistant Secretary for Fish and Wildlife and Parks submitted a letter and accompanying Technical Support Document reiterated that existing sources are causing violations of the 3-hour average SO_2 increment at Capitol Reef National Park.[57] Because the SO_2 emissions from the Bonanza WCFU will increase 3-hour average SO_2 concentrations in this Class I area – and at a level greater than the proposed Class I significance level - the Bonanza WCFU will contribute to the existing violations of the 3-hour average SO_2 increment. Federal law mandates that no permit can be issued for a new major source if it would cause *or contribute* to a violation of the PSD increments.

The federal prohibition on the issuance of a permit in this case of existing PSD increment violations are clear. Section 165(a)(3) of the Clean Air Act provides that no permit authorizing construction of a new source can be issued unless the owner or operator demonstrates that the emissions from such facility "will not cause, or contribute to, air pollution in excess of (A) maximum allowable increase or maximum allowable concentration for any pollutant. . . ." The maximum allowable increases, or "PSD increments," are standards not to be exceeded.[58] See §163(a) and (b). The statutory provision that a permit cannot be issued unless the source won't cause or contribute to an increment violation is incorporated into the federal PSD regulations at 40 C.F.R. §52.21(k)(2). In addition, EPA's longstanding contemporaneous interpretation of the statutory and regulatory provisions for the PSD increments clearly mandate that, in an area with existing PSD increment violations, the violations "must be entirely corrected before PSD sources which affect the area can be approved." (See 45 Fed.Reg. 52678, August 7, 1980).

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[56] National Park Service Comments on the Intermountain Power Agency Prevention of Significant Permit Application for the Addition of Unit 3 at its Intermountain Power Plant, March 2004, attached to its March 25, 2004 letter to Rick Sprott, Utah Division of Air Quality, at 5. (Attachment 20)

[57] National Park Service Supplemental Technical Comments on the Intermountain Power Agency Prevention of Significant Permit Application for the Addition of Unit 3 at its Intermountain Power Plant, May 2004, attached to its May 2004 letter from the Assistant Secretary for Fish and Wildlife and Parks to Rick Sprott, Utah Division of Air Quality, at 8-9. (Attachment 21.)

[58] §163(a) of the Clean Air Act provides that, except for annual average PSD increments, the increments can be exceeded only once per year. No exceedances of the annual average increments are allowed.

It is important to note that the March 25, 2004 National Park Service letter to the Utah Division of Air Quality erroneously claimed that, because Intermountain Power Plant Unit 3's impact on the SO_2 increment violations at Capitol Reef National Park was below the "significant impact level," the proposed new Unit 3 at the Intermountain Power Plant would not be considered to cause or contribute to the 3-hour average SO_2 increment violations. There is no legal or regulatory basis in Utah regulations or in the federal PSD regulations to consider a source's impact on an increment violation as insignificant. Further, this is contrary to EPA's interpretation of the law. EPA Region 8 stated in an April 12, 2002 letter to the North Dakota Department of Health that the use of significant impact levels to allow a PSD permit to be issued in the case of an area showing increment violations is not consistent with the intent of the Clean Air Act's PSD program. (See attached April 12, 2002 letter, Attachment 19). Indeed, EPA stated that, in the case of an area with existing increment violations, "any impact (not just one that is 'significant') on a receptor in a Class I area that shows a violation of the PSD increment would be considered to contribute to that increment violation. Furthermore. . .even if some of the impacts are relatively small they are still contributing to an existing problem."[59]

The Bonanza WCFU will have an impact on 3-hour average SO_2 concentrations in Capitol Reef National Park.[60] Further, when those impacts are adjusted proportionately based on EPA's adjusted worst case 3-hour average emission rate expected from the Bonanza WCFU, its impacts exceed the proposed Class I significant impact level at Capitol Reef National Park. (See Table 1 above). There is no question that the Bonanza WCFU will contribute to existing SO_2 increment violations at Capitol Reef National Park. Therefore, EPA is prohibited from issuing the PSD permit to the Bonanza WCFU until the SO_2 increment violations at Capitol Reef National Park are adequately addressed.

11. DESERET'S VISIBILITY MODELING IS FLAWED

Deseret's visibility modeling analysis of the Bonanza WCFU is flawed because Deseret failed to model maximum 24-hour average emissions of SO_2 and because Deseret failed to properly document why it was necessary or appropriate to rollback the relative humidity in the regional haze modeling to 95%. Consequently, the visibility modeling is flawed and likely underestimated the impacts of the Bonanza WCFU on visibility in nearby Class I areas.

As discussed above, EPA adjusted the worst case 24-hour SO_2 emission rate based on data from Deseret because Deseret's estimate of worst case SO_2 emissions did not properly include emissions from start-ups. See Statement of Basis at 135. With EPA's adjustment, the worst case 24-hour average SO_2 emission rate is 37% higher than the emission rate that was modeled in Deseret's visibility analysis. Thus, Deseret's

[59] Attachment to April 12, 2002 letter from Richard R. Long, EPA Region 8, to Terry L. O'Clair, North Dakota Department of Health, at 5. (Attachment 19.)

[60] See November 2004 Dispersion Modeling, Deposition and Visibility Analysis for Deseret Generation and Transmission Cooperative's Proposed Bonanza Site 110 MW Waste Coal-Fired Unit, prepared by Meteorological Solutions, Inc., at 4-23, 4-29, and 4-35.

visibility analysis *underestimated* visibility impacts in all affected Class I areas. Deseret must be required to re-model visibility impacts using the adjusted worst case 24-hour average SO_2 emission rate of 201.9 lb/hr and such modeling must be provided to the Federal Land Managers for review.

Deseret estimated visibility impacts using both a maximum relative humidity of 98%, consistent with the Federal Land Managers' guidance, and rolling back relative humidity to 95%.[61] However, the National Park Service indicated that any analysis rolling back relative humidity to 95% would have to be "well documented as to why it is appropriate to. . .roll back relative humidity to 95%. . . ."[62] Deseret did not provide any such documentation. Therefore the results of its visibility analysis capping relative humidity at 95% cannot be relied upon.

Based on the visibility modeling done by Deseret that is consistent with current guidance of the Federal Land Managers (i.e., capping relative humidity at 98%), the Bonanza WCFU will have an adverse impact on visibility (greater than a 5% change) at Arches and Capitol Reef National Parks.[63] This analysis must be redone with the EPA's worst case 24-hour average SO_2 emission rate and the results transmitted to the appropriate Federal Land Managers. Because the impacts on visibility will be greater using the higher SO_2 worst case 24-hour average emission rate, it appears the Bonanza WCFU will have an adverse visibility impact at some nearby Class I areas. EPA Region 8 must ensure that, in issuing a permit for the Bonanza WCFU, its actions are consistent with the intent of the PSD requirements of the Clean Air Act – specifically, whether its actions will preserve, protect, and enhance the air quality in nearby national parks and wilderness areas (i.e., pursuant to §160(1) of the Clean Air Act), and whether its actions will ensure that emissions from the Bonanza WCFU will not interfere with portions of State Implementation Plans aimed at preventing significant deterioration of air quality including preventing future visibility impairment (i.e., pursuant to §160(4) and 169(a)(1) of the Clean Air Act).

Thank you for considering our comments.

[61] *Id.* at 4-49.
[62] August 6, 2004 email from John Notar, National Park Service, to Ed Thatcher, EPA Region 8.
[63] November 2004 Dispersion Modeling, Deposition and Visibility Analysis for Deseret Generation and Transmission Cooperative's Proposed Bonanza Site 110 MW Waste Coal-Fired Unit, prepared by Meteorological Solutions, Inc., at 4-51.

Sincerely,

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List of Attachments (all of which are on a CD accompanying this letter):

1. "Coal-Related Greenhouse Gas Management Issues", National Coal Council, May 2003;
2. *Considering Alternatives: The Case for Limiting CO_2 Emissions from New Power Plants through New Source Review* by Gregory B. Foote;
3. Letter from Illinois Division of Air Pollution Control to Jim Schneider, Indeck-Elwood, LLC (March 8, 2003);
4. Letter from Illinois EPA Director to EPA Regional Administrator, Region V (March 19, 2003);
5. Letter from James A. Capp, Manager, Stationary Source Permitting Program, Georgia DNR, to D. Blake Wheatley, Assistant Vice President, Longleaf Energy Associates, LLC (March 6, 2002);
6. Letter from New Mexico Environment Department to Larry Messinger, Mustang Energy Corporation (Dec. 23, 2002);
7. Letter from New Mexico Environment Department to Larry Messinger, Mustang Energy Company (Aug. 29, 2003);
8. April 6, 2004 letter from Richard R. Long, EPA, to Rick Sprott, Utah Division of Air Quality regarding the Sevier Power Company Permit;
9. Western Governor's Association Technology Working Group's report on advanced clean coal technologies;
10. October 12, 2004 Sevier Power Company permit;
11. Utah Division of Air Quality New Source Plan Review for the Sevier Power Company, December 23, 2003;
12. December 18, 2002 letter from Richard R. Long, EPA Region 8, to Steve Welch, Montana Department of Environmental Quality on the Roundup permit;
13. October 29, 2001 permit for AES-Puerto Rico;
14. November 4, 2003 Memorandum from Don Shepherd to John Notar regarding the Sevier Power Plant;
15. July 21, 2003 Roundup power plant permit;
16. March 2, 2004 Longview power plant permit;
17. Bielawski, G.T., J.B. Rogan, and D.K. McDonald, How Low Can We Go?;
18. Air Pollution Control Permit to Construct for Gascoyne (PTC-05005);
19. EPA's April 12, 2002 letter to the North Dakota Department of Health;
20. National Park Service Comments on the Intermountain Power Agency Prevention of Significant Permit Application for the Addition of Unit 3 at its Intermountain Power Plant, March 2004, attached to its March 25, 2004 letter to Rick Sprott, Utah Division of Air Quality; and
21. National Park Service Supplemental Technical Comments on the Intermountain Power Agency Prevention of Significant Permit Application for the Addition of Unit 3 at its Intermountain Power Plant, May 2004, attached to its May 2004 letter from the Assistant Secretary for Fish and Wildlife and Parks to Rick Sprott, Utah Division of Air Quality.
22. U.S. EPA "New Source Review Workshop Manual" Draft October 1990.

Mass. v. E.P.A.
C.A.D.C.,2005.

United States Court of Appeals,District of Columbia Circuit.
Commonwealth of MASSACHUSETTS, et al., Petitioners
v.
ENVIRONMENTAL PROTECTION AGENCY, Respondent
Alliance of Automobile Manufacturers, et al., Intervenors
Nos. 03-1361 to 03-1368.

Argued April 8, 2005.
Decided July 15, 2005.

Background: Petitions were filed seeking review of an order of the Environmental Protection Agency (EPA) refusing to regulate greenhouse gas emissions from motor vehicles.

Holdings: The Court of Appeals, Randolph, Circuit Judge, held that:

(1) Court of Appeals had exclusive jurisdiction, and

(2) even if EPA had statutory authority to regulate greenhouse gases from new motor vehicles, EPA properly declined to exercise that authority.

Petitions dismissed or denied.

Sentelle, Circuit Judge, filed opinion dissenting in part and concurring in the judgment.

Tatel, Circuit Judge, filed dissenting opinion.

West Headnotes

[1] Environmental Law 149E 634

149E Environmental Law
149EXIII Judicial Review or Intervention
149Ek634 k. Jurisdiction in General. Most Cited Cases

Federal Courts 170B 1134

170B Federal Courts
170BXIII Concurrent and Conflicting Jurisdiction and Comity as Between Federal Courts
170Bk1131 Exclusive or Concurrent Jurisdiction
170Bk1134 k. Environmental Cases; Atomic Energy. Most Cited Cases
Under the Clean Air Act, Court of Appeals has exclusive jurisdiction over nationally applicable regulations promulgated, or final action taken, by Environmental Protection Agency (EPA) Administrator, while district courts have jurisdiction over citizen suits to compel EPA to perform nondiscretionary acts or duties. Clean Air Act, § § 304(a)(2), 307(b)(1), 42 U.S.C.A. § § 7604(a)(2), 7607(b)(1).

[2] Environmental Law 149E 661

149E Environmental Law
149EXIII Judicial Review or Intervention
149Ek661 k. Finality. Most Cited Cases
Environmental Protection Agency's (EPA) denial of the rulemaking petition seeking regulation of greenhouse gas emissions from motor vehicles was a "final action" for purposes of Administrative Procedure Act (APA) since the petition sought regulations national in scope; thus, Court of Appeals had exclusive jurisdiction to hear cases seeking review of EPA's action. 5 U.S.C.A. § 551; Clean Air Act, § 307(b)(1), 42 U.S.C.A. § 7607(b)(1).

[3] Environmental Law 149E 661

149E Environmental Law
149EXIII Judicial Review or Intervention
149Ek661 k. Finality. Most Cited Cases
Although Environmental Protection Agency (EPA) administrator adopted general counsel's memorandum and relied on its analysis as one of the alternative grounds for rejecting rulemaking petition, general counsel's memorandum did not in itself constitute "final action" of the Administrator for purposes of Administrative Procedure Act (APA). 5 U.S.C.A. § 551.

[4] Federal Civil Procedure 170A ⚿103.2

170A Federal Civil Procedure
170AII Parties
170AII(A) In General
170Ak103.1 Standing
170Ak103.2 k. In General; Injury or Interest. Most Cited Cases

Federal Civil Procedure 170A ⚿103.3

170A Federal Civil Procedure
170AII Parties
170AII(A) In General
170Ak103.1 Standing
170Ak103.3 k. Causation; Redressability. Most Cited Cases
Standing exists only if the complainant has suffered an injury in fact, fairly traceable to the challenged action, and likely to be redressed by a favorable decision. U.S.C.A. Const. Art. 3, § 2, cl. 1.

