ORAL ARGUMENT HEARD ON NOVEMBER 16, 2012

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

No. 08-1200 (and consolidated cases)

STATE OF MISSISSIPPI,
Petitioner,

v.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
Respondent.

Petition for Review of Final Administrative Action of the
United States Environmental Protection Agency

PETITION FOR PANEL REHEARING

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Dated: September 6, 2013

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GLOSSARY OF ACRONYMS AND ABBREVIATIONS

Pursuant to Circuit Rule 28(a)(3), the following is a glossary of acronyms and abbreviations used in this brief:

ALA Reply	Reply Brief for Environmental Petitioners
EPA	U.S. Environmental Protection Agency
NAAQS	National Ambient Air Quality Standards

STATEMENT OF BASIS FOR PANEL REHEARING

The panel's opinion fails to address a critical defect in EPA's ozone NAAQS decision—namely, the agency's complete failure to explain how the health standard provided an adequate margin of safety to sensitive populations. The panel attempts to infer methods by which EPA provided for a margin of safety, but the Court cannot supply rationales the agency itself did not articulate, and the panel cites nowhere in the record where EPA itself explained how it provided for a margin of safety here or why that margin was adequate. The panel also seriously erred in asserting that this Circuit has only reversed EPA margin of safety decisions based on "egregious procedural errors." The Court's precedent in fact supports reversal of EPA's margin of safety decisions under circumstances virtually identical to those presented here, where the agency merely asserted it provided for a margin of safety without explaining how. The agency's failure to explain here further directly flouted Circuit precedent holding that EPA has the "heaviest obligation" to expose and explain every step of its reasoning in setting health standards.

ARGUMENT

I. THE PANEL OPINION DID NOT ADDRESS EPA'S FAILURE TO PROVIDE A REASONED EXPLANATION OF HOW THE OZONE STANDARD PROVIDED AN ADEQUATE MARGIN OF SAFETY.

The panel opinion mistakenly viewed Petitioners' argument as being simply that the margin of safety was not large enough. *See* slip op. 31 (characterizing Petitioners as arguing that "a primary NAAQS lower than 0.075 ppm" was required "to ensure an adequate margin of safety"); *id.* 32 (indicating that Court would not exercise its "own untutored judgment about how large a margin is necessary"). Instead, Petitioners specifically argued, among other things, that EPA had failed to rationally explain how it was providing an adequate margin of safety, including for sensitive subpopulations. *E.g.*, Brief for Environmental Petitioners 33 ("EPA completely failed to consider or explain how its chosen standard of 0.075 ppm provided an adequate margin of safety against adverse effects that it deemed to be less certain at lower ozone levels.") (emphasis added); *id.* 34 ("The agency's bare assertion [that the 0.075 standard would protect public health with an adequate margin of safety] does not suffice as a reasoned explanation") (emphasis added); Opening Brief of State Petitioners 20 ("At a minimum, the Administrator committed the same error he committed in *American Farm Bureau* [*Federation v. EPA*, 559 F.3d 512 (D.C. Cir. 2009)]: he failed reasonably to explain how the primary standard protects at-risk groups with an adequate margin of safety.")

(emphasis added).[1]

The panel opinion did not address the adequacy of EPA's explanation at all. The opinion first notes that EPA has discretion to address the margin of safety throughout the NAAQS development process rather than adding a margin of safety at the end. Slip op. 31. The opinion goes on to indicate that EPA satisfied its margin of safety obligation by considering effects on sensitive populations and setting the standard at a level appreciably below the lowest level at which EPA expressed confidence that ozone causes adverse health effects in healthy individuals. *Id.* 32. The problem is that EPA itself never said it was providing a margin of safety in the manner described by the panel, or in any other manner. Although the panel opinion cites general EPA background statements about the margin of safety, *id.* (citing 73 Fed. Reg. 16,436, 16,437 (2008)), nowhere therein did EPA say what approach it was taking to address the margin of safety in this particular rule.

Although EPA has some discretion in choosing a method for providing the margin of safety, it must still "provide[] an explanation of why [it] chose one method rather than another." *Lead Indus. Ass'n v. EPA*, 647 F.2d 1130, 1162 (D.C. Cir. 1980). Here, EPA itself never said it was choosing any method, much less

[1] *See also, e.g.*, Reply Brief of State Petitioners 5; Reply Brief for Environmental Petitioners ("ALA Reply") 16-18.

explained why it chose one method rather than another. Moreover, this Court's precedent requires EPA to explain "how" it accounted for an adequate margin of safety and "why" the agency believes the NAAQS will provide it. *Farm Bureau*, 559 F.3d at 526; *see also Am. Trucking Ass'ns v. EPA*, 283 F.3d 355, 368 (D.C. Cir. 2002) (margin of safety considerations must be "fully explained"). The agency provided no such explanation in its action here. Indeed, as further detailed in Part II below, EPA's cursory treatment of the margin of safety here was almost identical to the approach held to be deficient in *Farm Bureau*.

EPA's failure to provide an explanation of how it accounted for the margin of safety is all the more indefensible because it occurred after CASAC expressly faulted the agency's Staff Paper for failing to do so. Indeed, CASAC was emphatic on this point, stating: "Significantly, the Final Ozone Staff Paper does not address the issue of a margin of safety…. [T]here is no explicit mention of a margin of safety, *per se*…. Such a discussion should be added to the document and taken into consideration in setting the primary standard." JA1444 (emphasis in original). Yet even after CASAC's express call for an explanation, EPA provided none.

EPA's cursory background discussion of factors relevant to the margin of safety, cited by the panel, slip op. 32 (citing 73 Fed. Reg. 16,437), plainly does not suffice as an explanation of how the agency provided for a margin of safety in this specific case, and why it was sufficient. *See Missouri Public Serv. Comm'n v.*

FERC, 601 F.3d 581, 586 (D.C. Cir. 2010) ("a passing reference to relevant factors…is not sufficient to satisfy the [agency's] obligation to carry out reasoned and principled decisionmaking." (internal quotation marks omitted; second alteration in original)). Under this Court's precedent, merely stating the governing legal or factual test is no substitute for applying that test to the record before the agency. *Douglas Foods Corp. v. NLRB*, 251 F.3d 1056, 1066 (D.C. Cir. 2001) ("The NLRB cannot discharge its obligation [to carry out an analysis of three factors and to weigh them] merely by citing the appropriate authority and averring that it gave proper consideration. It actually must consider the factors as they apply to the instant case, and explain the basis for its conclusions.").

In context of the Act's health standards, this Court is particularly emphatic that EPA has the "heaviest of obligations to explain and expose every step of its reasoning." *American Lung Ass'n v. EPA*, 134 F.3d 388, 392 (D.C. Cir. 1998) (emphasis added). Deference to EPA's expert judgment requires that the agency carefully and clearly explain exactly how it reached the result it did. *Id.* ("With its delicate balance of thorough record scrutiny and deference to agency expertise, judicial review can occur only when agencies explain their decisions with precision, for it will not do for a court to be compelled to guess at the theory underlying the agency's action." (alteration and internal quotation marks removed)).

Nor can EPA somehow be deemed to have explained its provision of a margin of safety merely because the agency considered ozone's effects on sensitive subpopulations, as the panel seems to suggest. Slip op. 32. EPA never said that its consideration of ozone's effects on sensitive populations was meant to address its margin of safety obligations in this rule. In fact, EPA never specifically explained how it was establishing a margin of safety for sensitive subpopulations. Acknowledging that these sensitive subpopulations exist and are more likely to suffer adverse effects at all ozone levels (slip op. 32) does not equate to explaining how or why the standard provides them with an adequate margin of safety.

That EPA failed to provide a clear explanation of how it accounted for the margin of safety requirement is further shown in the inconsistent attempts by the Court and EPA's lawyers to identify such an explanation. As discussed above, the panel initially noted that EPA could account for the margin of safety throughout the NAAQS development process, an approach that EPA's lawyers contended *post hoc*[2] that the agency in fact followed here. But the panel subsequently indicated its view that EPA added a margin of safety at the end, not throughout. *See* slip op. 32 ("As a result [of its acknowledgment of sensitive subpopulations], EPA set the

[2] ALA Reply 16-17; *see also* Brief for Respondent 106 (explaining that EPA Administrator may "take into account margin of safety considerations throughout the process as long as such considerations are fully explained and supported by the record" and asserting "That is what the Administrator did here").

standard 'appreciably below' 0.080 ppm…."). This confusion as to how EPA was accounting for the margin of safety further demonstrates that EPA failed to rationally explain what approach it was taking to the margin of safety. *See, e.g.*, *Palace Sports & Entertainment v. NLRB*, 411 F.3d 212, 224 (D.C. Cir. 2005) (agency failed to give reasonable explanation where its decision can be read in multiple ways). Moreover, the Court cannot supply a rationale EPA itself did not provide, particularly on a matter where the Court is reviewing the agency's exercise of its expert judgment. *See Otay Mesa Property v. Dept. of Interior*, 646 F.3d 914, 917 (D.C. Cir. 2011) ("This Court of course may not supply a reasoned basis for the agency's action that the agency itself has not given." (internal quotation marks omitted)).

EPA's failure to provide an explanation of how it accounted for the margin of safety here contrasts sharply with the agency's actions in other NAAQS decisions, where the agency did provide such explanations that were found adequate by this Court. For example, in its 1979 ozone NAAQS decision, EPA "determined…the 'probable level for adverse effects in sensitive persons,'" and then provided a margin of safety below that level based on a detailed consideration of multiple factors. *Am. Petroleum Inst. v. Costle*, 665 F.2d 1176, 1187 (D.C. Cir. 1981) (citing 44 Fed. Reg. 8202, 8216-17 (1979)). Here, in contrast, EPA did not identify a probable level for adverse effects in sensitive persons, much less explain

how its chosen standard provided a margin of safety below that level.

In *Lead Industries*, rather than find an adverse effect level, then add a margin of safety, EPA incorporated the margin of safety at two places in the standard-setting process. 647 F.2d at 1161-62 & n.80. EPA explained "why [it] chose one method rather than another" of providing a margin of safety, *id.* 1162, and explained in the rule itself the points at which it was accounting for margin of safety and how it was doing so, *id.* 1144. Thus, there are plainly ways for EPA to lay out how it is adequately addressing the margin of safety, including for sensitive subpopulations, that do not leave the Court and parties "to guess at the theory underlying the agency's action." *American Lung*, 134 F.3d at 392.

EPA's failure to explain here is crucial because it goes to the heart of the agency's duty in setting the NAAQS. Without a reasoned explanation, the Court and the public cannot know whether EPA designed the standard to protect against not only known adverse effects on health, but those of scientific uncertainty. It is not possible to tell, for example, whether EPA thought (or had a reasoned basis for thinking) that setting the standard "appreciably below" the 0.080 level provided a margin of safety to sensitive persons against uncertain effects, as opposed to simply protecting such persons against likely adverse effects at ozone levels below 0.080—the lowest level that EPA was confident would harm healthy people. *See Farm Bureau*, 559 F.3d at 526. Moreover, if EPA had to explain its reasoning, as

this Court's precedent clearly requires, then the agency could well reach a different result. In *American Lung*, for example, this Court remanded EPA's health NAAQS for sulfur dioxide due to the agency's failure to explain why health effects allowed by that standard were not a public health concern. 134 F.3d at 392-93. On remand EPA concluded that it could not justify the standard, and adopted a more protective one to address the effects the agency had previously refused to protect against. *See Nat'l Envtl. Dev. Ass'n's Clean Air Proj. v. EPA*, 686 F.3d 803 (D.C. Cir. 2012). Given the strong medical consensus that the 2008 ozone standard is not requisite to protect public health, and the fact that EPA itself proposed to so find in its reconsideration rulemaking, it is entirely plausible that the agency would set a stronger ozone standard if directed to provide an adequate explanation of its margin of safety rationale in a remand here.

For the foregoing reasons, the panel erred in upholding EPA's decision on the margin of safety issue absent an adequate explanation from EPA itself of how it was providing an adequate margin of safety.

II. NEITHER CIRCUIT PRECEDENT NOR THE ACT LIMITS REVERSAL OF MARGIN OF SAFETY DECISIONS TO CASES OF "EGREGIOUS PROCEDURAL ERRORS."

The panel said this Circuit has only found an EPA failure to comply with the margin of safety requirement where the agency committed "egregious procedural errors, such as EPA's failure to consider sensitive sub-populations, like asthmatics,

children, or the elderly." Slip op. 32. The opinion relies on *Farm Bureau* as its only support for this proposition, but that reliance is seriously mistaken.

Farm Bureau said nothing about finding an "egregious procedural error" in EPA's margin of safety decision, nor did it say that EPA had failed to consider sensitive subpopulations. Rather, *Farm Bureau* specifically faulted EPA's margin of safety decision for its failure to explain "how the standard will adequately reduce risks to the elderly or to those with certain heart or lung diseases despite (a) the EPA's determination in its proposed rule that those subpopulations are at greater risk from exposure to fine particles and (b) the evidence in the record supporting that determination." 559 F.3d at 526 (emphasis added). The Court instructed EPA on remand "to explain why it believes the NAAQS will provide, as required by the [Act], an adequate margin of safety against morbidity in children and other vulnerable subpopulations." *Id.* (emphasis added).[3] The problem was not EPA's failure to consider sensitive subpopulations, for indeed EPA did so in the NAAQS action at issue in *Farm Bureau*. *Id.* 525 (citing 71 Fed. Reg. 2620, 2637 (2006) (discussing susceptibility of children)). Among other things, EPA in that

[3] Further, EPA's failure to provide an adequate explanation was not a "procedural" error. Rather, failure by an agency to adequately explain a decision renders that decision arbitrary and capricious. *See, e.g.*, *Butte County v. Hogen*, 613 F.3d 190, 195 (D.C. Cir. 2010) ("Reasoned decisionmaking is not a procedural requirement.").

action considered studies regarding effects on sensitive populations, 71 Fed. Reg. 61,144, 61,151/3 (2006); information in the Criteria Document on sensitive or vulnerable subpopulations that appeared to be at greater risk, *id.* 61,151/3-52/1; evidence of adverse effects to infants and children, *id.* 61,157/2; and Staff Paper findings of effects on asthmatics, *id.* 61,155/1. It was EPA's failure to explain how its standard provided an adequate margin of safety to such populations that caused the *Farm Bureau* Court to remand EPA's action. 559 F.3d at 526.

Thus, the panel was mistaken in suggesting (slip op. 32) that the situation at issue in *Farm Bureau* was materially different than that presented here. Indeed, the margin of safety rationale found deficient in *Farm Bureau* was virtually identical to the agency's rationale here. There, as here, EPA provided only a general background discussion of factors relevant to the margin of safety (using virtually identical language in both cases), but never explained how it was applying those factors to the standards at issue. *Compare* 71 Fed. Reg. 61,145/3-46/1, *with* 73 Fed. Reg. 16,437/1-2. In both, EPA acknowledged that sensitive subpopulations suffer harms at lower levels than otherwise healthy individuals do. *Farm Bureau*, 559 F.3d at 526; 73 Fed. Reg. 16,480/1. Further, in *Farm Bureau*, as here, EPA set the standard at a level "appreciably below" the average of certain key studies in which

it had confidence.[4] *Compare* 71 Fed. Reg. 61,176/3, *with* 73 Fed. Reg. 16,480/3. And, in both rules, EPA based its refusal to set a more protective standard on virtually identical language stating that a stricter standard "would only result in significant further public health protection if, in fact, there is a continuum of health risks in areas with" pollution levels below those observed in what EPA deemed the "key studies" and if the "reported associations" in epidemiological studies "are, in fact, causally related to [the relevant pollutant] at those lower levels." 73 Fed. Reg. 16,483/2; 71 Fed. Reg. 61,176/3-77/1.