[5] Environmental Law 149E ⚿273

149E Environmental Law
149EVI Air Pollution
149Ek266 Particular Sources of Pollution
149Ek273 k. Mobile Sources; Motor Vehicles. Most Cited Cases

Environmental Law 149E ⚿281

149E Environmental Law
149EVI Air Pollution
149Ek275 Particular Pollutants
149Ek281 k. Nitrogen Oxides. Most Cited Cases
Even if Environmental Protection Agency (EPA) had statutory authority to regulate greenhouse gases from new motor vehicles, EPA properly declined to exercise that authority; EPA's denial of the rulemaking petition was based on "policy" considerations including scientific uncertainties regarding climate change and endangerment to public health.

[6] Administrative Law and Procedure 15A ⚿760

15A Administrative Law and Procedure
15AV Judicial Review of Administrative Decisions
15AV(D) Scope of Review in General
15Ak754 Discretion of Administrative Agency
15Ak760 k. Wisdom, Judgment or Opinion. Most Cited Cases
Reviewing court will uphold agency conclusions based on policy judgments when an agency must resolve issues on the frontiers of scientific knowledge.

***51** On Petitions for Review of an Order of the Environmental Protection Agency.

James R. Milkey and Howard Fox argued the cause for petitioners. With them on the briefs were Thomas F. Reilly, Attorney General, Attorney General's Office of the Commonwealth of Massachusetts, William L. Pardee, Assistant Attorney General, Joseph Mendelson, III, David Bookbinder, Bill Lockyer, Attorney General, Attorney General's Office of the State of California, Nicholas Stern and Marc N. Melnick, Deputy Attorneys General, David Doniger, Richard Blumenthal, Attorney General, Attorney General's Office of the State of Connecticut, Kimberly Massicotte and Matthew Levine, Assistant Attorneys General, Peter C. Harvey, Attorney General, Attorney General's Office of the State of New Jersey, Stefanie A. Brand, Deputy ***52** Attorney General, Hardy Myers, Attorney General, Attorney General's Office of the State of Oregon, Philip Schradle, Special Counsel, Lisa Madigan, Attorney General, Attorney General's Office of the State of Illinois, Gary Feinerman, Solicitor General, Gerald T. Karr and Thomas E. Davis, Assistant Attorneys General, Patricia A. Madrid, Attorney General, Attorney General's Office of the State of New Mexico, Stuart M. Bluestone, Deputy Attorney General, Patrick C. Lynch, Attorney General, Attorney General's Office of the State of Rhode Island, Tricia K. Jedele, Special Assistant, G. Steven Rowe, Attorney General, Attorney General's Office of the State of Maine, Gerald D. Reid, Assistant Attorney General, Eliot Spitzer, Attorney General, Attorney General's Office of the State of New York, Peter Lehner and J. Jared Snyder, Assistant Attorneys General, William H. Sorrell, Attorney General, Attorney General's Office of the State of Vermont, Erick Titrud and Kevin O. Leske, Assistant Attorneys General, Rob McKenna, Attorney General, Attorney General's Office of the State of Washington, David K. Mears, Assistant Attorney General, John Hogrogian, Assistant Corporation Counsel, Corporation Counsel of the City of New York, Julie M. Anderson, Fiti A. Sunia, Attorney General, Attorney General's Office of the American Samoa, Ralph S. Tyler, III, Solicitor, City

of Baltimore, William Phelan, Jr., Counsel, James B. Tripp, Robert J. Spagnoletti, Attorney General, Attorney General's Office of the District of Columbia, Edward E. Schwab, Deputy Attorney General, and Donna M. Murasky, Senior Litigation Counsel.

Rebecca L. Bernard and Jeremy Kyle Kinner were on the brief of amici curiae Indigenous Environmental Network, REDOIL and Physicians for Social Responsibility.

Jeffrey Bossert Clark, Deputy Assistant Attorney General, U.S. Department of Justice, argued the cause for respondent. With him on the brief were Thomas L. Sansonetti, Assistant Attorney General, Jon M. Lipshultz, Attorney, Ann R. Klee, General Counsel, U.S. Environmental Protection Agency, and John T. Hannon and Nancy Ketcham-Colwill, Counsel.

Neil D. Gordon, Assistant Attorney General, Attorney General's Office of the State of Michigan, argued the cause for intervenors States of Michigan, et al., and amicus curiae State of Indiana. With him on the briefs were Alan F. Hoffman, Assistant Attorney General, Jane E. Atwood, Assistant Attorney General, Attorney General's Office of the State of Texas, Douglas Conde, Deputy Attorney General, Attorney General's Office of the State of Idaho, Charles M. Carvell, Assistant Attorney General, Attorney General's Office of the State of North Dakota, Fred Nelson, Assistant Attorney General, Attorney General's Office of the State of Utah, Roxanne Giedd, Deputy Attorney General, Attorney General's Office of the State of South Dakota, Steven E. Mulder, Assistant Attorney General, Attorney General's Office of the State of Alaska, David W. Davies, Attorney, Attorney General's Office of the State of Kansas, David D. Cookson and Natalee J. Hart, Assistant Attorneys General, Attorney General's Office of the State of Nebraska, Dale T. Vitale, Senior Deputy Attorney General, Attorney General's Office of the State of Ohio, and Thomas M. Fisher, Special Counsel, Attorney General's Office of the State of Indiana.

Norman W. Fichthorn, Allison D. Wood, William A. Anderson, II., Eric P. Gotting, Russell S. Frye, John L. Wittenborn, William L. Fang, Dell E. Perelman, Leslie A. Hulse, Richard Wasserstrom, Harry M. Ng, Ralph J. Colleli, Jr., Jan S. Amundson, Quentin Riegel, Robin S. Conrad, John T. ***53** Whatley, Julie C. Becker, Douglas I. Greenhaus, Jed R. Mandel, Timothy A. French, Robert G. Slaughter, Mark J. Washko, and Nick Goldstein were on the brief of industry intervenors in support of respondent.

Daniel J. Popeo, Paul D. Kamenar, Peter Glaser, and Douglas A. Henderson were on the brief of amicus curiae Washington Legal Foundation in support of respondent.

Edward W. Warren and Eric B. Wolff were on the brief of amicus curiae John D. Dingell (D-Michgan) in support of denial of petitions for review.

Before: SENTELLE, RANDOLPH, and TATEL, Circuit Judges.

Judgment of the Court filed by Circuit Judge RANDOLPH.

Opinion filed by Circuit Judge RANDOLPH.

Opinion dissenting in part and concurring in the judgment filed by Circuit Judge SENTELLE.

Opinion dissenting in Nos. 03-1361, 03-1362, 03-1363, and 03-1364 filed by Circuit Judge TATEL.*RANDOLPH, Circuit Judge.*

****285** Petitioners are twelve states, three cities, an American territory, and numerous environmental organizations. They are opposed by the Environmental Protection Agency as respondent, and ten states and several trade associations as intervenors. The controversy is about EPA's denial of a petition asking it to regulate carbon dioxide (CO_2) and other greenhouse gas emissions from new motor vehicles under § 202(a)(1) of the Clean Air Act, 42 U.S.C. § 7521(a)(1). EPA concluded that it did not have statutory authority to regulate greenhouse gas emissions from motor vehicles and that, even if it did, it would not exercise the authority at this time. 68 Fed.Reg. 52,922 (Sept. 8, 2003).

I.

[1][2] We should say a few words about our jurisdiction under the Clean Air Act to review an EPA denial of a petition for rulemaking. Section 307(b)(1), 42 U.S.C. § 7607(b)(1), gives this court exclusive jurisdiction over "nationally applicable regulations promulgated, or final action taken, by the Administrator" under chapter 85 of the Act. The district courts, on the other hand, have jurisdiction over citizen suits to compel EPA to perform nondiscretionary acts or duties. 42 U.S.C. § 7604(a)(2); *see Sierra Club v. Thomas,* 828 F.2d 783, 787-92 (D.C.Cir.1987). Because EPA refused to promulgate "nationally applicable regulations" after being asked to do so, we have jurisdiction only if EPA thereby engaged in "final action." We can be sure that its denial of the rulemaking petition was "final." But did this constitute agency "action"? To answer that question we must consult the Administrative Procedure Act-specifically 5 U.S.C. § 551(13). The term "action" in § 307(b)(1) of the

Clean Air Act, like the term "final," carries its traditional meaning in administrative law. *See* Whitman v. Am. Trucking Ass'ns, 531 U.S. 457, 478, 121 S.Ct. 903, 149 L.Ed.2d 1 (2001); Indep. Equip. Dealers Ass'n v. EPA, 372 F.3d 420, 428 (D.C.Cir.2004); Sierra Club v. Gorsuch, 715 F.2d 653, 656-57 (D.C.Cir.1983). Section 551(13) of the APA defines "agency action" as "the whole or a part of an agency rule, order, license, sanction, relief, or the equivalent or *denial thereof,* or failure to act" (italics added). While § 307 of the Clean Air Act makes several APA provisions inapplicable-namely, 5 U.S.C. § § 553-557 & 706-APA § 551 is not among them. EPA's denial of the rulemaking petition was therefore "final**286 *54 action," and since the petition sought regulations national in scope, § 307(b)(1) confers jurisdiction on this court to hear these consolidated cases.

Another, related, point needs to be mentioned. Several of the petitions for judicial review treated a memorandum of EPA's General Counsel, Robert Fabricant, as "final action taken, by the Administrator" under § 307(b)(1). The memorandum, dated August 28, 2003, and addressed to the EPA Administrator, was entitled "EPA's Authority to Impose Mandatory Controls to Address Global Climate Change under the Clean Air Act."The General Counsel, after analyzing § 202(a)(1) of the Clean Air Act, and other legislative and executive actions, stated his belief that the Act "does not authorize regulation to address global climate change." He therefore withdrew a contrary memorandum issued in 1998 by one of his predecessors.

[3] The Fabricant memorandum, consisting of legal advice to the EPA Administrator, did not in itself constitute "final action" of the Administrator. To be sure, the Administrator adopted the "General Counsel's opinion" and relied on its analysis as one of the alternative grounds for rejecting the rulemaking petition. *See*68 Fed.Reg. at 52,925. The Administrator's explanation incorporated many of the memorandum's passages verbatim, rephrased and reordered others, and expanded on the General Counsel's reasoning. Still, it is the Administrator's denial of the rulemaking petition, with the accompanying explanation, that represents the "final action" of the Administrator subject to judicial review under § 307(b)(1). The significance of the General Counsel's opinion, as set forth in his memorandum, is the Administrator's reliance on his reasoning in deciding the matter now before us.

[4] There is an additional jurisdictional issue presented, but not under the Clean Air Act. EPA claims that petitioners lack standing under Article III of the Constitution. Standing exists only if the complainant has suffered an injury in fact, fairly traceable to the challenged action, and likely to be redressed by a favorable decision. *See* Lujan v. Defenders of Wildlife, 504 U.S. 555, 560, 112 S.Ct. 2130, 119 L.Ed.2d 351 (1992). EPA's argument is that petitioners have not "adequately demonstrated" two elements of standing: that their alleged injuries were "caused by EPA's decision not to regulate emissions of greenhouse gases from mobile sources"; and that their injuries "can be redressed by a decision in their favor" by this court. Brief for Respondent at 16.

In anticipation of this argument, petitioners filed two volumes of declarations with the court, some containing lengthy exhibits. The declarations, from scientists, engineers, state officials, homeowners, users of the nation's recreational resources, and other individuals, predict catastrophic consequences from global warming caused by greenhouse gases, including loss of or damage to state and private property, frequent intense storm surge floods, and increased health care costs. Brief for Petitioners at 2-4.

For the causation and redressability aspects of standing, petitioners cite two of their declarations. One, from a climatologist, states that reductions in CO_2 and other greenhouse gases from vehicles in the United States would alone have a meaningful impact and would "delay and moderate many of the adverse impacts of global warming." He adds that if EPA took action to reduce such emissions, other countries would likely follow suit. The climatologist bases his predictions about future climate change on climate models and on "quantitative scenarios generated **287 *55 by the IPCC"-the Intergovernmental Panel on Climate Change, established in 1988 by the United Nations and the World Meteorological Organization. The other declaration is from a mechanical engineer. He states that, on the basis of his experience with controlling other pollutants, there is "no doubt that establishing emissions standards for pollutants that contribute to global warming would lead to investment in developing improved technologies to reduce those emissions from motor vehicles, and that successful technologies would gradually be mandated by other countries around the world."

We have held that, to establish standing, a petitioner

challenging agency action has the same burden of production as "a plaintiff moving for summary judgment in the district court: it must support each element of its claim to standing 'by affidavit or other evidence.' " *Sierra Club v. EPA*, 292 F.3d 895, 899 (D.C.Cir.2002) (quoting *Lujan*, 504 U.S. at 561, 112 S.Ct. 2130). Petitioners' declarations do "support each element" of standing. But supporting an allegation is one thing; proving an allegation is quite another. *Lujan* holds that when a plaintiff's standing is challenged in a motion for summary judgment, the plaintiff "must 'set forth' by affidavit or other evidence 'specific facts,' Fed. Rule Civ. Proc. 56(e), which for purposes of the summary judgment motion will be taken as true." 504 U.S. at 561, 112 S.Ct. 2130. If we were to analogize the situation here to one in which EPA filed such a summary judgment motion, we would conclude that petitioners had submitted enough evidence raising genuine issues of material fact to defeat the motion. *See*FED. R. CIV. P. 56(c). But *Lujan* goes on to hold that at "the final stage" the evidence plaintiff presented at summary judgment "(if controverted) must be 'supported adequately by the evidence adduced at trial.' " 504 U.S. at 561, 112 S.Ct. 2130 (quoting *Gladstone, Realtors v. Village of Bellwood*, 441 U.S. 91, 115 n. 31, 99 S.Ct. 1601, 60 L.Ed.2d 66 (1979)). One might say that in this case we are at the "final stage." But the analogy is not entirely apt. As an appellate court we do not conduct evidentiary hearings in order to make findings of fact. This is why, when *Sierra Club* spoke of "other evidence" relating to standing, the court had in mind evidence presented to the agency. 292 F.3d at 899. Here, the administrative record contains a wealth of such "other evidence," and some of it contradicts petitioners' claim that greenhouse gas emissions from new motor vehicles have caused or will cause a significant change in the global climate. That is partly why EPA decided not to regulate at this time.