Thus, faced with an EPA rationale almost identical to the one offered here, *Farm Bureau* found that EPA had failed to adequately explain how its standard provided an adequate margin of safety to sensitive populations: There is no reason to find the same rationales any less deficient here. These rationales did not add up to an adequate explanation of EPA's margin of safety decision in *Farm Bureau*, nor do they here. *See LaShawn A. v. Barry*, 87 F.3d 1389, 1393 (D.C. Cir. 1996) (en banc) ("the same issue presented in a later case in the same court should lead to the same result." (emphasis in original)); *id.* 1395 ("One three-judge panel…does

[4] Those particular studies did not focus on sensitive subpopulations. *See Farm Bureau*, 559 F.3d at 525 (noting that those studies were "studies of adult mortality," not of children); 73 Fed. Reg. 16,480/3 (identifying "level at which there is considerable evidence of effects in healthy people").

not have the authority to overrule another three-judge panel of the court.").[5]

Any limit on reversal of margin of safety decisions to cases of "egregious procedural error" would also conflict with the Clean Air Act's judicial review provisions. The Act provides for reversal of "any" EPA action in promulgating a NAAQS where that action is found to be "(A) arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law; (B) contrary to constitutional right, power, privilege or immunity; (C) in excess of statutory jurisdiction, authority, or limitations, or short of statutory right; or (D) without observance of procedure required by law, if [certain other requirements are met]." 42 U.S.C. §7607(d)(1)(A), (d)(9)(A)-(D). Thus, procedural error is only one of four independent grounds for reversing EPA action in promulgating a NAAQS. Nothing in the statute suggests any basis for exempting the margin of safety portion of a

[5] Although *Farm Bureau* also found EPA's margin of safety decision flawed because the agency unreasonably dismissed two relevant studies dealing with effects on children, the Court clearly viewed EPA's failure to explain how it was providing an adequate margin of safety as an independent basis for remanding, stating: "Notably absent from the final rule, moreover, is any indication of how the standard will adequately reduce risks to the elderly or to those with certain heart or lung diseases…." 559 F.3d at 525-26 (emphasis added). This discussion plainly did not refer to the dismissed child-focused studies. Moreover, the Court further directed EPA "to explain" on remand "why it believes the NAAQS will provide…an adequate margin of safety against morbidity in children and other vulnerable subpopulations." *Id.* 526 (emphasis added).

NAAQS action from the other three grounds for reversal or for subjecting margin of safety decisions to less searching review than other NAAQS-setting decisions. To the contrary, Congress viewed the margin of safety as "essential" to providing a reasonable degree of public health protection. S. Rep. No. 91-1196, at 10 (1970).

Because the panel departed from Circuit precedent in a manner that is also inconsistent with the Act, rehearing on the margin of safety issue is warranted. Even if the panel does not remand EPA's decision on that issue, Petitioners urge the panel to at least amend the language of the decision to make clear that that reversal of margin of safety decisions is not limited to cases of "egregious procedural errors."

III. THE PANEL OPINION UNNECESSARILY AND INCORRECTLY SUGGESTS THAT DETERMINATION OF WHETHER A HEALTH EFFECT IS "ADVERSE" IS A "POLICY" QUESTION

The panel included extraneous language in its opinion suggesting that EPA's determination of whether a health effect is "adverse" is a policy judgment. Slip op. 39 n.6. That question was not before the Court, as EPA did not dispute that the health effects at issue here were "adverse." *E.g.*, 73 Fed. Reg. 16,454/3-55/1 (finding that breathing impairments found in Adams studies at 0.060 ppm "represent a level that should be considered adverse for asthmatic individuals"); *id.* 16,470/2 (lung function decrements estimated in risk assessment represent adverse effects). EPA's rationale for refusing to protect against the health effects identified

in the chamber and epidemiological studies at ozone levels below 0.075 ppm was not based on any finding that such effects (which included premature deaths, hospitalizations, and the just mentioned lung impairments) were non-adverse, but (as the panel itself notes) on the agency's claim of uncertainty as to whether ozone caused those effects.

Petitioners contend that determining the "adverseness" of health effects is a scientific judgment, based on well-settled criteria established by the American Thoracic Society. *See* JA32-33. However, the Court need not and should not attempt to resolve that question in this case, where the issue was simply not presented or argued. *Fried v. Hinson*, 78 F.3d 688, 692 (D.C. Cir. 1996) ("Precedent and prudence limits comment on questions not essential to a decision"). Accordingly, Petitioners respectfully request that the Court amend its opinion to delete the discussion in footnote 6 as to whether the assessment of a health effect's adverseness is a question of science or policy.

CONCLUSION

For the foregoing reasons, Petitioners respectfully submit that the panel has overlooked or misapprehended important issues of law and fact, and that rehearing is therefore warranted as specified above. Fed. R. App. P. 40(a)(2).

DATED: September 6, 2013

Respectfully Submitted,

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ADDENDUM

United States Court of Appeals

FOR THE DISTRICT OF COLUMBIA CIRCUIT

Argued November 16, 2012 Decided July 23, 2013

No. 08-1200

STATE OF MISSISSIPPI,
PETITIONER

v.

ENVIRONMENTAL PROTECTION AGENCY,
RESPONDENT

COUNTY OF NASSAU, ET AL.,
INTERVENORS

Consolidated with 08-1202, 08-1203, 08-1204, 08-1206

On Petition for Review of a Final Rule Issued
by the United States Environmental Protection Agency

F. William Brownell argued the cause for State of Mississippi and Industry Petitioners. With him on the briefs were *Allison D. Wood*, *Lucinda Minton Langworthy*, *Harold E. Pizzetta, III*, Special Assistant Attorney General, Office of the Attorney General for the State of Mississippi, *Robert R. Gasaway*, *Jeffrey Bossert Clark*, and *William H. Burgess*.

David S. Baron argued the cause for Environmental Petitioners. With him on the briefs was *Seth L. Johnson*.

Michael J. Myers, Assistant Attorney General, Office of the Attorney General for the State of New York, argued the cause for State Petitioners. With him on the briefs were *Eric T. Schneiderman*, Attorney General, *Barbara D. Underwood*, Solicitor General, *Morgan A. Costello*, Assistant Attorney General, *Kamala D. Harris*, Attorney General, Office of the Attorney General for the State of California, *Nicholas Stern*, Deputy Attorney General, *George Jepsen*, Attorney General, Office of the Attorney General for the State of Connecticut, *Kimberly P. Massicotte* and *Scott Koshwitz*, Assistant Attorneys General, *Joseph R. Biden, III*, Attorney General, Office of the Attorney General for the State of Delaware, *Valerie M. Satterfield*, Deputy Attorney General, *Lisa Madigan*, Attorney General, Office of the Attorney General for the State of Illinois, *Gerald T. Karr*, Senior Assistant Attorney General, *William J. Schneider*, Attorney General, Office of the Attorney General for the State of Maine, *Gerald D. Reid*, Assistant Attorney General, *Douglas F. Gansler*, Attorney General, Office of the Attorney General for the State of Maryland, *Roberta R. James*, Assistant Attorney General, *Martha Coakley*, Attorney General, Office of the Attorney General for the Commonwealth of Massachusetts, *Carol Iancu*, Assistant Attorney General, *Michael A. Delaney*, Attorney General, Office of the Attorney General for the State of New Hampshire, *K. Allen Brooks*, Assistant Attorney General, *Gary K. King*, Attorney General, Office of the Attorney General for the State of New Mexico, *Stephen R. Farris*, Assistant Attorney General, *Ellen F. Rosenblum*, Attorney General, Office of the Attorney General for the State of Oregon, *Paul S. Logan*, Assistant Attorney-in-Charge, *Peter Kilmartin*, Attorney General, Office of the Attorney General for the State of Rhode Island, *Gregory S. Schultz*, Special Assistant Attorney General, *Irvin B. Nathan*, Attorney General, Office of the Attorney General for the District of Columbia, *Amy E. McDonnell*, Deputy General Counsel, and

Christopher King. *William L. Pardee*, Assistant Attorney General, Office of the Attorney General for the Commonwealth of Massachusetts at the time the brief was filed, *Tricia K. Jedele*, Special Assistant Attorney General, Office of the Attorney General for the State of Rhode at the time the brief was filed, *Maureen Smith*, Senior Assistant Attorney General, Office of the Attorney General for the State of Rhode Island, *Donna M. Murasky*, Deputy Solicitor, Office of the Attorney General for the District of Columbia, and *Katherine Kennedy* entered appearances.

Richard A. Wegman and *Harold G. Bailey, Jr.* were on the brief for *amicus curiae* Province of Ontario in support of petitioners State of New York, et al. and petitioners American Lung Association, et al.

Madeline Fleisher, Attorney, and *David J. Kaplan*, Senior Attorney, U.S. Department of Justice, argued the causes for respondent. With them on the brief was *John Hannon*, Attorney, U.S. Environmental Protection Agency.