Steel Co. v. Citizens for a Better Environment, 523 U.S. 83, 118 S.Ct. 1003, 140 L.Ed.2d 210 (1998), instructs federal courts to resolve Article III standing questions before proceeding to the merits of a case. The combination of *Lujan*, *Steel Co.*, and the factual overlap of the standing issues with EPA's justifications for not regulating greenhouse gases present us with three options. The first is to refer the standing issues to a special master for a *factual* determination. This would be, as one commentator has suggested, "folly." 13A CHARLES A. WRIGHT ET AL., FEDERAL PRACTICE AND PROCEDURE 2d § 3531.15, at 101 (1984). Such a proceeding would largely duplicate the proceedings on the rulemaking petition and to no good end. Another option would be to remand to EPA for a factual determination of causation and redressability. That too would make no sense. For one thing, judgments about standing are the responsibility of the federal courts. For another, EPA has already reached a decision about the state of the evidence regarding global warming from greenhouse gases. The third option is ****288 *56** to proceed to the merits with respect to EPA's alternative decision not to regulate on the grounds, among others, that the effect of greenhouse gases on climate is unclear and that models used to predict climate change might not be accurate.

[5] We have decided to follow the third course. *Steel Co.* endorses this approach with respect to questions of statutory standing. The Court explained that "the merits inquiry and the statutory standing inquiry often overlap" and "are sometimes identical, so that it would be exceedingly artificial to draw a distinction between the two." 523 U.S. at 97 n. 2, 118 S.Ct. 1003. The Court's distinction of Article III standing cases rested on the premise that there would be no such overlap and that the issue of Article III standing would be entirely separate from the merits. *Id.* The Court did not say what the proper order of decision should be when, as in this case, that premise does not hold. In this highly unusual circumstance-encountered for the first time in this court-we will follow the statutory standing cases. We will therefore assume *arguendo* that EPA has statutory authority to regulate greenhouse gases from new motor vehicles.[FN1] The question we address is whether EPA properly declined to exercise that authority.

FN1. Relying on *FDA v. Brown & Williamson Tobacco Corp.*, 529 U.S. 120, 120 S.Ct. 1291, 146 L.Ed.2d 121 (2000), EPA concluded that in light of the enormous economic and political consequences of regulating greenhouse gas emissions, Congress would have been far more specific if it had intended to authorize EPA to regulate the subject under § 202(a)(1) of the Clean Air Act. 58 Fed.Reg. at 52,928. We express no view on the validity of EPA's analysis.

II.

Greenhouse gases trap energy, much like the glass panels of a greenhouse. The earth's surface is

warmed by absorbing solar energy (visible light). The earth, in turn, radiates infrared energy (heat) back into space. A portion of the infrared radiation is trapped by greenhouse gas molecules, resulting in additional warming of the lower atmosphere and the earth's surface. This "greenhouse effect" is a natural phenomenon, without which the planet would be significantly colder and life as we know it would not be possible. EPA, *Global Warming-Climate, at* http://
yosemite.epa.gov/oar/globalwarming.nsf/content/climate.html.

Petitioners sought to have EPA regulate, under § 202(a)(1) of the Clean Air Act, carbon dioxide (CO_2), and three other greenhouse gases: methane (CH_4), nitrous oxide (N_2O), and hydrofluorocarbons (HFCs).[FN2] In response to EPA's request for public comments on the 1999 petition for rulemaking, the agency received nearly 50,000 submissions. 68 Fed.Reg. at 52,924. Most were short expressions of support for the petition; many were nearly identical. *Id.* The comment period closed in May 2001. In the same month, the White House requested the National Academy of Sciences to assist the Administration in its review of climate change policy. The Academy "is a private, nonprofit, self-perpetuating society of distinguished scholars engaged in scientific and engineering research ...."NATIONAL RESEARCH COUNCIL, CLIMATE CHANGE SCIENCE: AN ANALYSIS OF SOME OF THE KEY QUESTIONS, preface (2001). Under its congressional charter, issued in 1863, the Academy has a mandate to advise the federal government on scientific and technical matters when requested. The Academy's principal operating**289 *57 agency for providing such advice is its National Research Council. *Id.*

FN2. The rulemaking request and the papers submitted to this court focus on the effects of CO_2.

In denying the rulemaking petition, EPA found that the scientific comments petitioners and others submitted rested on information already in the public domain and did not add significantly to the body of knowledge available to the National Research Council when it prepared the report cited above. Since none of the comments caused EPA to question the Council's report, EPA decided to rely on the Council's "objective and independent assessment of the relevant science." 68 Fed.Reg. at 52,930.

The National Research Council concluded that "a causal linkage" between greenhouse gas emissions and global warming "cannot be unequivocally established." NATIONAL RESEARCH COUNCIL, CLIMATE CHANGE SCIENCE, at 17. The earth regularly experiences climate cycles of global cooling, such as an ice age, followed by periods of global warming. *Id.* at 7. Global temperatures have risen since the industrial revolution, as have atmospheric levels of carbon dioxide. But an increase in carbon dioxide levels is not always accompanied by a corresponding rise in global temperatures. For example, although carbon dioxide levels increased steadily during the twentieth century, global temperatures decreased between 1946 and 1975. *Id.* at 16. Considering this and other data, the National Research Council concluded that "there is considerable uncertainty in current understanding of how the climate system varies naturally and reacts to emissions of greenhouse gases." *Id.* at 1. This uncertainty is compounded by the possibility for error inherent in the assumptions necessary to predict future climate change.[FN3] And, as the National Research Council noted, past assumptions about effects of future greenhouse gas emissions have proven to be erroneously high. *Id.* at 19.

FN3. "As the NRC explained, predicting future climate change necessarily involves a complex web of economic and physical factors including: Our ability to predict future global anthropogenic emissions of GHGs and aerosols; the fate of these emissions once they enter the atmosphere (*e.g.*, what percentage are absorbed by vegetation or are taken up by the oceans); the impact of those emissions that remain in the atmosphere on the radiative properties of the atmosphere; changes in critically important climate feedbacks (*e.g.*, changes in cloud cover and ocean circulation); changes in temperature characteristics (*e.g.*, average temperatures, shifts in daytime and evening temperatures); changes in other climatic parameters (*e.g.*, shifts in precipitation, storms); and ultimately the impact of such changes on human health and welfare (*e.g.*, increases or decreases in agricultural productivity, human health impacts). The NRC noted, in particular, that '[t]he understanding of the relationships between weather/climate and human health is in its infancy and therefore the health consequences of climate change are poorly understood' (p. 20). Substantial scientific

> uncertainties limit our ability to assess each of these factors and to separate out those changes resulting from natural variability from those that are directly the result of increases in anthropogenic GHGs."68 Fed.Reg. at 52,930.

Relying on *Ethyl Corp. v. EPA,* 541 F.2d 1 (D.C.Cir.1976) (en banc), petitioners challenge EPA's decision to forego rulemaking "[u]ntil more is understood about the causes, extent and significance of climate change and the potential options for addressing it." 68 Fed.Reg. at 52,931. In our view *Ethyl* supports EPA, not petitioners. Section 202(a)(1) directs the Administrator to regulate emissions that "in his judgment" "may reasonably be anticipated to endanger public health or welfare." Section 202(a)(1) was not at issue in *Ethyl;* the court mentioned an earlier version of that provision, in a footnote, only by way of analogy. 541 F.2d at 20 n. 37. But what the court had to say about § 202(a)(1) is instructive. In requiring the EPA Administrator**290 *58 to make a threshold "judgment" about whether to regulate, § 202(a)(1) gives the Administrator considerable discretion. *Id.* Congress does not require the Administrator to exercise his discretion solely on the basis of his assessment of scientific evidence. *Id.* at 20.What the *Ethyl* court called "policy judgments" also may be taken into account. By this the court meant the sort of policy judgments Congress makes when it decides whether to enact legislation regulating a particular area. *Id.* at 26.

The EPA Administrator's analysis, although it did not mention *Ethyl,* is entirely consistent with the case. In addition to the scientific uncertainty about the causal effects of greenhouse gases on the future climate of the earth, the Administrator relied upon many "policy" considerations that, in his judgment, warranted regulatory forbearance at this time. 68 Fed.Reg. at 52,929. New motor vehicles are but one of many sources of greenhouse gas emissions; promulgating regulations under § 202 would "result in an inefficient, piecemeal approach to the climate change issue." 68 Fed.Reg. at 52,931. The Administrator expressed concern that unilateral regulation of U.S. motor vehicle emissions could weaken efforts to persuade developing countries to reduce the intensity of greenhouse gases thrown off by their economies. *Id.* Ongoing research into scientific uncertainties and the Administration's programs to address climate change-including voluntary emission reduction programs and initiatives with private entities to develop new technology-also played a role in the Administrator's decision not to regulate. 68 Fed.Reg. at 52,931-33. The Administrator pointed to efforts to promote "fuel cell and hybrid vehicles" and ongoing efforts to develop "hydrogen as a primary fuel for cars and trucks." 68 Fed.Reg. at 52,931. The Administrator also addressed the matter of remedies. Petitioners offered two ways to reduce CO_2 from new motor vehicles: reduce gasoline consumption and improve tire performance. As to the first, the Department of Transportation-the agency in charge of fuel efficiency standards-recently issued new standards requiring greater fuel economy, as a result of which millions of metric tons of CO_2 will never reach the stratosphere. *Id.* As to tire efficiency, EPA doubted its authority to regulate this subject as an "emission" of an air pollutant. *Id.*"With respect to the other [greenhouse gases]-CH_4, N_2O, and HFCs-petitioners make no suggestion as to how those emissions might be reduced from motor vehicles." *Id.*

[6] It is therefore not accurate to say, as petitioners do, that the EPA Administrator's refusal to regulate rested entirely on scientific uncertainty, or that EPA's decision represented an "open-ended invocation of scientific uncertainty to justify refusing to regulate," Brief for Petitioners at 51. A "determination of endangerment to public health," the court said in *Ethyl,*"is necessarily a question of policy that is to be based on an assessment of risks and that should not be bound by either the procedural or the substantive rigor proper for questions of fact." *Ethyl,* 541 F.2d at 24. And as we have held, a reviewing court "will uphold agency conclusions based on policy judgments""when an agency must resolve issues 'on the frontiers of scientific knowledge.' "*Envtl. Def. Fund v. EPA,* 598 F.2d 62, 82 (D.C.Cir.1978).

We thus hold that the EPA Administrator properly exercised his discretion under § 202(a)(1) in denying the petition for rulemaking. The petitions for review in Nos. 03-1365, 03-1366, 03-1367, and 03-1368 are dismissed, and the petitions for review **291 *59 in Nos. 03-1361, 03-1362, 03-1363, and 03-1364 are denied.

So ordered.

SENTELLE, Circuit Judge, dissenting in part and concurring in the judgment.

As the majority's opinion observes, courts of the United States must resolve jurisdictional questions, including "Article III standing questions, before proceeding to the merits of a case." Opinion of Judge Randolph at 53 (citing *Steel Co. v. Citizens for a Better Environment,* 523 U.S. 83, 118 S.Ct. 1003,

140 L.Ed.2d 210 (1998)). As the majority further observes, "[s]tanding exists only if the complainant has suffered an injury in fact, fairly traceable to the challenged action, and likely to be redressed by a favorable decision." *Id.* at 54 (citing *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560, 112 S.Ct. 2130, 119 L.Ed.2d 351 (1992)). EPA argues "that petitioners have not 'adequately demonstrated' two elements of standing: that their alleged injuries were 'caused by EPA's decision not to regulate emissions of greenhouse gases from mobile sources'; and that their injuries 'can be redressed by a decision in their favor' by this court." *Id.* at 54 (quoting Brief for Respondent at 16). While I respect the majority's thorough and accurate history of the precedents on the standing question, after consulting the same authorities I have come to a different conclusion. I conclude that EPA is correct in its assertion that the petitioners have not demonstrated the element of injury necessary to establish standing under Article III.

I. Injury

As the Supreme Court has stated quite directly and succinctly:

It is an established principle that to entitle a private individual to invoke the judicial power to determine the validity of executive or legislative action he must show that he has sustained or is immediately in danger of sustaining a direct injury as the result of that action and it is not sufficient that he has merely a general interest common to all members of the public.

Ex Parte Levitt, 302 U.S. 633, 58 S.Ct. 1, 82 L.Ed. 493 (1937) (citing *Tyler v. Judges*, 179 U.S. 405, 406, 21 S.Ct. 206, 45 L.Ed. 252 (1900); *Southern Ry. Co. v. King*, 217 U.S. 524, 534, 30 S.Ct. 594, 54 L.Ed. 868 (1910); *Newman v. Frizzell*, 238 U.S. 537, 549, 550, 35 S.Ct. 881, 59 L.Ed. 1446 (1915); *Fairchild v. Hughes*, 258 U.S. 126, 129, 42 S.Ct. 274, 66 L.Ed. 499 (1922); *Massachusetts v. Mellon*, 262 U.S. 447, 488, 43 S.Ct. 597, 67 L.Ed. 1078 (1923)).

Thus, the courts "have consistently held that a plaintiff raising only a generally available grievance about government-claiming only harm to his and every citizen's interest in proper application of the Constitution and laws, and seeking relief that no more directly and tangibly benefits him than it does the public at large-does not state an Article III case or controversy." *Lujan*, 504 U.S. at 573, 112 S.Ct. 2130. Or, as the Supreme Court has also put it, to establish Article III standing a "plaintiff must have suffered an 'injury in fact' an invasion of a legally protected interest which is (a) concrete and *particularized*... and (b) actual or imminent, not conjectural or hypothetical." *Id.* at 560,112 S.Ct. 2130 (emphasis added; citations and internal quotation marks omitted). Most tellingly, the Supreme Court has specifically declared that "[b]y particularized, we mean that the injury must affect the plaintiff in a personal and individual way." *Id.* at n. 1, 112 S.Ct. 2130. In the case before us, that is what the petitioners have not established. After plowing through their reams of affidavits and arguments, I am left with the unshaken conviction that ****292 *60** they have alleged and shown no harm particularized to themselves. As we have observed in the context of determining standing even in a procedural case, in which the standards are perhaps more relaxed than in other cases, "in order to show that the interest asserted is more than a mere 'general interest ... common to all members of the public,' the plaintiffs must show that the government act ... will cause a distinct risk to a particularized interest of the plaintiff." *Florida Audubon Soc'y v. Bentsen*, 94 F.3d 658, 664 (D.C.Cir.1996).

Petitioners' allegations and affidavits, and petitioners' argument and briefs, are all well made and sincere. Nonetheless, even in the light most favorable to the petitioners, in the end they come down to this: Emission of certain gases that the EPA is not regulating may cause an increase in the temperature of the earth-a phenomenon known as "global warming." This is harmful to humanity at large. Petitioners are or represent segments of humanity at large. This would appear to me to be neither more nor less than the sort of general harm eschewed as insufficient to make out an Article III controversy by the Supreme Court and lower courts.

The courts under Article III stand ready to adjudicate and redress the particularized injuries of plaintiffs, when all other elements of jurisdiction are present. But "when the plaintiff is not himself the object of the government action or inaction he challenges, [although] standing is not precluded, ... it is ordinarily 'substantially more difficult' to establish." *Lujan*, 504 U.S. at 562, 112 S.Ct. 2130 (citations omitted). This time, in my view, it is not only difficult, it is impossible. The generalized public good that petitioners seek is the thing of legislatures and presidents, not of courts. As we stated in another environmental case, to ascertain standing courts must ask the question, did the "underlying governmental act [or inaction] demonstrably

increase[ ] some specific risk of environmental harm to the interest *of the plaintiff*"? Florida Audubon Soc'y, 94 F.3d at 667 (emphasis in original). Here, as in *Florida Audubon,* the alleged harm is not particularized, not specific, and in my view, not justiciable.

Therefore, I would reject and dismiss all the petitions before us. This is not to say that petitioners' complaints are wrong. This is not to say they are without redress. This is to say only that the question is not justiciable in its present form with its present champions in the present forum. A case such as this, in which plaintiffs lack particularized injury is particularly recommended to the Executive Branch and the Congress. Because plaintiffs' claimed injury is common to all members of the public, the decision whether or not to regulate is a policy call requiring a weighing of costs against the likelihood of success, best made by the democratic branches taking into account the interests of the public at large. There are two other branches of government. It is to those other branches that the petitioners should repair.

II. Concurrence in the Judgment

My conclusion leaves a slight problem. No problem exists as to the petitions for review of nonfinal action which Judge Randolph's opinion orders dismissed. I would dismiss those as well, on either his ground or mine. The problem vexes only as to petitions for review in Nos. 03-1361, 03-1362, 03-1363, and 03-1364, which Judge Randolph would deny and Judge Tatel would grant. I would dismiss those as well, as I would hold that we have no jurisdiction to either deny or grant them. How then are we to reach a judgment?

The Supreme Court has suggested a way, or at least Justices of the Supreme Court have. Most recently, in ****293*61***Hamdi v. Rumsfeld,* 542 U.S. 507, 124 S.Ct. 2633, 159 L.Ed.2d 578 (2004), Justice Souter, joined by Justice Ginsburg, differed from the plurality in a fragmented opinion adjudicating the due process rights of alleged enemy combatants held at Guantanamo Bay by the United States military. Justices Souter and Ginsburg would have vacated the judgment of the Court of Appeals and remanded for proceedings consistent with their view that the government had failed to justify holding the petitioner. However, because that view did not command a majority of the court, and because of "the need to give practical effect to the conclusion of [a majority] of the court rejecting the government's position," Justice Souter (joined by Justice Ginsburg) joined with the plurality "in ordering a remand on terms closest to those I would impose." 124 S.Ct. at 2660 (Souter, J., concurring). I will take a similar course here.

The majority today holds that we have jurisdiction to render judgment on four of the petitions before us. Although I disagree, I will accept the decision of the majority as dictating the law of this case. Having so accepted the law of the case, I will then join Judge Randolph in the issuance of a judgment closest to that which I myself would issue. With that explanation, I join in the decision to order denying the four petitions from final action of the Environmental Protection Agency.

TATEL, Circuit Judge, dissenting in Nos. 03-1361, 03-1362, 03-1363, and 03-1364.
Petitioners claim that motor vehicle emissions of greenhouse gases contribute to global warming and that global warming in turn is causing a host of serious problems, likely including increased flash flood potential in the Appalachians, degraded water quality and reduced water supply in the Great Lakes, sea-ice melting and permafrost thawing in Alaska, reduced summer snow-pack runoff in the Rockies, extreme water resource fluctuations in Hawaii, and rising sea levels combined with higher storm surges along the coasts of Puerto Rico, the Virgin Islands, and some eastern states. *See* Pet'rs Br. at 8-10 (summarizing U.S. Dep't of State, *U.S. Climate Action Report 2002,* at 110). Concerned about such problems, petitioners asked EPA to regulate these emissions under Clean Air Act section 202(a)(1), which provides: "The Administrator shall by regulation prescribe ... standards applicable to the emission of any air pollutant from ... new motor vehicles ... which in his judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." 42 U.S.C. § 7521(a)(1). EPA denied the petition on two grounds-that it lacked statutory authority to regulate such emissions and that even given such authority it would not exercise it-and petitioners sought review in this court.

My colleagues agree that the petitions for review should not be granted, but they do so for quite different reasons. Judge Sentelle thinks that petitioners lack standing and would dismiss the petitions for that reason. Judge Randolph does not resolve whether petitioners have standing and would deny the petitions based on one of EPA's two given reasons.

I have yet a different view. Unlike Judge Sentelle, I think at least one petitioner has standing, as I explain in Part II. Unlike Judge Randolph, I think EPA's order cannot be sustained on the merits. EPA's first given reason-that it lacks statutory authority to regulate emissions based on their contribution to welfare-endangering climate change, 68 Fed.Reg. 52,922, 52,925-29 (Sept. 8, 2003)-fails, as I explain in Part III, because the statute ****294 *62** clearly gives EPA authority to regulate "*any* air pollutant" that may endanger welfare, 42 U.S.C. § 7521(a)(1), with "air pollutant" defined elsewhere in the statute as "including any physical, chemical, biological, radioactive ... substance or matter which is emitted into or otherwise enters the ambient air,"*id.* § 7602(g). EPA's second given reason-the one accepted by Judge Randolph-is that even if it has statutory authority, it nonetheless "believes" that "it is inappropriate to regulate [greenhouse gas] emissions from motor vehicles" due to various policy reasons. As I explain in Part IV, however, none of these policy reasons relates to the statutory standard-"cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare,"*id.* § 7521(a)(1)-and the Clean Air Act gives the Administrator no discretion to withhold regulation for such reasons.

In short, EPA has failed to offer a lawful explanation for its decision. I would accordingly grant the petitions for review and send the matter back to EPA either to make an endangerment finding or to come up with a reasoned basis for refusing to do so in light of the statutory standard.

"Greenhouse gases are accumulating in Earth's atmosphere as a result of human activities, causing surface air temperatures and subsurface ocean temperatures to rise." So begins page one of the National Research Council's 2001 report, *Climate Change Science: An Analysis of Some of the Key Questions* ("NRC Report"), the scientific document EPA "rel[ied]" on in denying the petition for rulemaking, *see*68 Fed.Reg. at 52,930.

As the NRC Report explains, greenhouse gases (GHGs) trap heat radiated from earth, and their atmospheric concentrations are increasing "as a result of human activities." NRC Rep. at 1, 9. For example, "[h]uman activities ... responsible for the increase" in atmospheric concentrations of carbon dioxide (CO_2)-the chief GHG-include "[t]he primary source, fossil fuel burning," as well as "[t]ropical deforestation." *Id.* at 2; *see also id.* at 10, 12. The resulting increases are striking. In the 400,000 years prior to the Industrial Revolution, atmospheric CO_2 concentrations "typically ranged between 190" parts per million by volume (ppmv) "during the ice ages to near 280 ppmv during the warmer 'interglacial' periods." *Id.* at 11. By 1958, atmospheric concentrations were 315 ppmv (12.5% above the pre-Industrial-Revolution high of 280 ppmv), and by 2000 they had risen to 370 ppmv (17% above the 1958 level). *Id.* at 10. Similarly, prior to the Industrial Revolution, atmospheric concentrations of methane (CH_4), another GHG, ranged from .3 ppmv to .7 ppmv; now, "current values are around 1.77 ppmv." *Id.* at 11. Atmospheric concentrations of other GHGs like nitrous oxide (N_2O) have also risen. *Id.* at 2. Notably, GHGs not only disperse throughout the lower atmosphere, but also linger there at length: "Reductions in the atmospheric concentrations of these gases following possible lowered emissions rates in the future will stretch out over decades for methane, and centuries and longer for carbon dioxide and nitrous oxide." *Id.* at 10.

Increased GHG atmospheric concentrations are causing "climate forcings"-"imposed perturbation[s] of Earth's energy balance" measured in terms of units of watts per square meter (W/m^2). *Id.* at 6. Drawing from another report-an Intergovernmental Panel on Climate Change (IPCC) report with which the NRC "generally agrees," *id.* at 1-the NRC Report quantifies these climate forcings. CO_2, "probably the most important climate forcing agent today," has "caus[ed] an increased****295 *63** forcing of about 1.4 W/m^2" between 1750 and 2000. *Id.* at 12, 13. More lies ahead:

> CO_2 climate forcing is likely to become more dominant in the future as fossil fuel use continues. If fossil fuels continue to be used at the current rate, the added CO_2 forcing in 50 years will be about 1 W/m^2. If fossil fuel use increases by 1-1.5% per year for 50 years, the added CO_2 forcing instead will be about 2 W/m^2.

Id. at 12-13. Thus, by 2050, the total CO_2 forcing since 1750 could be from 2.4-3.4 W/m^2. The other GHGs "together cause a climate forcing approximately equal to that of CO_2," or more if one includes certain indirect effects of increased CH_4 emissions. *Id.* at 13. While atmospheric GHG increases are not the only causes of climate forcings-for example, changes in solar irradiance and in concentrations of tropospheric ozone also appear to

have caused climate forcings, and atmospheric concentration changes in aerosols like sulphates appear to have caused negative (cooling) climate forcings-all other forcings are less certain and appear less substantial than those caused by GHGs. *See id.*

The extent to which these forcings affect average global temperatures depends on the climate's sensitivity, a condition that is not precisely known. *Id.* at 7."Well-documented climate changes ... imply that the climate sensitivity is near ... 3°C" (5.4°F) for a 4 W/m^2 forcing-a number a bit above the total CO_2 forcing predicted by 2050-"but with a range from 1.5°C to 4.5°C (2.7 to 8.1°F)." *Id.*

Turning to the practical effects of GHG climate forcings, the NRC Report observes that a "diverse array of evidence points to a warming of global surface temperatures." *Id.* at 16. Though the "rate of warming has not been uniform," measurements "indicate that global mean surface air temperature warmed by about .4-.8°C (.7-1.5°F) during the 20th century." *Id.* The report notes that "[t]he Northern Hemisphere as a whole experienced a slight cooling from 1946-75,"-a statement Judge Randolph erroneously reads for the proposition that "*global* temperatures decreased between 1946 and 1975," op. of Randolph, J., at 57 (emphasis added)-possibly due to the widespread burning of high sulfur coal and resultant sulfate emissions or to changes in ocean circulation in the Atlantic. NRC Rep. at 16. The report also observes that, as the IPCC report points out, the "warming of the Northern Hemisphere during the 20th century is likely to have been the largest of any century in the past thousand years." *Id.*

In evaluating the relationship between GHG atmospheric increases and twentieth-century temperature increases, the NRC Report states that due to the
large and still uncertain level of natural variability inherent in the climate record and the uncertainties in the time histories of various forcing agents (and particularly aerosols), a causal linkage between the buildup of greenhouse gases in the atmosphere and the observed climate changes during the 20th century cannot be unequivocally established.

Id. at 17. Although Judge Randolph seizes on this uncertainty-and portrays it as applying to global warming generally rather than to twentieth-century warming, *see* op. of Randolph, J., at 56 -read in context, it appears little more than an application of the principle that, as the NRC Report later puts it, "[c]onfidence limits and probabilistic information, with their basis, should always be considered as an integral part of the information that climate scientists provide to policy and decision makers," NRC Rep. at 22. Indeed, ****296 *64** the NRC Report goes on to state that the "fact that the magnitude of the observed warming is large compared to natural variability as simulated in climate models is suggestive of such a linkage" between GHG atmospheric concentration increases and twentieth-century temperature increases, though not "proof" of it. *Id.* at 17.

The NRC Report further suggests that uncertainties about future warming relate chiefly to its scope.
Climate change simulations for the period of 1990 to 2100 based on IPCC emissions scenarios yield a globally-averaged surface temperature increase by the end of the century of 1.4 to 5.8°C (2.5 to 10.4°F) relative to 1990. The wide range of uncertainty in these estimates reflects both the different assumptions about future concentrations of greenhouse gases and aerosols in the various scenarios considered by the IPCC and the differing climate sensitivities of the various climate models used in the simulations. The range of climate sensitivities implied by these predictions is generally consistent with previously reported values.

Id. at 3. These numbers, of course, are averages: the "predicted warming is higher over higher latitudes than low latitudes, especially during winter and spring, and larger over land than over sea." *Id.*

With this warming will come secondary effects. Predicted impacts in the United States include increased likelihood of drought, greater heat stress in urban areas, rising sea levels, and disruption to many U.S. ecosystems. *Id.* at 19-20. The likelihood and scope of these impacts vary depending on the magnitude of future temperature increases. *See id.; see also id.* at 4. Because the "predicted temperature increase is sensitive to assumptions concerning future concentrations of greenhouse gases and aerosols," which in turn depend on future emissions, "national policy decisions made now and in the longer-term future will influence the extent of any damage suffered by vulnerable human populations and ecosystems later in this century." *Id.* at 1.