David S. Baron and *Seth L. Johnson* were on the brief for Environmental Intervenors.

F. William Brownell, *Allison D. Wood*, *Lucinda Minton Langworthy*, *Robert R. Gasaway*, *Jeffrey Bossert Clark*, and *William H. Burgess* were on the brief for industry intervenor-respondents Ozone NAAQS Litigation Group, et al. in support of respondent. *Duane J. Desiderio* entered an appearance.

Before: TATEL, BROWN, and GRIFFITH, *Circuit Judges*.

Opinion for the Court filed PER CURIAM.

PER CURIAM: In this opinion, we consider several challenges to the Environmental Protection Agency's most recent revisions to the primary and secondary National Ambient Air Quality Standards for ozone. For the reasons given below, we deny the petitions, except with respect to the secondary ozone standard, which we remand for reconsideration.

I.

The Clean Air Act directs EPA to establish and periodically review and revise primary and secondary National Ambient Air Quality Standards ("NAAQS") for certain pollutants the "emissions of which . . . cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare." 42 U.S.C. § 7408(a)(1)(A). Under section 109(b)(1), primary NAAQS are to be set at levels "the attainment and maintenance of which in the judgment of the Administrator, . . . allowing an adequate margin of safety, are requisite to protect the public health." *Id.* § 7409(b)(1). Under section 109(b)(2), secondary NAAQS "shall specify a level of air quality the attainment and maintenance of which in the judgment of the Administrator . . . is requisite to protect the public welfare from any known or anticipated adverse effects." *Id.* § 7409(b)(2). The Act provides that the public welfare protected by secondary NAAQS includes "effects on soils, 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).

"Once EPA establishes NAAQS for a particular pollutant, the standards become the centerpiece of a complex statutory regime aimed at reducing the pollutant's

atmospheric concentration." *American Trucking Ass'ns v. EPA* ("*ATA III*"), 283 F.3d 355, 358–59 (D.C. Cir. 2002). EPA must "complete a thorough review" of each NAAQS at five-year intervals and "make such revisions . . . as may be appropriate." 42 U.S.C. § 7409(d)(1). Pursuant to section 109(d)(2), the Clean Air Scientific Advisory Committee ("CASAC") must periodically review NAAQS and "recommend to [EPA] any new [NAAQS] and revisions of existing criteria and standards as may be appropriate." *Id.* § 7409(d)(2)(A)–(B). In proposing to issue new NAAQS or revise existing ones, EPA must "set forth or summarize and provide a reference to any pertinent findings, recommendations, and comments by [CASAC]" and explain the reasons for any "important" divergences from CASAC's recommendations. *Id.* § 7607(d)(3), (6).

These consolidated cases concern the NAAQS for ozone (O_3). Ozone is a colorless, odorless gas that is not a direct product of human activity but instead forms when other atmospheric pollutants react in the presence of sunlight. *ATA III*, 283 F.3d at 359. EPA has identified several health effects linked to ozone, including decreased lung function and respiratory symptoms. Proposed National Ambient Air Quality Standards for Ozone ("2007 Proposed Rule"), 72 Fed. Reg. 37,818, 37,827 (July 11, 2007). EPA has also found that ozone is associated with more serious health effects such as increased asthma medication use, emergency department visits, and hospital admissions. *See id.* at 37,827–29, 37,832. Furthermore, EPA has determined that ozone has a broad array of effects on trees, vegetation, and crops and can indirectly affect other ecosystem components such as soil, water, and wildlife. *Id.* at 37,883.

EPA last revised the ozone NAAQS in 1997, instituting an "8-hour" primary standard—based on the annual fourth-

highest daily maximum 8-hour average ozone concentration—of 0.08 parts per million. National Ambient Air Quality Standards for Ozone ("1997 Final Rule"), 62 Fed. Reg. 38,856, 38,873 (July 18, 1997). EPA also set the secondary NAAQS to be identical to this primary standard in both form (measured over an 8-hour period) and level (0.08 ppm). *Id.* at 38,877–78. In *American Trucking Associations v. EPA*, 175 F.3d 1027 (D.C. Cir. 1999), several parties challenged these revisions, as well as the NAAQS for particulate matter that EPA had issued at the same time. After the Supreme Court reversed this court's conclusion that the Clean Air Act unconstitutionally delegated Congress's legislative authority, *see Whitman v. American Trucking Ass'ns*, 531 U.S. 457, 473–76 (2001), we rejected all of petitioners' challenges to both the primary and secondary ozone NAAQS. *ATA III*, 283 F.3d at 378–80.

EPA initiated the current review of the ozone NAAQS in 2000. Proceeding under a schedule adopted by consent decree, and after receiving significant public comment on proposed changes, EPA issued revised primary and secondary standards on March 27, 2008. National Ambient Air Quality Standards for Ozone ("2008 Final Rule"), 73 Fed. Reg. 16,436 (Mar. 27, 2008). In reaching its final decision, EPA examined "the entire body of evidence relevant to examining associations between exposure to ambient O_3 and a broad range of health endpoints." *Id.* at 16,439. Of particular relevance here, EPA emphasized new clinical studies, including human exposure studies, showing respiratory effects at ozone levels below 0.08 ppm. *Id.* at 16,449–50, 16,470–71. EPA also cited new epidemiological evidence suggesting associations between "serious morbidity outcomes" and ozone exposure at levels below 0.08 ppm, as well as risk assessments estimating the effects of various levels of ozone on the population. *Id.* at 16,446, 16,450–51,

16,471–72. On the basis of this evidence, EPA concluded that the existing 0.08 ppm primary standard was not requisite to protect the public health with an adequate margin of safety. *Id.* at 16,470–71.

Assessing the proper level for a revised standard, EPA found that a level just below 0.08 ppm would be inappropriate because "such a level would not be appreciably below the level in controlled human exposure studies at which adverse effects have been demonstrated." *Id.* at 16,482. Although acknowledging that CASAC had recommended a level as low as 0.060 to 0.070 ppm, *see id.*, EPA determined that "[a] standard set at a level lower than 0.075 [ppm] would only result in significant further public health protection if, in fact, there is a continuum of health risks in areas with . . . O_3 concentrations that are well below the concentrations observed in the key controlled human exposure studies and if the reported associations observed in epidemiological studies are, in fact, causally related to O_3 at those lower levels," *id.* at 16,483. Stating that it was "not prepared to make these assumptions," EPA found that, with a standard set below 0.075 ppm, "the likelihood of obtaining benefits to public health . . . decreases, while the likelihood of requiring reductions in ambient concentrations that go beyond those that are needed to protect public health increases." *Id.* "[J]udg[ing] that the appropriate balance to be drawn, based on the entire body of evidence and information available in this review, is a standard set at 0.075 [ppm]," EPA concluded that "[a] standard set at this level provides a significant increase in protection compared to the current standard, and is appreciably below 0.080 ppm, the level in controlled human exposure studies at which adverse effects have been demonstrated." *Id.*

EPA also determined that the secondary standard should be revised to be identical to the new primary standard. *Id.* at 16,500. Noting new evidence that had become available since the last review, EPA found that the ozone level of the existing secondary standard would cause significant effects on vegetation and sensitive ecosystems. *Id.* at 16,496–97. EPA acknowledged CASAC's recommendation that a revised secondary standard should measure ozone exposure cumulatively over a seasonal period, rather than the 8-hour period of the primary standard. *Id.* at 16,498–500. EPA agreed with CASAC that "a cumulative, seasonal standard is the most biologically relevant way to relate exposure to plant growth response." *Id.* at 16,500. Nonetheless, conducting a comparison between the revised primary standard and a range of proposed levels for a cumulative, seasonal standard, EPA found "significant overlap between the revised 8-hour primary standard and selected levels of the [seasonal] standard form being considered." *Id.* at 16,499. Although recognizing that "there would be the potential for not providing the appropriate degree of protection for vegetation in areas with air quality distributions that result in a high cumulative, seasonal exposure but do not result in high 8-hour average exposures," the agency determined that "establishing a new secondary standard with a cumulative, seasonal form at this time would result in uncertain benefits beyond those afforded by the revised primary standard and therefore may be more than necessary to provide the requisite degree of protection." *Id.* at 16,500. EPA therefore concluded that the revised primary standard "would be sufficient to protect public welfare from known or anticipated adverse effects, and . . . that an alternative cumulative, seasonal standard is [not] needed to provide this degree of protection." *Id.*

Challenging the revised primary and secondary NAAQS, various parties, including several states, the District of

Columbia, New York City, and several industry, environmental, and public health groups, filed these petitions for review. We then granted EPA's unopposed motion to hold these cases in abeyance to allow the agency to review the 2008 revisions and determine whether they should be reconsidered. In September 2011, EPA indicated that it was withdrawing its reconsideration proceedings and would instead be completing the reconsideration in conjunction with the next periodic review. Several parties filed petitions for review, challenging EPA's withdrawal of the reconsideration rulemaking. Finding that we lacked jurisdiction over EPA's non-final action, we dismissed the petitions and set a briefing schedule for the present case.