EPA claims petitioners lack standing to bring this case. To reach the merits, however, we need determine only that one petitioner has standing. *See, e.g.,* Nuclear Energy Inst., Inc. v. EPA, 373 F.3d

1251, 1266 (D.C.Cir.2004). In my view, declarations submitted by petitioners clearly establish that the Commonwealth of Massachusetts has satisfied each element of Article III standing-injury, causation, and redressability, *see, e.g., Lujan v. Defenders of Wildlife,* 504 U.S. 555, 560-61, 112 S.Ct. 2130, 119 L.Ed.2d 351 (1992).

Among other things, Massachusetts claims injury-the "substantial probability that local conditions will be adversely affected,"*Sierra Club v. EPA,* 292 F.3d 895, 898 (D.C.Cir.2002) (internal quotation marks omitted)-resulting from rising sea levels. The declaration of Paul Kirshen, a professor at Tufts University's Civil and Environmental Engineering Department, details how projected rises in sea levels in the metropolitan Boston area would lead both to permanent loss of coastal land and to "more frequent and severe storm surge flooding events along the coast." Kirshen Decl. ¶ ¶ 7-8; *see also* Jacqz Decl. ¶ ¶ 8-11. "[I]f sea level rises .3 meters (11.8 inches)-which is near the lower end of the likely range-that would mean the future 10-year flood surge elevation would be at the level of the current 100-year flood elevation and the future 100-year flood surge elevation would be at that of the current 500-year flood elevation." Kir***65** shen****297** Decl. ¶ 10. As other declarations make clear, such changes would lead to serious loss of and damage to Massachusetts's coastal property. *See* Hoogeboom Decl. ¶ ¶ 6-7; Jacqz Decl. ¶ ¶ 11.

Given these declarations, I disagree that no petitioner suffers "harm particularized to" itself. *See* op. of Sentelle, J., at 60. The Commonwealth of Massachusetts claims an injury-namely, loss of land within its sovereign boundaries-that "affects [it] in a personal and individual way,"*Lujan,* 504 U.S. at 560 n. 1, 112 S.Ct. 2130. This loss (along with increased flood damage to the Massachusetts coast) undeniably harms the Commonwealth in a way that it harms no other state. Other states may face their own particular problems stemming from the same global warming-Maine may suffer from loss of Maine coastal land and New Mexico may suffer from reduced water supply-but these problems are different from the injuries Massachusetts faces. Massachusetts's harm is thus a far cry from the kind of generalized harm that the Supreme Court has found inadequate to support Article III standing, i.e., "harm to [its] and every citizen's interest in proper application of the Constitution and laws," or put another way "relief that no more directly and tangibly benefits [it] than it does the public at large,"*id.* at 573-74,112 S.Ct. 2130.

As to causation, the declaration of Michael MacCracken, the senior scientist on global change at the Office of the U.S. Global Change Research Program from 1993-2002, states that global warming is causing sea level increases like those in Massachusetts. "[T]he warming of the oceans and the increased melting of many mountain glaciers around the world ... were the major contributions to the rise in global sea level by 10-20 cm (4 to 8 inches) observed over the past century" and the "environmental impacts of projected global warming will include ... an increase in sea level at an average rate of about .5 to 3.5 inches per decade, reaching 4-35 inches by the end of the century (with the most likely value being, in my expert opinion, near or above the middle of this range)." MacCracken Decl. ¶ 5(c)-(d); *see also id.* ¶ 23. MacCracken further states that global warming is chiefly triggered by human-caused GHG emissions, *see id.* ¶ ¶ 5(a)-(b), 12-19, with "the U.S. transportation sector (mainly automobiles) ... responsible for about 7% of global fossil fuel emissions,"*id.* ¶ 31.

Finally, as to redressability, MacCracken emphasizes that "[a]chievable reductions in emissions of CO_2 and other [GHGs] from U.S. motor vehicles would ... delay and moderate many of the adverse impacts of global warming." *Id.* ¶ 5(e). Elaborating, he states that "[g]iven the large emissions of CO_2 and other [GHGs] from motor vehicles in the United States and the lead time needed to economically introduce changes into the motor vehicle fleet, emission reductions must be initiated in the near future in order to significantly reduce and delay the impacts of global warming." *Id.* ¶ 31. Because the extent of damage to the Massachusetts coastline depends on the magnitude of the rise in sea level, a reduction in this projected adverse consequence of global warming would partially redress Massachusetts's injury. *See Tozzi v. U.S. Dep't of Health & Human Servs.,* 271 F.3d 301, 310 (D.C.Cir.2001) (holding that a petitioner need only demonstrate it would receive "at least some" relief to establish redressability). Nowhere disputing this proposition, EPA instead claims that MacCracken's conclusion depends upon the assumption that other countries will follow the U.S. lead and regulate motor vehicle GHG emissions. Even were this reading of the declaration correct-a dubious premise given MacCracken's unqualified ****298 *66** language focusing on U.S. emissions reduction-the uncontested declaration of Michael Walsh, a consultant on motor vehicle pollution technology and at one point director of EPA's motor vehicle pollution control efforts,

provides a basis for concluding that other countries would come to mandate technology developed in response to U.S. regulation. Describing how in the past other countries have come to require such technology, Walsh concludes that "[o]n the basis of my experience with the control of other pollutants ... I have no doubt that establishing emissions standards for pollutants that contribute to global warming would lead to investment in developing improved technologies to reduce those emissions from motor vehicles, and that successful technologies would gradually be mandated by other countries around the world." Walsh Decl. ¶ ¶ 7-8, 10.

Judge Randolph, accepting that the declarations "do 'support each element' of standing," nonetheless questions whether this is enough. *See* op. of Randolph, J., at 55 (quoting *Sierra Club*, 292 F.3d at 899). Specifically, he believes we confront a question left open in our *Sierra Club* decision. In that case, we held that "[t]he petitioner's burden of production in the court of appeals is ... the same as that of a plaintiff moving for summary judgment in the district court: it must support each element of its claim to standing 'by affidavit or other evidence.' " 292 F.3d at 899 (quoting *Lujan*, 504 U.S. at 561, 112 S.Ct. 2130). But we never explicitly addressed what happens if the agency submits evidence that contradicts that of petitioners. Do we resolve factual disputes in petitioners' favor, return the case to the agency for fact-finding, send the matter to a special master, or pursue some other course of action?

The issue is fascinating, but we need not confront it. Given that the burdens of production here are comparable to those at summary judgment, *see*292 F.3d at 899, if EPA wants to challenge the facts petitioners have set forth in their affidavits, it has an obligation to respond to the petitioners by "citing any record evidence relevant to ... standing and, if necessary, appending to its filing additional affidavits or other evidence,"*see id.* at 900-01. EPA makes no such challenge.

Indeed, if anything, the order under review appears to support petitioners' standing. While, drawing on the NRC Report, EPA observes that "there continue to be important uncertainties in our understanding of the factors that may affect future climate change,"68 Fed.Reg. at 52,930, EPA never denies the "substantial probability," *see Sierra Club*, 292 F.3d at 898, that injurious global warming is occurring. Quite to the contrary, EPA "agree[s] with the President that 'we must address the issue of global climate change.' " 68 Fed.Reg. at 52,929 (quoting presidential statement of Feb. 14, 2002). As to causation and redressability, the petition denial emphasizes that "EPA is also working to encourage voluntary GHG emission reductions from the transportation sector" and that "the Administration's global climate change policy includes promoting the development of fuel-efficient motor vehicles and trucks, researching options for producing cleaner fuels, and implementing programs to improve energy efficiency." *Id.* at 52,932; *see also* NRC Rep. at 1 (noting that "national policy decisions made now ... will influence the extent of any damage" caused by global warming). EPA would presumably not bother with such efforts if it thought emissions reductions would have no discernable impact on future global warming.

***67 **299** Because EPA nowhere challenges petitioners' declarations, I see no reason to consider what we would do if it had done so. Thus, unlike Judge Randolph, I think it unnecessary to address whether we can carve out exceptions to the Supreme Court's seemingly unqualified holding that "a merits question cannot be given priority over an Article III question,"*Steel Co. v. Citizens for a Better Env't*, 523 U.S. 83, 97 n. 2, 118 S.Ct. 1003, 140 L.Ed.2d 210 (1998). The Commonwealth of Massachusetts has adequately demonstrated its standing, and our jurisdiction is plain.

As to the merits, the threshold question is this: does the Clean Air Act authorize EPA to regulate emissions based on their effects on global climate? Taking a constricted view, EPA insists it has no authority to regulate GHG emissions even if they contribute to substantial and harmful global warming. By contrast, petitioners claim that Congress has plainly given EPA the authority it says it lacks.

"If a court, employing traditional tools of statutory construction, ascertains that Congress had an intention on the precise question at issue, that intention is the law and must be given effect." *Chevron U.S.A., Inc. v. Natural Res. Def. Council, Inc.*, 467 U.S. 837, 843 n. 9, 104 S.Ct. 2778, 81 L.Ed.2d 694 (1984). The inquiry "begin[s], as always, with the plain language of the statute in question." *Consumer Elecs. Ass'n v. FCC*, 347 F.3d 291, 297 (D.C.Cir.2003) (quoting *Citizens Coal Council v. Norton*, 330 F.3d 478, 482 (D.C.Cir.2003)). CAA section 202(a)(1), added by Congress in 1965 and amended in 1970 and 1977,

provides,

The Administrator shall by regulation prescribe ... standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines which in his judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.

42 U.S.C. § 7521(a)(1). This language plainly authorizes regulation of (1) any air pollutants emitted from motor vehicles that (2) in the Administrator's judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare. EPA's claimed lack of authority relates to the first of these two elements. According to EPA, GHGs like CO_2, CH_4, N_2O, and hydrofluorocarbons (HFCs) "are not air pollutants." 68 Fed.Reg. at 52,928.

Congress, however, left EPA little discretion in determining what are "air pollutants." Added in 1970 and amended in 1977, CAA section 302(g) defines the term as follows:

The term 'air pollutant' means any air pollution agent or combination of such agents, including any physical, chemical, biological, radioactive ... substance or matter which is emitted into or otherwise enters the ambient air.

42 U.S.C. § 7602(g). This exceedingly broad language plainly covers GHGs emitted from motor vehicles: they are "physical [and] chemical ... substance [s] or matter ... emitted into ... the ambient air." Indeed, in one CAA provision, added in 1990, Congress explicitly included CO_2 in a partial list of "air pollutants." Section 103(g) instructs the Administrator to research "nonregulatory strategies and technologies for preventing or reducing multiple air pollutants, including sulfur oxides, nitrogen oxides, heavy metals, PM-10 (particulate matter), carbon monoxide, and *carbon dioxide*." *Id.* § 7403(g) (emphasis added). Faced with such language, a court-as well as an agency-would normally end the analysis here and conclude ****300 *68** that GHGs are "air pollutants," since "[w]e 'must presume that a legislature says in a statute what it means and means in a statute what it says .... When the words of a statute are unambiguous ... this first canon is also the last: judicial inquiry is complete.' " *Teva Pharm. Indus. Ltd. v. Crawford*, 410 F.3d 51, 53 (D.C.Cir.2005) (quoting *Conn. Nat'l Bank v. Germain*, 503 U.S. 249, 253-54, 112 S.Ct. 1146, 117 L.Ed.2d 391 (1992)) (omissions in original).

Unswayed by what it calls "narrow semantic analyses," Resp't Br. at 55-but what courts typically call *Chevron* step one-EPA claims that a "more holistic analysis ... [of] the text, structure, and history of the CAA as a whole, as well as the context provided by other legislation that is specific to climate change," justifies its conclusion that it cannot regulate GHGs like CO_2 for their effects on climate change, *id.* at 25-26. To disregard the Act's plain text in this way, EPA needs an "extraordinarily convincing justification." *Appalachian Power Co. v. EPA*, 249 F.3d 1032, 1041 (D.C.Cir.2001). "For the EPA to avoid a literal interpretation at *Chevron* step one, it must show either that, as a matter of historical fact, Congress did not mean what it appears to have said, or that, as a matter of logic and statutory structure, it almost surely could not have meant it." *Engine Mfrs. Ass'n v. EPA*, 88 F.3d 1075, 1089 (D.C.Cir.1996).

EPA offers four reasons for abandoning the Act's text. First, it suggests that since the 1965, 1970, and 1977 Congresses were not specifically concerned with global warming, the Act cannot apply to GHGs. Second, it claims that for both practical and policy reasons, global pollution should be tackled through specific statutory provisions rather than general ones. Third, relying on *FDA v. Brown & Williamson Tobacco Corp.*, 529 U.S. 120, 120 S.Ct. 1291, 146 L.Ed.2d 121 (2000), it argues that Congress's passage of legislation calling for study of climate change, along with Congress's failure to pass any provisions tailored solely to regulating GHGs, demonstrates that the CAA cannot apply to GHGs. Finally, EPA suggests that Congress couldn't have intended the definition of "air pollutant" to cover CO_2, since EPA regulation of CO_2 emissions from automobiles would overlap with Department of Transportation (DOT) authority over fuel economy standards under a different act. None of these reasons provides a convincing justification-let alone an "extraordinarily convincing" one-for EPA's counter-textual position.

EPA first suggests that because the 1965, 1970, and 1977 Congresses showed little concern about the specific problem of global warming, reading the CAA's language to cover such problems would be like finding "an elephant in a mousehole." Tr. of Oral Arg. at 32; *see also* Resp't Br. at 23 (quoting *Whitman v. Am. Trucking Ass'ns*, 531 U.S. 457, 468, 121 S.Ct. 903, 149 L.Ed.2d 1 (2001)). EPA is correct that those Congresses spilled little ink on the issue of global warming: while the legislative history contains a few stray references to human-forced climate change, *see, e.g.*,111 Cong. Rec. 25,061

(Sept. 24, 1965) (statement of Rep. Helstoski); 116 Cong. Rec. 32,914 (Sept. 21, 1970) (report introduced in the record by Sen. Boggs), in those years the scientific understanding of the issue was nascent at best, *see, e.g., Environmental Quality: The First Annual Report of the Council on Environmental Quality* 93 (1970) (noting that "[m]an may be changing his weather" but expressing uncertainty as to whether global warming or cooling was occurring). But EPA errs in suggesting that because Congress may not have precisely foreseen global warming, the Act provides no authorization for GHG regulation. Hardly a mousehole, the definition of "air pollutants"-***69 **301** "including any physical, chemical, biological, radioactive ... substance or matter which is emitted into or otherwise enters the ambient air"-enables the Act to apply to new air pollution problems as well as existing ones. "[T]he fact that a statute can be applied in situations not expressly anticipated by Congress," the Supreme Court has explained, "does not demonstrate ambiguity. It demonstrates breadth." *PGA Tour, Inc. v. Martin*, 532 U.S. 661, 689, 121 S.Ct. 1879, 149 L.Ed.2d 904 (2001) (quoting *Pa. Dep't of Corrections v. Yeskey*, 524 U.S. 206, 212, 118 S.Ct. 1952, 141 L.Ed.2d 215 (1998)). Indeed, Congress expressly instructed EPA to be on the lookout for climate-related problems in evaluating risks to "welfare." Section 302(h), added in 1970, explains that "[a]ll language referring to effects on welfare includes, but is not limited to, effects on soils, water, crops, vegetation, manmade materials, animals, wildlife, weather, visibility, *and climate*." 42 U.S.C. § 7602(h) (emphasis added).

EPA's second reason for its interpretation-that for practical and policy reasons global warming should be dealt with through specifically tailored statutes-likewise fails to trump Congress's plain language. It may well be that a statute aimed solely at global warming would deal with the problem more effectively than one aimed generally at air pollution. But an agency may not "avoid the Congressional intent clearly expressed in the [statutory] text simply by asserting that its preferred approach would be better policy." *Engine Mfrs. Ass'n*, 88 F.3d at 1089. Perhaps recognizing this point, EPA attempts to link its policy arguments to the statute by claiming that because the 1977 and 1990 Congresses enacted provisions specific to another global pollution problem-depletion of stratospheric ozone-we must infer that the Act's general provisions do not cover such global problems. Once again, EPA makes much of very little. While the 1977 Congress did add provisions aimed specifically at ozone depletion, it also made clear that "[n]othing in this [ozone-specific] part shall be construed to alter or affect the authority of the Administrator under ... any other provision of this Act." Pub.L. No. 95-95, § 158, 91 Stat. 685, 730 (1977); *see also* H.R.Rep. No. 95-294, at 102 (1977) (expressing the House Committee's view that EPA could already regulate emissions to protect stratospheric ozone under an existing general provision of the CAA). Similarly, I see nothing in the 1990 Congress's enactment of other provisions specific to stratospheric ozone protection, *see* 42 U.S.C. § § 7671 to 7671q, indicating it thought EPA lacked authority under general provisions like section 202 to regulate emissions contributing to global pollution. This is particularly true since that Congress also enacted provisions specific to certain regional pollutants, *see, e.g., id.* § § 7651 to 7651o (acid rain control), which, pursuant to general CAA provisions, EPA already had authority to regulate.

EPA also attempts an unworkability argument. Its argument goes like this: another part of the CAA provides that the Administrator shall maintain a list of air pollutants that, among other things, "in [the Administrator's] judgment, cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare." *Id.* § 7408(a)(1)(A). Once pollutants go on this list, the Administrator must set national ambient air quality standards (NAAQS) for them, i.e., ambient air concentration levels that, in the Administrator's judgment, "are requisite to protect the public health" and in some areas are "requisite to protect the public welfare." *Id.* § 7409(b); *see also id.* § § 7407, 7410(a)(1). States must submit plans explaining how they will achieve these NAAQS. *Id.* § 7410. According to ****302 *70** EPA, these provisions would be unworkable if applied to CO_2: because CO_2 disperses relatively evenly throughout the lower atmosphere, states would have only minimal control over their atmospheric CO_2 concentrations and thus over whether they meet the CO_2 NAAQS. EPA then concludes that because CO_2 regulation would be unworkable in the NAAQS context, no general CAA provisions, including section 202(a)(1), authorize it to regulate any GHGs.

This unwieldy argument fails. Even assuming that states' limited ability to meet CO_2 NAAQS renders these provisions unworkable as to CO_2, *but see id.* § 7509a(a) (providing a safe harbor for states that fail to meet NAAQS due to emissions emanating from outside the country), the absurd-results canon would justify at most an exception limited to the particular unworkable provision, i.e., the NAAQS provision.

See Mova Pharm. Corp. v. Shalala, 140 F.3d 1060, 1068 (D.C.Cir.1998). As EPA acknowledges, regulating CO_2 emissions from automobiles is perfectly feasible. *See*68 Fed.Reg. at 52,929 (noting that "improving fuel economy" is a "practical way of reducing tailpipe CO_2 emissions" and that other technologies for reducing emissions may develop in the future).

In support of its third justification for abandoning the plain text of sections 202(a)(1) and 302(g), EPA relies on later congressional action (and inaction). Specifically, EPA points out (1) that all direct references to CO_2 or global warming in the 1990 CAA amendments appear in nonregulatory provisions; (2) that other congressional acts such as the 1978 National Climate Program Act, the 1987 Global Climate Protection Act, the 1990 Global Change Research Act, and the 1992 Energy Policy Act, as well as several appropriations riders, touch specifically on the issue of global warming, typically by instructing agencies to study the issue; and (3) that Congress has considered and rejected many bills specifically tailored to GHG emissions regulation since at least 1990. One might well wonder what all this has to do with whether GHGs are "air pollutants" within the meaning of CAA section 302(g). But relying almost exclusively on *Brown & Williamson,* 529 U.S. 120, 120 S.Ct. 1291, 146 L.Ed.2d 121, EPA claims that together these facts indicate that the CAA's general provisions do not cover GHGs. EPA also asserts that, as in *Brown & Williamson,* the "extraordinary" political and economic significance of the regulation requested casts doubt on the agency's authority to undertake it. *See* Resp't Br. at 21-22.

In *Brown & Williamson,* the Court considered whether the FDA had authority to regulate tobacco products. Although the Food, Drug, and Cosmetic Act's broad language suggested that it did, the Court, acknowledging that "a specific policy embodied in a later federal statute should control our construction of the [earlier] statute, even though it ha[s] not been expressly amended,"529 U.S. at 143, 120 S.Ct. 1291 (quoting *United States v. Estate of Romani,* 523 U.S. 517, 530-31, 118 S.Ct. 1478, 140 L.Ed.2d 710 (1998)) (alterations in original), concluded that the FDA lacked such authority. In reaching this conclusion, the Court relied on a direct, irreconcilable conflict between FDA jurisdiction over tobacco under the FDCA and later statutes expressly regulating tobacco. If the FDA had jurisdiction over tobacco products, it would have had to ban them entirely due to their health risks, yet the subsequent acts "reveal[ed Congress's] intent that tobacco products remain on the market." 529 U.S. at 139, 120 S.Ct. 1291. Moreover, as the Court emphasized-at least eighteen times by my count-the FDA had repeatedly claimed to have "no authority under the FDCA to regulate tobacco**303 *71 products,"*id.* at 157, 120 S.Ct. 1291, and "Congress's tobacco-specific statutes ha[d] effectively ratified the FDA's long-held position,"*id.* at 144, 120 S.Ct. 1291. *See generally id.* at 125-26, 130-31, 144-46, 151-57, 120 S.Ct. 1291.

EPA's reliance on *Brown & Williamson* is misplaced. To begin with, I am unconvinced by EPA's contention that its jurisdiction over GHG emissions would be as significant as FDA jurisdiction over tobacco. Acting under the CAA, EPA already extensively regulates the energy and transportation industries, whereas the FDA had no prior authority over the tobacco industry. Moreover, EPA jurisdiction would lead only to *regulation* of GHGs-with, in the case of section 202, regulation taking effect only *after*"such period as the Administrator finds necessary" for development of technology, "giving appropriate consideration to the cost of compliance,"42 U.S.C. § 7521(a)(2). By contrast, FDA jurisdiction over tobacco would have triggered a total product ban. But even assuming the implications are equally significant, this is not an "extraordinary" case where "common sense," *see* *Brown & Williamson,* 529 U.S. at 133, 159, 120 S.Ct. 1291, calls into question whether Congress has delegated EPA authority to regulate GHGs. Congress gave EPA broad authority to regulate all harmful pollutants, as section 202(a)(1)'s text makes clear. Congress did so intentionally, deeming it "not appropriate to exempt certain pollutants" from the Act's "comprehensive protections." *See*H.R.Rep. No. 95-294, at 42-43. And, as I explain below, no subsequent statutory indicia comparable to those relied on by the Court in *Brown & Williamson* justify a different conclusion.

Perhaps most significantly, no conflict exists between EPA's section 202(a)(1) authority to regulate GHGs and subsequent global warming legislation. Whereas an FDA ban on tobacco would have directly conflicted with congressional intent that tobacco remain on the market, EPA regulation of GHGs would be fully compatible with statutes proposing additional research and other nonregulatory approaches to climate change. Take the three 1990 CAA additions referencing carbon dioxide or global warming. Section 103(g) calls for "nonregulatory strategies and technologies" for reducing pollutants

like sulpher oxides, carbon monoxide, and carbon dioxide. 42 U.S.C. § 7403(g). While the section also provides that "[n]othing in this *subsection* shall be construed to authorize the imposition on any person of air pollution control requirements,"*id.*(emphasis added), it nowhere suggests that EPA lacks authority to regulate carbon dioxide-or, for that matter, sulpher oxides, carbon monoxide, and other pollutants-under different parts of the Act. Section 602(e) is similar. One sentence requires the Administrator to "publish the global warming potential" of certain listed substances, and the next sentence notes that "[t]he preceding sentence shall not be construed to be the basis of any additional regulation under this chapter." *Id.* § 7671a(e). Once again, nothing in this provision bars regulation under other parts of the Act. The third provision-an uncodified section-merely requires sources subject to the Act's Title V to "monitor carbon dioxide emissions," and says nothing about regulation one way or the other. Pub.L. No. 101-549, § 821, 104 Stat. 2399, 2699 (1990). Other climate-related acts similarly demonstrating congressional intent that global climate issues receive study and attention are likewise perfectly compatible with GHG regulation. *See generally* National Climate Program Act of 1978, Pub.L. No. 95-367, 92 Stat. 601; Global Climate Protection Act of 1987, Pub.L. No. 100-204, § § 1101-1106, ****304 *72** 101 Stat. 1331, 1407-09; Global Change Research Act of 1990, Pub.L. No. 101-606, 104 Stat. 3096; Energy Policy Act of 1992, Pub.L. No. 102-486, 106 Stat. 2776.

Furthermore, and unlike subsequent tobacco legislation that "effectively ratified the FDA's previous position,"*Brown & Williamson*, 529 U.S. at 156, 120 S.Ct. 1291, this subsequent global-warming-related legislation passed without any assurance from EPA that the agency lacked authority to regulate GHGs. Quite to the contrary, at the time of the two appropriations riders relied on by EPA, *see, e.g.*, Pub.L. No. 105-276, 112 Stat. 2461, 2496 (1998) (barring use of funds for implementation of the Kyoto Protocol), EPA was taking the position that it possessed general authority to regulate GHG emissions under section 202(a)(1). *See* Memorandum, J. Cannon to C. Browner (April 10, 1998). Finally, the fact that later Congresses failed to pass bills specifically tailored to regulating global warming hardly provides a basis for inferring that earlier Congresses meant to exclude climate-endangering pollutants from the coverage of the CAA's general provisions. Not only is "subsequent legislative history ... a 'hazardous basis for inferring the intent of an earlier' Congress," but it "is a particularly dangerous ground ... when it concerns, as it does here ... proposal[s] that do[ ] not become law." *Pension Benefit Guar. Corp. v. LTV Corp.*, 496 U.S. 633, 650, 110 S.Ct. 2668, 110 L.Ed.2d 579 (1990) (citation omitted). Indeed, in interpreting the scope of the FDA's authority, the *Brown & Williamson* Court itself expressly declined to rely on failed legislation. 529 U.S. at 155, 120 S.Ct. 1291.

EPA has one last argument, applicable to CO_2 emissions alone, for claiming it lacks the authority the language of sections 202(a)(1) and 302(g) expressly bestow upon it. According to EPA, the only practical way to regulate CO_2 emissions from motor vehicles is to require increased fuel economy, since CO_2 is a byproduct of fuel combustion and "[n]o technology currently exists or is under development that can capture and destroy or reduce" CO_2 "emissions from motor vehicle tailpipes." 68 Fed.Reg. at 52,929. Such regulation, EPA reasons, would overlap substantially with DOT's authority under the 1975 Energy Policy and Conservation Act (EPCA) to set average fuel economy standards for certain classes of motor vehicles. *See*Pub.L. No. 94-163, § 502, 89 Stat. 871, 902-07 (1975). Though recognizing that no direct conflict would occur since both agencies would set minimum standards, EPA concludes that "any EPA effort to set CO_2 tailpipe emissions under the CAA would either abrogate EPCA's regime (if the standards were effectively more stringent than the applicable [DOT] standard) or be meaningless (if they were effectively less stringent)." 68 Fed.Reg. at 52,929.