We now confront the parties' competing petitions for review. One set of petitioners—comprising several states, the District of Columbia, New York City, and a number of environmental and public health groups—thinks the primary and secondary NAAQS are not protective enough, while the other set—comprising the state of Mississippi and several industry groups—thinks they are too protective.

This opinion considers each of these claims in turn. We reject Mississippi and the industry groups' challenge to the primary and secondary standards in Part II. We explain our denial of the governmental and environmental petitions with respect to the primary standard in Part III and our grant of these petitions with respect to the secondary standard in Part IV.

In considering challenges to NAAQS, "we apply the same highly deferential standard of review that we use under the Administrative Procedure Act." *ATA III*, 283 F.3d at 362. Accordingly, "we will set aside the Agency's determination only if it is 'arbitrary, capricious, an abuse of discretion, or

otherwise not in accordance with law.' " *National Environmental Development Ass'n's Clean Air Project v. EPA*, 686 F.3d 803, 809–10 (D.C. Cir. 2012) (quoting 42 U.S.C. § 7607(d)(9)(A)). And "we do not look at the decision as would a scientist, but as a reviewing court exercising our narrowly defined duty of holding agencies to certain minimal standards of rationality." *Id.* at 810 (internal quotation marks omitted). That said, "we perform a searching and careful inquiry into the underlying facts." *ATA III*, 283 F.3d at 362 (internal quotation marks omitted).

II.

Mississippi and the industry petitioners (collectively "Mississippi") challenge EPA's threshold decision to revise the primary NAAQS level. According to Mississippi, several aspects of EPA's decision were arbitrary, including its allegedly unsupported finding that the revised NAAQS would provide increased protection; its failure to compare the 2008 risk assessment with the 1997 risk assessment; and the allegedly inadequate and distorted science on which the agency relied. We reject these arguments. Mississippi also claims the secondary NAAQS is improper because it tracks the primary NAAQS, which Mississippi believes is unlawful, but this argument falls as collateral damage from our rejection of Mississippi's challenge to the primary NAAQS.

A.

The Clean Air Act requires EPA to set primary NAAQS that are "requisite" to protect the public health with an adequate margin of safety. 42 U.S.C. § 7409(b)(1). "Requisite" means the NAAQS must be "sufficient, but not more than necessary." *Whitman*, 531 U.S. at 473 (internal quotation marks omitted). Mississippi now tells us the agency cannot determine why further risk reduction is "requisite" without "putting risk in the context of earlier NAAQS

decisions (and other risk-based decisions)." Mississippi's Br. 24. EPA's failure to do so, Mississippi explains, means the NAAQS revision is nothing more than the legally inadequate determination that a lower level is more protective. Not so.

The force of Mississippi's position, generated by the *Whitman* Court's malleable definition of "requisite," assumes only one standard at any given time can be "requisite" because, by definition, that standard is neither higher nor lower than necessary. Any other standard would therefore miss the mark. But of course, this idea presupposes scientific certainty in an area actually governed by policy-driven approaches to uncertain science. *See Lead Industries Ass'n v. EPA*, 647 F.2d 1130, 1146–47 (D.C. Cir. 1980); *see also Motor Vehicle Manufacturers Ass'n of the U.S. v. State Farm Mutual Automobile Insurance Co.*, 463 U.S. 29, 57 (1983). Mississippi's position—though perhaps an arguable thesis—collapses under the weight of reality.

Determining what is "requisite" to protect the "public health" with an "adequate" margin of safety may indeed require a contextual assessment of acceptable risk. *See Whitman*, 531 U.S. at 494–95 (Breyer, J., concurring in part and concurring in the judgment). Such is the nature of policy. But that does not mean the initial assessment is sacrosanct and remains the governing standard until every aspect of it is undermined. Every time EPA reviews a NAAQS, it (presumably) does so against contemporary policy judgments and the existing corpus of scientific knowledge. *See* 42 U.S.C. §§ 7408–09. It would therefore make no sense to give prior NAAQS the sort of presumptive validity Mississippi insists upon. The statutory framework requires us to ask only whether EPA's proposed NAAQS is "requisite"; we need not ask why the prior NAAQS once was "requisite" but is no longer up to the task. Following Mississippi's approach would

bind EPA to potential deficiencies in past reviews because discrepancies between past and current judgments as easily reflect problems in the past as in the present. We decline Mississippi's invitation to enter that funhouse and will defer as long as EPA reasonably explains its actions. *American Farm Bureau Federation v. EPA*, 559 F.3d 512, 521 (D.C. Cir. 2009) (per curiam).

Mississippi argues at length that EPA should have compared the evidence available in 2008 to the evidence available in 1997—in particular, the clinical, epidemiological, and toxicological studies, risk assessments, and EPA's protocol for sensitive populations. We need not respond point by point; suffice to say that EPA reasonably explained how the scientific evidence had in fact changed since the 1997 review. To name just one example, whereas in reviewing EPA's 1997 NAAQS-setting we emphasized "the absence of *any* human clinical studies at ozone concentrations below 0.08," *ATA III*, 283 F.3d at 379, EPA here explained that "two new controlled human-exposure studies . . . are now available that examine respiratory effects associated with prolonged O_3 exposures at levels at and below 0.080 ppm." 2008 Final Rule, 73 Fed. Reg. at 16,454.[1] But to frame it more broadly,

[1] Because Mississippi independently challenges EPA's failure to compare its 2008 and 1997 risk assessments, however, we also acknowledge the reasonableness of EPA's explanation for not doing so—namely, that a comparison would be "factually inappropriate," would not account for the fact that "with similar risks, increased certainty in the risks" would engender greater concern, and would obscure the qualitativeness of EPA's approach. 2008 Final Rule, 73 Fed. Reg. at 16,466. First, the 2008 risk assessment analyzed a number of health effects not included in the 1997 risk assessment, so the ultimate value of comparing the two assessments would be limited. Second, logic rejects comparisons of

we note, first, that the NAAQS review process includes EPA's public health policy judgments as well as its analysis of scientifically certain fact, and, second, that as the contours and texture of scientific knowledge change, the epistemological posture of EPA's NAAQS review necessarily changes as well; additional certainty about what was merely a thesis might very well support a determination that the line marked by the term "requisite" has shifted. In short, Mississippi seeks to eliminate any adumbration of the inevitable scientific uncertainties that shadow and shape EPA's statutory mandate to take a preventative approach. *See, e.g.*, *ATA III*, 283 F.3d at 378.

B.

Mississippi looses the rest of its arrows at the evidence on which EPA relied, although in doing so, Mississippi again showcases its apparent preference for exuberance over precision. Ultimately, Mississippi's arguments that the 2008 science added nothing new to the 1997 NAAQS conversation and that EPA misrepresented the science on which it relied

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apples and oranges, which is how we would describe two data analyses subject to different geographic and demographic parameters. *See, e.g.*, 2007 Proposed Rule, 72 Fed. Reg. at 37,851–52 (explaining that 2008 exposure analysis, an input to part of the risk assessment, relied on a model different from the one used in 1997). And finally, even if EPA should have compared the two risk assessments where they overlapped, EPA's failure to do so does not necessarily render EPA's ultimate NAAQS decision improper. *See ATA III*, 283 F.3d at 369–70; *see also Lead Industries Ass'n*, 647 F.2d at 1162. The risk assessment turned on more than just those risks amenable to comparison with the 1997 risk assessment, and in setting the NAAQS, EPA relied on much more than just the risk assessment. *See, e.g.*, 2008 Final Rule, 73 Fed. Reg. at 16,467, 16,476, 16,479.

are largely dependent on the conceptual error that EPA is somehow bound by the 1997 NAAQS and on the legal error that it is our job to "weigh the evidence anew." *American Farm Bureau*, 559 F.3d at 533 (internal quotation marks omitted). Nonetheless, we address each argument in turn, construing Mississippi's arguments to articulate a weightier challenge: that the available evidence did not support EPA's threshold decision to revise the NAAQS. We again disagree.