EPA may well be correct that setting standards for fuel economy (rather than for capturing tailpipe emissions) represents its only currently practical option for regulating CO_2 emissions. *But cf.* 42 U.S.C. § 7521(a)(2) (requiring section 202(a)(1) regulation to take effect only "after such period as the Administrator finds necessary to permit the development and application of the requisite technology"). But given that the two regulatory regimes-one targeted at fuel conservation and the other at pollution prevention-are overlapping, not incompatible, there is no reason to assume that Congress exempted CO_2 from the meaning of "air pollutant" within the CAA, particularly since section 103(g) explicitly calls CO_2 an "air pollutant." Where two "statutes are 'capable of co-existence,' it becomes the *duty* of this court 'to regard each as effective'-at least absent clear congressional intent to the contrary." ****305*73***FTC v. Ken Roberts Co.*, 276 F.3d 583, 593 (D.C.Cir.2001) (quoting *Morton v. Mancari*, 417 U.S. 535, 551, 94 S.Ct. 2474, 41

L.Ed.2d 290 (1974)). Moreover, Congress acknowledged, and indeed accepted, the possibility of regulatory overlap. Not only does the current EPCA recognize the relevance of "the effect of other motor vehicle standards of the Government on fuel economy,"49 U.S.C. § 32902(f); *see also* EPCA, Pub.L. No. 94-163, § 502(e), 89 Stat. at 905, but in passing the 1977 CAA amendments Congress emphasized that EPA regulation under the CAA should go forward even where it overlaps with responsibilities given to other agencies under other acts, *see*H.R.Rep. No. 95-294, at 42-43 (explaining that Congress was amending section 302(g) to broaden the meaning of "air pollutants" and make clear that EPA has authority even over pollutants already regulated by another agency). As the 1977 House Report explained, "the Clean Air Act is the comprehensive vehicle for protection of the Nation's health from air pollution. In the committee's view, it is not appropriate to exempt certain pollutants or certain sources from the comprehensive protections afforded by the Clean Air Act."*Id.*

In sum, GHGs plainly fall within the meaning of "air pollutant" in section 302(g) and therefore in section 202(a)(1). If "in [the Administrator's] judgment" they "cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare,"42 U.S.C. § 7521(a)(1), then EPA has authority-indeed, the obligation-to regulate their emissions from motor vehicles.

EPA's second reason for refusing to act-what EPA's counsel termed "the fallback argument," Tr. of Oral Arg. at 41-is that even if GHGs are air pollutants, the agency gave appropriate reasons and acted within its discretion in denying the petition for rulemaking. EPA stresses that our "arbitrary and capricious" standard of review is particularly deferential in reviewing an agency refusal to institute rulemaking. *See* Resp't Br. at 11-12; *cf. Motor Vehicle Mfrs. Ass'n v. EPA*, 768 F.2d 385, 389 n. 6 (D.C.Cir.1985) (observing that the CAA judicial review provisions are identical to those in the APA). This is certainly true, but this court must nonetheless "consider whether the agency's decisionmaking was reasoned," and we will not permit the agency to make "plain errors of law." *See Am. Horse Protection Ass'n, Inc. v. Lyng*, 812 F.2d 1, 5 (D.C.Cir.1987) (internal quotation marks omitted). Indeed, "the agency has the heaviest of obligations to explain and expose every step of its reasoning," so that we can "exercis[e] our responsibility to determine whether [its] decision is 'arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.' " *See Am. Lung Ass'n v. EPA*, 134 F.3d 388, 392-93 (D.C.Cir.1998) (quoting 42 U.S.C. § 7607(d)(9)) (reviewing EPA's denial of a petition to revise a NAAQS).

In my view, EPA has failed to satisfy this standard. Indeed, reading the relevant sections of EPA's petition denial-one titled "No Mandatory Duty," another "Different Policy Approach," and a third "Administration Global Climate Change Policy," *see*68 Fed.Reg. at 52,929, 52,931-I find it difficult even to grasp the basis for EPA's action. In its brief, EPA describes the petition denial as claiming that if the agency thinks regulating GHGs is a bad idea, the Administrator has discretion to withhold making a "judgment," known as an "endangerment finding," that GHG emissions "cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare,"*see*42 U.S.C. § 7521(a)(1). Yet the denial itself****306 *74** seems to rest more clearly (albeit still not clearly) on a belief that even if the Administrator makes an endangerment finding, that finding triggers no duty to set emission standards. In the end, though, it makes no difference whether one or both rationales are genuinely given in the petition denial or whether they instead amount to post hoc rescue attempts. As I explain below, neither rationale is acceptable in light of section 202(a)(1)'s mandate.

EPA's Discretion to Make an Endangerment Finding

In the petition denial, EPA states:

[T]he CAA provision authorizing regulation of motor vehicle emissions does not impose a mandatory duty on the Administrator to exercise her judgment. Instead, section 202(a)(1) provides the Administrator with discretionary authority to address emissions .... While section 202(a)(1) uses the word 'shall,' it does not require the Administrator to act by a specified deadline and it conditions authority to act on a discretionary exercise of the Administrator's judgment regarding whether motor vehicle emissions cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare.

68 Fed.Reg. at 52,929. Expounding on this passage, EPA argues in its brief that "[t]he ICTA Petition Denial reflects EPA's decision *not* to make *any* endangerment finding-either affirmative or negative-

under section 202(a)(1)." Resp't Br. at 62-63. In EPA's view, "the Agency's authority to make the threshold finding is discretionary" and petitioners err in suggesting that "if the statutory test for making the finding is met, EPA has no choice but to set standards." *Id.* at 57 (internal quotation marks omitted).

EPA's brief also turns several policy concerns raised in other portions of its petition denial into rationales for holding off examining endangerment. These concerns include the following: (1) "there continue to be important uncertainties in our understanding of the factors that may affect future climate change and how it should be addressed"; (2) petitioners identified no technologies for reducing CH_4, N_2O, and HFC emissions, and technologies for reducing CO_2 emissions either overlap with DOT's authority or require further development; (3) regulation "would also result in an inefficient, piecemeal approach to addressing the climate change issue," as the "U.S. motor vehicle fleet is one of many sources of GHG emissions both here and abroad"; (4) "[u]nilateral EPA regulation of motor vehicle GHG emissions could also weaken U.S. efforts to persuade key developing countries to reduce the GHG intensity of their economies"; and (5) "EPA disagrees with the regulatory approach urged by petitioners," instead preferring "a number of nonregulatory approaches to reducing GHG emissions" in line with "the President's global climate change policy" of "support[ing] vital global climate research and lay[ing] the groundwork for future action by investing in science, technology, and institutions." *See*68 Fed.Reg. at 52,929-33.

EPA's reasoning is simply wrong. In effect, EPA has transformed the limited discretion given to the Administrator under section 202-the discretion to determine whether or not an air pollutant causes or contributes to pollution which may reasonably be anticipated to endanger public health or welfare-into the discretion to withhold regulation because it thinks such regulation bad policy. But Congress did not give EPA this broader authority, and the agency may not usurp it.

Section 202(a)(1)'s language-the "Administrator shall by regulation prescribe ****307 *75** ... standards applicable to the emission of any air pollutant from ... new motor vehicles ... which in his judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare,"42 U.S.C. § 7521(a)(1)-establishes the limits of EPA's discretion. This section gives the Administrator the discretion only to "judg [e]," within the bounds of substantial evidence, whether pollutants " cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." If conflicting credible evidence exists, e.g., some evidence suggesting that GHGs may reasonably be anticipated to endanger welfare and other evidence suggesting the opposite, then the Administrator has discretion in weighing this evidence. If the facts are known but require no single conclusion as to whether a pollutant "may reasonably be anticipated to endanger public health or welfare"-such as in a case where there exists a small-to-moderate risk that a pollutant will cause a small-to-moderate amount of harm-then the Administrator has discretion in assessing whether these facts amount to endangerment. If the Administrator concludes based on substantial evidence that more research is needed before he can judge whether GHGs may reasonably be anticipated to endanger welfare, then he has discretion to hold off making a finding.

But section 202(a)(1) plainly limits the Administrator's discretion-his judgment-to determining whether the statutory standard for endangerment has been met. The Administrator has no discretion either to base that judgment on reasons unrelated to this standard or to withhold judgment for such reasons. In claiming otherwise, EPA not only ignores the statute's language, but also fails to reckon with this circuit's related precedent.

Our en banc decision in *Natural Resources Defense Council, Inc. v. EPA*, 824 F.2d 1146 (D.C.Cir.1987), makes clear that the Administrator may only exercise "judgment" in evaluating whether the statutory standard has been met. There, considering a CAA provision authorizing the Administrator to set emission standards "at the level which in his judgment provides an ample margin of safety to protect the public health,"42 U.S.C. § 7412(b)(1)(B) (1982) (quoted in 824 F.2d at 1147), we held that the Administrator had to base his determination on what level would "provide an 'ample margin of safety.' " *See*824 F.2d at 1164-65. We struck down his proposed standards because he failed to ground them in the statute. *See id.* at 1163-64 ("[T]he Administrator has made no finding with respect to the effect of the chosen level of emissions on health.... Nowhere in the decision did the Administrator state that the 1976 emission standards provide an 'ample margin of safety.' ").

Similarly, in *Ethyl Corp. v. EPA*, 541 F.2d 1

(D.C.Cir.1976) (en banc), we considered whether EPA appropriately linked its policy analysis to the statutory standard. That case involved EPA's decision to regulate leaded gasoline pursuant to CAA section 211(c)(1)(A), 42 U.S.C. § 1857f-6c(1)(A) (1976), *currently codified as amended at*42 U.S.C. § 7545(c)(1)(A), which at that time provided that the Administrator "may" regulate fuel additives "if any emission products of such ... fuel additive[s] will endanger the public health or welfare." Determining that lead in gasoline presented " 'a significant risk of harm' to the public health,"541 F.2d at 7, EPA regulated it. Industry petitioners objected, claiming that the Administrator needed "proof of actual harm rather than of 'a significant risk of harm.' " *Id.* at 12. Siding with EPA, we held that the agency had discretion in determining what level of ****308 *76** harm-or risk of harm-constitutes endangerment. *Id.* We indicated that such determinations involve policy issues, but-as Judge Randolph neglects to mention, *see* op. of Randolph, J., at 57 - 58 -these policy issues all related to whether the statutory standard had been met, i.e., to whether lead in gasoline endangered public health. *See, e.g.,*541 F.2d at 24 (observing that "a determination of endangerment to public health is necessarily a question of policy that is to be based on an assessment of risks and that should not be bound by either the procedural or the substantive rigor proper for questions of fact"); *id.* at 26 (noting that "the statute accords the regulator flexibility to assess risks and make essentially legislative policy judgments"). Indeed, *Ethyl* makes quite clear that the Administrator's policy-based discretion is limited to the terms of the statute. "All this is not to say that Congress left the Administrator free to set policy on his own terms. To the contrary, the policy guidelines are largely set, both in the statutory term 'will endanger' and in the relationship of that term to other sections of the Clean Air Act. These prescriptions direct the Administrator's actions." *Id.* at 29; *cf. Brown & Williamson,* 529 U.S. at 140, 120 S.Ct. 1291 (noting that the FDA's "judgment" about how best to achieve public health goals is "no substitute for the specific safety determinations required by the FDCA's various operative provisions").

In yet another case, *Her Majesty the Queen in Right of Ontario v. EPA,* 912 F.2d 1525 (D.C.Cir.1990), we held that for EPA to decline to make an endangerment finding, it must have a statutorily based reason for doing so. The CAA section at issue provided that when the Administrator had "reason to believe that any air pollutant or pollutants emitted in the United States cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare in a foreign country ..., the Administrator shall give formal notice thereof to the Governor of the State in which such emissions originate." *Id.* at 1527-28 (quoting 42 U.S.C. § 7415(a) (1982)) (omission in original). Petitioners alleged that the Administrator acted unreasonably in holding off making an endangerment finding as to acid rain, which strong evidence (including informal EPA statements) indicated was coming from the United States and endangering Canadian welfare. *Id.* at 1529. We held that EPA acted reasonably in postponing a formal endangerment finding *only* because it gave a reasonable statutory basis for doing so. Specifically, because EPA still lacked information as to which states were causing the harmful acid rain, it would have been "pointless" for the agency to make an endangerment finding given the "specific [statutory] linkage between the endangerment finding and the remedial procedures," i.e., notifying offending states. *Id.* at 1533. "For this reason," we found EPA's decision to postpone an endangerment finding "both reasonable and consistent with the statute." *Id.*

In short, EPA may withhold an endangerment finding only if it needs more information to determine whether the statutory standard has been met. Similarly, for EPA to find no endangerment (as Judge Randolph, going beyond the agency's own arguments, appears to claim happened here, *see* op. of Randolph, J., at 57, 58), it must ground that conclusion in the statutory standard and may not rely on unrelated policy considerations.

The statutory standard, moreover, is precautionary. At the time we decided *Ethyl,* section 202(a)(1) and similar CAA provisions either authorized or required the Administrator to act on finding that emissions led to "air pollution *which endangers* the public health or welfare." *See*77* ****309** 42 U.S.C. § 1857f-1(a)(1) (1976) (emphasis added). After Ethyl found that "the statutes and common sense *demand* regulatory action to prevent harm, even if the regulator is less than certain that harm is otherwise inevitable,"*Ethyl,* 541 F.2d at 25 (emphasis added), the 1977 Congress not only approved of this conclusion, *see*H.R.Rep. No. 95-294, at 49, but also wrote it into the CAA. Section 202(a) (1) (along with other provisions, *see*H.R.Rep. No. 95-294, at 50) now requires regulation to precede certainty. It requires regulation where, in the Administrator's judgment, emissions "contribute to air pollution *which may reasonably be anticipated to endanger* public health or welfare." 42 U.S.C. § 7521(a)(1) (emphasis added). As the

House Report explained: "In order to emphasize the precautionary or preventative 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 to health; the committee also added the words 'may reasonably be anticipated to.' " H.R.Rep. No. 95-294, at 51 (emphasis added).