1.

The 1997 standard was "set at a level of 0.08 ppm, which is equivalent to 0.084 ppm using the standard rounding conventions." 2008 Final Rule, 73 Fed. Reg. at 16,437. By framing the issue in terms of EPA's decision to lower the NAAQS level below 0.080 ppm, Mississippi fails to capture the full significance of the 2008 NAAQS revision.[2] Indeed, Mississippi's imprecision undermines its case: by conceding that health effects are linked to ozone levels of 0.080 ppm, Mississippi rebuts its claim that science in 2008 did not support a NAAQS set at an effective level lower than 0.084 ppm.

In any event, after reviewing the record, we think it quite clear EPA's rejection of the 1997 NAAQS was proper. EPA relied on a broad array of scientific studies, quantified models, and input from CASAC, EPA staff, and commenters, and it considered not only what was known, but also what was not known. *See, e.g.*, 2008 Final Rule, 73 Fed. Reg. at 16,438–40. It then evaluated the evidence as a whole through

[2] For that matter, EPA commits the same error, referring to "0.080" when it should refer to "0.08," *compare* 2008 Final Rule, 73 Fed. Reg. at 16,444, *with* 1997 Final Rule, 62 Fed. Reg. at 38,859, but Mississippi does not note it, so we have no reason to think this reflects anything other than sloppy editing.

an "integrative synthesis," what it called a "weight of evidence approach." *Id.* at 16,439, 16,479. And appropriately so: one type of study might be useful for interpreting ambivalent results from another type, *see Ethyl Corp. v. EPA*, 541 F.2d 1, 26 (D.C. Cir. 1976) (en banc), and though a new study does little besides confirm or quantify a previous finding, such incremental (and arguably duplicative) studies are valuable precisely because they confirm or quantify previous findings or otherwise decrease uncertainty. *See, e.g.*, 2008 Final Rule, 73 Fed. Reg. at 16,450 (noting that post-1997 evidence "increased the Administrator's confidence" that particular health endpoints are causally related to ozone exposure). EPA made this point when it explained that controlled human exposure studies provide "the most directly applicable" evidence (and engender "the highest level of confidence") about the causal relationship between ozone exposure and health effects; that epidemiological studies provide evidence both about health effects from exposure to ambient air and about the effect of ozone exposure on "more serious" health effects like hospital admissions and mortality; and that animal toxicology studies generally support the biological plausibility of effects noted in clinical and epidemiological studies. 2007 Proposed Rule, 72 Fed. Reg. at 37,823, 37,825; *see* 2008 Final Rule, 73 Fed. Reg. at 16,440 (incorporating discussion of scientific evidence in proposed rule). Given that the record includes, among other things, numerous epidemiological studies linking health effects to exposure to ozone levels below 0.08 ppm and clinical human exposure studies finding a causal relationship between health effects and exposure to ozone levels at and below 0.08 ppm, we will not second-guess EPA's interpretations of, or the conclusions it drew from, this evidence.

Reasonable people might disagree with EPA's interpretations of the scientific evidence, but any such

disagreements must come from those who are qualified to evaluate the science, not us. We are satisfied that EPA's interpretations are permissible, and that is enough. Indeed, CASAC unanimously concluded that "[t]here is no scientific justification for retaining the current primary 8-hr NAAQS of 0.08 parts per million," that the primary NAAQS "needs to be substantially reduced to protect human health," and that the primary NAAQS should be set at a level somewhere between 0.060 and 0.070 ppm. Letter from Dr. Rogene Henderson, CASAC Chair, to Stephen L. Johnson, EPA Administrator ("Oct. 2006 CASAC Letter"), at 1–2 (Oct. 24, 2006), EPA-CASAC-07-001. If, as we have explained, EPA may give "significant weight" to propositions about the appropriate NAAQS level implicitly accepted by otherwise-disagreeing CASAC members, *see ATA III*, 283 F.3d at 378–79, surely it may rely on an explicit recommendation by the unanimous CASAC panel.

And given the reasonableness of EPA's interpretation of the science, its determination that the 1997 NAAQS was insufficiently protective of public health follows as a matter of course. EPA concluded sensitive populations like asthmatics are affected by ozone in a more severe way and at lower levels than are healthy individuals and that ozone-related health effects might be adverse for sensitive individuals though comparable effects would not be considered adverse for healthy individuals—conclusions Mississippi does not challenge. *See* 2008 Final Rule, 73 Fed. Reg. at 16,454–55, 16,466. EPA could properly decide that a NAAQS set at the level of 0.08 ppm does not protect the public health with an adequate margin of safety when *healthy* individuals experience adverse health effects from exposure to ozone at and below that level. *See, e.g.*, *American Farm Bureau*, 559 F.3d at 525–26. "That petitioners . . . find a basis to disagree" with EPA is "hardly surprising." *Ethyl Corp.*, 541

F.2d at 26. But that does not make EPA's decision to revise the NAAQS arbitrary.

2.

Mississippi also contends that section 108(a)(2) of the Clean Air Act, 42 U.S.C. § 7408(a)(2), requires EPA "to consider and rely upon all scientific information that is capable of being put to use and serviceable for [identifying the effect that a given pollutant has on public health and welfare] and that is free from error (accurate)." Mississippi's Br. 47. This requirement, Mississippi explains, incorporates information standards under the Information Quality Act ("IQA"), Pub. L. No. 106-554, sec. 1(a)(3), § 515, 114 Stat. 2763, 2763A-153 to 154 (2000) (H.R. 5658) (codified at 44 U.S.C. § 3516 note). According to Mississippi (as we understand its argument), EPA violated both the Clean Air Act and the IQA by inaccurately characterizing some studies and by relying on other, flawed studies. These arguments are difficult to parse because they fill two roles in Mississippi's shadow play: reinforcing the implied point that the available evidence did not support EPA's decision to revise the NAAQS level and unmasking a violation of the Clean Air Act's procedural requirements. Having already discussed the reasonableness of EPA's threshold decision to revise the NAAQS, we now consider only Mississippi's suggestion that EPA violated the Clean Air Act's and the IQA's procedural standards and that these violations independently render EPA's NAAQS determination unlawful.

The Clean Air Act implicitly divides the NAAQS review process into three stages. First, members of the scientific community publish studies, which may be more or less flawed. Second, EPA must issue and periodically revise air quality criteria that "accurately reflect the latest scientific knowledge useful in indicating the kind and extent of all

identifiable effects on public health or welfare which may be expected from the presence of such pollutant in the ambient air, in varying quantities." 42 U.S.C. §§ 7408(a)(2), 7409(d). Finally, EPA must "base[]" its NAAQS determinations on the criteria. 42 U.S.C. § 7409(b)(1). From start to finish, this system is vulnerable to error. In particular, even if the foundational scientific studies are not flawed in any material way, transmission errors may nevertheless occur when EPA drafts the criteria or when it subsequently decides what NAAQS to set. Mississippi's point appears to be that the Clean Air Act and the IQA impose safeguards to ensure accuracy throughout this entire process. While that may be a fair characterization, it overstates the practical effect of the statutory schemes.

First, though the Clean Air Act requires the air quality criteria to "accurately reflect" the scientific evidence, that requirement says nothing about the accuracy of the science itself or the precision of the relationship between the criteria and EPA's NAAQS decision. The criteria, which are neither "standards" nor "guidelines," simply "provide the scientific basis for promulgation of air quality standards." *Lead Industries Ass'n*, 647 F.2d at 1136–37. We do not reweigh the evidence or second-guess technical judgments but are limited to determining whether EPA made a rational judgment. *See American Petroleum Institute v. Costle*, 665 F.2d 1176, 1185 (D.C. Cir. 1981). Nor do we look through the microscope to scrutinize EPA's use of the criteria: there are limits to EPA's discretion in using the criteria, *see Michigan v. EPA*, 213 F.3d 663, 696 (D.C. Cir. 2000) (per curiam), but EPA's translation of the criteria into a NAAQS decision is not frictionless, and ignoring this fact would squeeze considerations of policy and the role of CASAC out of the equation. *See* 42 U.S.C. § 7607(d)(3); *see also Catawba County, North Carolina v. EPA*, 571 F.3d 20, 35 (D.C. Cir. 2009) (per curiam).

Second, Mississippi fails to show the IQA is an independent measure of EPA's NAAQS decision. The IQA requires the Director of the Office of Management and Budget to provide "policy and procedural guidance" to "ensur[e] and maximiz[e] the quality, objectivity, utility, and integrity of information . . . disseminated by Federal agencies." 44 U.S.C. § 3516 note. OMB, in turn, issued flexible, "generic" guidelines that it recognized "cannot be implemented in the same way by each agency." Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies; Republication, 67 Fed. Reg. 8,452, 8,452–53 (Feb. 22, 2002). EPA's implementing guidelines, meanwhile, purport to provide only "non-binding policy and procedural guidance." EPA, GUIDELINES FOR ENSURING AND MAXIMIZING THE QUALITY, OBJECTIVITY, UTILITY, AND INTEGRITY OF INFORMATION DISSEMINATED BY THE ENVIRONMENTAL PROTECTION AGENCY 4 (2002). Mississippi points to nothing indicating that any part of this scheme committed EPA to having done things differently. *See American Petroleum Institute v. EPA*, 684 F.3d 1342, 1348 (D.C. Cir. 2012); *see also Salt Institute v. Leavitt*, 440 F.3d 156, 159 (4th Cir. 2006).

Measuring Mississippi's challenge to EPA's use of the scientific evidence against the agency's legal obligations, we see nothing to suggest EPA acted improperly, particularly given our approval of its ultimate decision to revise the NAAQS. To start, Mississippi's challenge to EPA's use of the Adams studies—a set of controlled human exposure studies that played a relatively significant role in the NAAQS review process—is nothing more than a claim that EPA did wrong by disagreeing with Adams's interpretation of his data. (Although Adams concluded his 2006 study did not show

statistically significant lung function decrements at the 0.06 ppm ozone exposure level, EPA explained that it believed a different statistical model would more directly address the precise question with which it was concerned—namely, the effects of prolonged ozone exposure versus exposure to filtered air—and that application of this model yielded statistically significant results at the 0.06 ppm level.) Yet nothing in the Clean Air Act or the IQA prohibits EPA from independently analyzing the science—for example, by asking "different questions" from those asked by the study's author, 2008 Final Rule, 73 Fed. Reg. at 16,455—and the only objections Mississippi offers to EPA's independent analysis are either conclusory or require us to weigh in on what is apparently legitimate scientific debate. *See id.* (noting approval by members of CASAC of the statistical approach used in the reanalysis).[3]

Mississippi's challenge to EPA's use of the epidemiological evidence fares no better. Though it claims EPA improperly relied on studies using ambient ozone data as a proxy for personal exposure, Mississippi neither challenges EPA's explanation that very few epidemiological studies directly measuring personal exposure exist in the literature nor acknowledges EPA's recognition that ambient measurements do not necessarily represent personal exposure levels and must therefore be used with caution. We have no problem with EPA's reliance on actual, rather than

[3] To the extent Mississippi's complaint centers around EPA's failure to peer review its reanalysis, we note that EPA's IQA guidelines expressly disclaim a categorical peer-review policy, so even assuming Mississippi is right that the reanalysis was not peer reviewed, Mississippi's failure to explain why the alleged lack of peer review was improper is fatal. *See American Petroleum Institute*, 684 F.3d at 1348–49.

nonexistent, evidence, and in any event, Mississippi does not challenge EPA's interpretation of the measurement disparity—that if the disparity biases the epidemiological evidence, it does so by *under*estimating ozone's health effects. *See* 2007 Proposed Rule, 72 Fed. Reg. at 37,839. Finally, Mississippi's belief that EPA ignored contradictory evidence is an example of its own confirmation bias. Mississippi insists EPA failed to account for studies suggesting that findings of ozone-related health effects may be confounded by the presence of other pollutants, but this challenge boils down to a claim about two epidemiological studies. EPA mentions only one of these studies—and only once—in the final rule, and in doing so, it also cites two other studies (which Mississippi does not challenge) for the same proposition. *See* 2008 Final Rule, 73 Fed. Reg. at 16,446. Even granting the substance of Mississippi's assertions (which we do not), it is hard to imagine how eliminating both studies from EPA's NAAQS calculation would have altered EPA's ultimate decision.[4]

We repeat: it is not our job to referee battles among experts; ours is only to evaluate the rationality of EPA's decision, and as we have explained, the agency did its part. And because we reject Mississippi's challenge to the primary NAAQS, we must also reject its challenge to the secondary NAAQS. Mississippi's petition for review is therefore denied.

III.

As discussed above, EPA's review of the available scientific evidence led it to adopt a primary ozone NAAQS of

[4] EPA also cited the two studies a total of five times in the proposed rule, but we think this immaterial in light of Mississippi's failure to explain their importance to EPA's final decision.

0.075 ppm. While Mississippi criticized EPA's decision to reduce this standard from its prior level of 0.08 ppm, multiple state and local governments, environmental advocacy non-profits, and public health non-profits contend that EPA did not go far enough. Thus, EPA finds itself in a situation reminiscent of *Goldilocks and the Three Bears*. On one side, Mississippi argued that EPA is too stringent with its ozone NAAQS; on the other side, the governmental and environmental petitioners argue that the NAAQS is too lax. But unlike Goldilocks, this court cannot demand that EPA get things "just right." Rather, for EPA's decision to survive these challenges, it need do no more than meet the statutory standards found in the Clean Air Act. "That the evidence in the record may also support other conclusions, even those that are inconsistent with [EPA's], does not prevent us from concluding that [its] decisions were rational . . . ." *Lead Industries Ass'n*, 647 F.2d at 1160 (footnote and citations omitted).

The Act requires us to overturn any EPA action that is arbitrary, capricious, an abuse of discretion, or contrary to law. 42 U.S.C. § 7607(d)(9)(A). The governmental and environmental petitioners argue that EPA's judgment—that a primary ozone NAAQS of 0.075 ppm is "requisite to protect the public health," 42 U.S.C. § 7409(b)(1)—was arbitrary and capricious because EPA failed to rationally consider scientific evidence demonstrating adverse health effects at ozone levels below 0.075 ppm. They also argue that EPA acted contrary to law because it failed to calculate an adequate margin of safety, as required by section 109(b)(1) of the Act, 42 U.S.C. § 7409(b)(1). Finally, they argue that EPA violated its statutory duty to explain and defend its decision to depart from CASAC's recommendations. *See id.* § 7607(d)(3), (6). We address each of these arguments in turn.

A.

It is true that "[a]n agency's failure adequately to consider a relevant and significant aspect of a problem may render its rulemaking arbitrary and capricious." *American Farm Bureau*, 559 F.3d at 520. But the corollary to EPA's obligation to "weigh the entire record," *Achernar Broadcasting Co. v. FCC*, 62 F.3d 1441, 1446 (D.C. Cir. 1995), is that no single piece of evidence is dispositive. *See American Farm Bureau*, 559 F.3d at 525; *see also ATA III*, 283 F.3d at 379. Moreover, "we do not determine the convincing force of evidence, nor the conclusion it should support, but only whether the conclusion reached by EPA is supported by substantial evidence when considered on the record as a whole." *Coalition for Responsible Regulation, Inc. v. EPA*, 684 F.3d 102, 122 (D.C. Cir. 2012) (per curiam).

Provided EPA meets its obligation "to explain and expose every step of its reasoning," *American Lung Ass'n v. EPA*, 134 F.3d 388, 392 (D.C. Cir. 1998), the governmental and environmental petitioners have a heavy burden to show that the totality of the evidence required EPA to decide differently than it did. *Lead Industries Ass'n*, 647 F.2d at 1160. This approach to giant administrative records is consistent with the deference principles discussed above. *See* Part II, *supra* at 14. Our role is circumscribed. We are merely to "determin[e] if [EPA] made a rational judgment," not to "weigh the evidence anew and make technical judgments." *Costle*, 665 F.2d at 1185.