Given this framework, it is obvious that none of EPA's proffered policy reasons justifies its refusal to find that GHG emissions "contribute to air pollution which may reasonably be anticipated to endanger public health or welfare." Unlike in *Her Majesty the Queen,* EPA's proffered reasons for refusing to make an endangerment finding have no connection to the statutory standard. Instead, as in *Natural Resources Defense Council* (where we found EPA to have acted arbitrarily and capriciously), EPA has "ventured into a zone of impermissible action" by "simply substitut[ing]" freestanding policy concerns for the sort of evaluation required by the statute. *See*824 F.2d at 1163. A look at these policy concerns proves the point.

First, EPA claims that global warming still has many scientific uncertainties associated with it. *See*68 Fed.Reg. at 52,930-31; *see also* op. of Randolph, J., at 11-13. In this regard, EPA makes much of the NRC's statements that a link between human-caused atmospheric GHG concentration increases and this past century's warming "cannot be unequivocally established"; that "a wide range of uncertainty" remains "inherent in current model predictions" due to imprecise variables like future emissions rates, climate sensitivity, and the forcing effects of aerosols; and that "current estimate [sic] of the magnitude of future warming should be regarded as tentative and subject to future adjustments (either upward or downward)." *See*68 Fed.Reg. at 52,930 (quoting NRC Rep. at 1, 17); *see also* op. of Randolph, J., at 56 - 58. But the CAA nowhere calls for proof. It nowhere calls for "unequivocal" evidence. Instead, it calls for the Administrator to determine whether GHGs "contribute to air pollution which *may reasonably be anticipated* to endanger" welfare. EPA never suggests that the uncertainties identified by the NRC Report prevent it from determining that GHGs "may reasonably be anticipated to endanger" welfare. In other words, just as EPA failed in *Natural Resources Defense Council* to explain its chosen emissions level in light of the statutory standard, so the agency has failed here to explain its refusal to find endangerment in light of the statutory standard.

EPA's silence on this point is telling. Indeed, looking at the NRC Report as a whole, I doubt EPA could credibly conclude that it needs more research to determine whether GHG-caused global warming "may reasonably be anticipated to endanger" welfare. Though not offering certainty, the report demonstrates that matters are well within the "frontiers of scientific knowledge," *see* op. of Randolph, J., at 58 ****310 *78** (quoting *Envtl. Def. Fund v. EPA,* 598 F.2d 62, 82 (D.C.Cir.1978)). The report also indicates that the projected consequences of global warming are serious. Because neither EPA nor Judge Randolph acknowledges, let alone evaluates, these projected effects, I quote the NRC's discussion of the "Consequences of Increased Climate Change of Various Magnitudes" in its entirety.

The U.S. National Assessment of Climate Change Impacts, augmented by a recent NRC report on climate and health, provides a basis for summarizing the potential consequences of climate change. The National Assessment directly addresses the importance of climate change of various magnitudes by considering climate scenarios from two well-regarded models (the Hadley model of the United Kingdom and the Canadian Climate Model). These two models have very different globally-averaged temperature increases (2.7 and 4.4°C (4.9 and 7.9°F), respectively) by the year 2100. A key conclusion from the National Assessment is that U.S. society is likely to be able to adapt to most of the climate change impacts on human systems, but these adaptations may come with substantial cost. The primary conclusions from these reports are summarized for agriculture and forestry, water, human health, and coastal regions.

In the near term, agriculture and forestry are likely to benefit from CO_2 fertilization effects and the increased water efficiency of many plants at higher atmospheric CO_2 concentrations. Many crop distributions will change, thus requiring significant regional adaptations. Given their resource base, the Assessment concludes that such changes will be costlier for small farmers than for large corporate farms. However, the combination of the geographic and climatic breadth of the United States, possibly augmented by advances in genetics, increases the nation's robustness to climate change. These conclusions depend on the climate scenario, with hotter and drier conditions increasing the potential for declines in both agriculture and forestry. In addition, the response of insects and plant diseases to warming is poorly understood. On the regional scale and in the longer term, there is much more uncertainty.

Increased tendency towards drought, as projected by some models, is an important concern in every region of the United States even though it is unlikely to be realized everywhere in the nation. Decreased snow pack and/or earlier season melting are expected in response to warming because the freeze line will be moving to higher elevations. The western part of the nation is highly dependent on the amount of snow pack and the timing of the runoff. The noted increased rainfall rates have implications for pollution run-off, flood control, and changes to plant and animal habitat. Any significant climate change is likely to result in increased costs because the nation's investment in water supply infrastructure is largely tuned to the current climate.

Health outcomes in response to climate change are the subject of intense debate. Climate change has the potential to influence the frequency and transmission of infectious disease, alter heat- and cold-related mortality and morbidity, and influence air and water quality. Climate change is just one of the factors that influence the frequency and transmission of infectious disease, and hence the assessments view such changes as highly uncertain. This said, changes in agents that transport infectious diseases (e.g., mosquitoes, ticks, rodents) are likely to occur with any **311 *79 significant change in precipitation and temperature. Increases in mean temperatures are expected to result in new record high temperatures and warm nights and an increase in the number of warm days compared to the present. Cold-related stress is likely to decline whereas heat stress in major urban areas is projected to increase if no adaptation occurs. The National Assessment ties increases in adverse air quality to higher temperatures and other air mass characteristics. However, much of the United States appears to be protected against many different adverse health outcomes related to climate change by a strong public health system, relatively high levels of public awareness, and a high standard of living. Children, the elderly, and the poor are considered to be the most vulnerable to adverse health outcomes. The understanding of the relationships between weather/climate and human health is in its infancy and therefore the health consequences of climate change are poorly understood. The costs, benefits, and availability of resources for adaptation are also uncertain.

Fifty-three percent of the U.S. population lives within the coastal regions, along with billions of dollars in associated infrastructure. Because of this, coastal areas are more vulnerable to increases in severe weather and sea level rise. Changes in storm frequency and intensity are one of the more uncertain elements of future climate change prediction. However, sea level rise increases the potential damage to coastal regions even under conditions of current storm intensities and can endanger coastal ecosystems if human systems or other barriers limit the opportunities for migration.

In contrast to human systems, the U.S. National Assessment makes a strong case that ecosystems are the most vulnerable to the projected rate and magnitude of climate change, in part because the available adaptation options are very limited. Significant climate change will cause disruption to many U.S. ecosystems, including wetlands, forests, grasslands, rivers, and lakes. Ecosystems have inherent value, and also supply the country with a wide variety of ecosystem services.

The impacts of these climate changes will be significant, but their nature and intensity will depend strongly on the region and timing of the occurrence. At a national level, the direct economic impacts are likely to be modest. However, on a regional basis the level and extent of both beneficial and harmful impacts will grow. Some economic sectors may be transformed substantially and there may be significant regional transitions associated with shifts in agriculture and forestry. Increasingly, climate change impacts will have to be placed in the context of other stresses associated with land use and a wide variety of pollutants. The possibility of abrupt or unexpected changes could pose greater challenges for adaptation.

Even the mid-range scenarios considered in the IPCC result in temperatures that continue to increase well beyond the end of this century, suggesting that assessments that examine only the next 100 years may well underestimate the magnitude of the eventual impacts. For example a sustained and progressive drying of the land surface, if it occurred, would eventually lead to desertification of regions that are now marginally arable, and any substantial melting or breaking up of the Greenland and Antarctic ice caps could cause widespread coastal inundation.

**80 **312 NRC Rep. at 19-20 (footnotes omitted). I have grave difficulty seeing how EPA, while treating the NRC Report as an "objective and independent assessment of the relevant science,"68 Fed.Reg. at 52,930, could possibly fail to conclude that global warming "may reasonably be anticipated to endanger public health or welfare,"42 U.S.C. § 7521(a)(1), with effects on welfare including "effects on soil, water, crops, vegetation, manmade materials, animals, wildlife, weather, visibility, and climate, damage to and deterioration of property, and hazards to transportation, as well as effects on economic

values and on personal comfort and well-being,"*id.* § 7602(h). It thus comes as no surprise that EPA's petition denial not only undertakes none of the risk assessments described in *Ethyl*, 541 F.2d at 28 & n. 58, but also utterly ignores the statutory standard.

EPA similarly fails to link its second policy justification-that setting fuel economy standards represents the only currently available way to regulate CO_2 emissions and petitioners "make no suggestion[s]" for how to reduce CH_4, N_2O, and HFC emissions, 68 Fed.Reg. at 52,931-with the statutory standard. As discussed earlier, *supra* at 72 - 73, the fact that DOT sets fuel economy standards pursuant to the EPCA in no way prevents EPA from setting standards pursuant to the CAA. It is true that DOT has recently increased fuel economy standards for light trucks, *see*68 Fed.Reg. at 52,931; *see also* op. of Randolph, J., at 58 -a fact EPA did not even bother to mention in its brief-but unless DOT's action affects whether GHGs "contribute to air pollution which may reasonably be anticipated to endanger public health or welfare," it provides no support for EPA's decision.

As to EPA's point about other GHGs, it may well be that no current technologies exist for reducing their emissions. But once again, this has nothing at all to do with the statutory endangerment standard. Indeed, in section 202(a)(2), Congress has made it crystal clear that endangerment findings must not wait on technology.

> Any regulation prescribed under paragraph (1) of this subsection (and any revision thereof) shall take effect after such period as the Administrator finds necessary to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance within such period.

42 U.S.C. § 7521(a)(2). As the Senate Report explained, EPA "is expected to press for the development and application of improved technology rather than be limited by that which exists." S.Rep. No. 91-1196, at 24 (1970); *see also Natural Res. Def. Council, Inc. v. EPA*, 655 F.2d 318, 328 (D.C.Cir.1981) (referencing this legislative history). In refusing to make an endangerment finding because it lacks currently available technology for controlling these emissions, EPA goes well beyond the bounds of its statutory discretion.

EPA's final policy reasons likewise fail. Because other domestic and foreign sources contribute to atmospheric GHG concentrations, GHG regulation might well "result in an inefficient, piecemeal approach to addressing the climate change issue,"68 Fed.Reg. at 52,931. But again, Congress has expressly demanded such an approach. Section 202(a)(1) requires EPA to regulate if it judges that U.S. motor vehicle emissions "cause, or *contribute to,* air pollution,"42 U.S.C. § 7521(a)(1) (emphasis added); *see also Ethyl*, 541 F.2d at 29-31 (holding that the same language from section 211 plainly means that emissions merit regulation even if they are not the only source of air pollution). EPA (understandably) offers no basis for thinking**313 *81 that U.S. automobile emissions are not *contributing* to global warming. Indeed, why would the "Administration's global climate change policy plan support [ ] increasing automobile fuel economy,"*see*68 Fed.Reg. at 52,933, if motor vehicle emissions were contributing nothing to global warming? Similarly, EPA's concern that regulation could weaken U.S. negotiating power with other nations has nothing at all to do with whether GHGs contribute to welfare-endangering air pollution. Finally, while EPA obviously prefers nonregulatory approaches to regulatory ones, *see id.* at 52,932-33, Congress gave the Administrator discretion only in assessing whether global warming "may reasonably be anticipated to endanger" welfare, not "free[dom] to set policy on his own terms,"*Ethyl*, 541 F.2d at 29.

In short, EPA has utterly failed to relate its policy reasons to section 202(a)(1)'s standard. Indeed, nowhere in its policy discussion does EPA so much as mention this standard-"may reasonably be anticipated to endanger public health or welfare." *See*68 Fed.Reg. at 52,929-33 (the sections titled "Different Policy Approach" and "Administration Global Climate Change Policy"). EPA apparently dislikes the fact that section 202(a)(1) says the Administrator "shall" regulate-rather than "may" regulate-on making an endangerment finding. But EPA cannot duck Congress's express directive by declining to evaluate endangerment on the basis of policy reasons unrelated to the statutory standard. Although EPA is free to take its policy concerns to Congress and seek a change in the Clean Air Act, it must obey the law in the meantime.

EPA's Discretion After Making an Endangerment Finding

Alternatively, EPA may have believed that even if it made an endangerment finding, it had no obligation to regulate GHG emissions. The petition denial states,

EPA also disagrees with the premise of the petitioners' claim-that if the Administrator were to find that GHGs, in general, may reasonably be anticipated to endanger public health or welfare, she must necessarily regulate GHG emissions from motor vehicles. Depending on the particular problem, motor vehicles may contribute more or less or not at all. An important issue before the Administrator is whether, given motor vehicles' relative contribution to a problem, it makes sense to regulate them.... The discretionary nature of the Administrator's section 202(a)(1) authority allows her to consider these important policy issues and decide to regulate motor vehicle emissions as appropriate to the air pollution problem being addressed. Accordingly, even were the Administrator to make a formal finding regarding the potential health and welfare effects of GHGs in general, section 202(a)(1) would not require her to regulate GHG emission from motor vehicles.

68 Fed.Reg. at 52,929. This passage is puzzling. Motor vehicles emit GHGs in significant quantities, *see* U.S. Dep't of State, *U.S. Climate Action Report 2002,* at 40-a point EPA nowhere contests. The statute clearly states that the Administrator "*shall* by regulation prescribe ... standards" governing the emissions of air pollutants from motor vehicles if the Administrator makes an endangerment finding regarding these pollutants. 42 U.S.C. § 7521(a)(1) (emphasis added). *Compare id.*§ 7545(c)(1)(A) (using "may"). Refusing to regulate following an endangerment finding would violate the law. Indeed, EPA appears to have abandoned this argument. In a (rare) concession to the Act's text, EPA counsel acknowledged at oral argument, "I don't think that we ****314 *82** would contest that if the agency had made an endangerment finding, that then you would have to give some significance to the term 'shall' in [section] 202(a)." Tr. of Oral Arg. at 44.

Although this case comes to us in the context of a highly controversial question-global warming-it actually presents a quite traditional legal issue: has the Environmental Protection Agency complied with the Clean Air Act? For the reasons given above, I believe that EPA has both misinterpreted the scope of its statutory authority and failed to provide a statutorily based justification for refusing to make an endangerment finding. I would thus grant the petitions for review.

C.A.D.C.,2005.

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415 F.3d 50, 60 ERC 1641, 367 U.S.App.D.C. 282, 35 Envtl. L. Rep. 20,148, 13 A.L.R. Fed. 2d 899

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