The governmental and environmental petitioners argue that EPA failed to grapple with three major types of evidence that they claim favor a lower primary ozone NAAQS: controlled human exposure studies, epidemiological studies, and human exposure and health risk assessments. The record reveals, and petitioners do not dispute, that EPA considered

the entire body of scientific evidence available to it, discussing each type of evidence at each stage of its analysis. *See, e.g.*, 2007 Proposed Rule, 72 Fed. Reg. at 37,864–68; 2008 Final Rule, 73 Fed. Reg. at 16,452–70; *see also id.* at 16,439 (describing the range of evidence considered in the years-long review process). The petitioners argue instead that EPA's conclusion that a level of 0.075 ppm is "requisite" to protect public health cannot be rationally drawn from this evidence. We disagree. EPA's treatment of the evidence satisfies our deferential standard of review.

Petitioners argue that the controlled human exposure studies—in particular, the Adams studies—support a more protective primary NAAQS because they demonstrate adverse effects at the 0.060 ppm level. The Adams studies, published in 2002 and 2006, analyzed the results of laboratory experiments that directly measured the effects of ozone on humans' respiratory health by exposing thirty subjects to ozone in a controlled environment. Adams tested his subjects at various ozone concentrations, including 0.08 ppm and 0.06 ppm, but at no levels in between. He found that a small number of subjects exposed to ozone at 0.06 ppm experienced lung function decrements of at least ten percent—a level EPA considers to be harmful (or "adverse") to asthmatics. *See* 2008 Final Rule, 73 Fed. Reg. at 16,454–55. Petitioners argue that the 0.06 ppm Adams results were "unrebutted 'substantial evidence' " favoring a lower standard, and that EPA's decision to set the standard as high as 0.075 ppm " 'is not supported by substantial evidence.' " Environmental Petitioners' Br. 19 (quoting *City of Naples Airport Authority v. FAA*, 409 F.3d 431, 436 (D.C. Cir. 2005)). The crux of the dispute is whether EPA rationally treated this evidence of adverse effects as not dispositive.

EPA relied on the Adams studies and other clinical studies to justify its decision to lower the primary ozone NAAQS from the 0.08 ppm level, concluding that they "provide[d] the most certain evidence of adverse health effects" at 0.080 ppm available. 2008 Final Rule, 73 Fed. Reg. at 16,478. EPA also conducted a reanalysis of the Adams (2006) study that found "small group mean decrements in lung function responses to be statistically significant at the 0.060 ppm exposure level." *Id.* at 16,454. But EPA further concluded that the data at the 0.060 ppm level was too limited to support a reduction in the NAAQS to that level.

Each Adams study involved only thirty subjects, of which six at most experienced lung function decrements of ten percent or more at exposure levels below 0.080 ppm.[5] For this reason, the CASAC scientists had mixed views about the Adams studies. For instance, one scientific advisor stated that the number of data points in the Adams studies was "pitiful," and that the limited nature of the data was "astounding." Letter from Dr. Rogene Henderson, CASAC Chair, to

[5] The record includes conflicting accounts of the number of participants experiencing lung function decrements of ten percent or larger at 0.06 ppm. All accounts indicate that it was a small number, and never more than six. The precise number appears to depend on one's method of measuring lung function decrements. *Compare* OFFICE OF AIR QUALITY PLANNING AND STANDARDS, EPA, REVIEW OF THE NATIONAL AMBIENT AIR QUALITY STANDARDS FOR OZONE: POLICY ASSESSMENT OF SCIENTIFIC AND TECHNICAL INFORMATION ("STAFF PAPER"), § 3.3.1.1.1 (2007), EPA-452/R-07-007, *with* Letter from Dr. Rogene Henderson, CASAC Chair, to Stephen L. Johnson, EPA Administrator ("Mar. 2007 CASAC Letter"), at C-31–32 (Mar. 26, 2007), EPA-CASAC-07-002.

Stephen L. Johnson, EPA Administrator ("Mar. 2007 CASAC Letter"), at C-31–32 (Mar. 26, 2007), EPA-CASAC-07-002. Another cautioned that the responses Adams recorded at the 0.06 ppm level might merely reflect "normal variations" in human lung function rather than "real ozone responses." Oct. 2006 CASAC Letter, at D-14. In other words, other factors apart from a change in ozone levels—for example, participant fatigue or diminished effort—might explain the "decrements" that Adams observed. Adams *himself* was critical of those who drew strong conclusions from his results at the 0.06 ppm level because he determined that the average responses were not statistically significant. *See* William C. Adams, Comment on EPA Memorandum: The Effects of Ozone on Lung Function at 0.06 ppm in Healthy Adults (Oct. 9, 2007), EPA-HQ-OAR-2005-0172-4783. Ultimately, although EPA disagreed with Adams regarding the statistical significance of some results, it found that the study's small sample size could not "appropriately be generalized to the U.S. population." 2008 Final Rule, 73 Fed. Reg. at 16,454, 16,478.

Thus, while the 0.08 ppm results were robust, EPA rationally treated the 0.06 ppm results as inconclusive. Perhaps more studies like the Adams studies will yet reveal that the 0.060 ppm level produces significant adverse decrements that simply cannot be attributed to normal variation in lung function. But at the time of EPA's rulemaking, it was rational to treat the 0.06 ppm results with skepticism. The Adams results at 0.06 ppm indicate some degree of risk that some number of individuals might continue to experience health effects at and below 0.075 ppm, but we have previously acknowledged the impossibility of eliminating all risk of health effects from "non-threshold" pollutants like ozone. *See ATA III*, 283 F.3d at 360 ("The lack of a threshold concentration below which these pollutants are known to be harmless makes the task of setting primary

NAAQS difficult, as EPA must select standard levels that reduce risks sufficiently to protect public health even while recognizing that a zero-risk standard is not possible." (internal quotation marks and original alterations omitted)).

Petitioners counter that EPA has relied on even statistically nonsignificant results in the past when setting the primary ozone NAAQS, so the limitations of the Adams studies provide no basis for dismissing the evidence of adverse effects at that level. Environmental Petitioners' Br. 20–21. Be that as it may, the question for this court is not what EPA has done in the past, or even what levels it rationally *could* have settled on, but only whether it has provided a rational explanation of how it treated the evidence before it. *See ATA III*, 283 F.3d at 374 ("[W]e review [EPA's] scientific judgments . . . not as the chemist, biologist, or statistician that we are qualified neither by training nor experience to be, but as a reviewing court exercising our narrowly defined duty of holding agencies to certain minimal standards of rationality." (quoting *Troy Corp. v. Browner*, 120 F.3d 277, 283 (D.C. Cir. 1997)). Statistical quality affords a perfectly rational basis for assigning different weights to different pieces of scientific data when evaluating the totality of the evidence. While EPA is certainly permitted to look to statistically uncertain results, it is by no means required to rely on them. Its failure to do so in this case did not render its decision irrational.

The governmental and environmental petitioners next argue that EPA gave short shrift to the epidemiological studies. By using statistical techniques to analyze vast bodies of health and environmental data across large populations, epidemiological studies allow scientists to draw inferences about the harms of ozone without carefully calibrated laboratory experiments. EPA relied on over 250 such studies

during its 2008 rulemaking. 2008 Final Rule, 73 Fed. Reg. at 16,455, 16,479. Petitioners point out that some studies found significant correlations between ozone concentration and adverse health outcomes at levels well below 0.075 ppm. *See* Comments of the American Lung Association, Environmental Defense, Sierra Club on the U.S. Environmental Protection Agency's Proposed Revisions to the NAAQS for Ozone (Oct. 9, 2007), EPA-HQ-OAR-2005-0172-4261; Comments of American Thoracic Society, et al. (Oct. 9, 2007), EPA-HQ-OAR-2005-0172-4305. The studies were relatively consistent, and the results—as EPA admits—may help establish a causal relationship between the presence of ozone and the occurrence of adverse health effects. 2008 Final Rule, 73 Fed. Reg. at 16,450.

As with the Adams studies, EPA relied on the epidemiological studies to conclude that the existing standard of 0.08 ppm was too high. EPA noted that many epidemiological studies reported "statistically significant associations that generally extend down to ambient O_3 concentrations that are below the level of the current standard" and considered these studies as part of the body of "new evidence demonstrating that exposures to O_3 at levels below the level of the current standard are associated with a broad array of adverse health effects." *Id.* at 16,471. EPA also explained, however, that "the epidemiological studies are not themselves direct evidence of a causal link between exposure to O_3 and the occurrence of [health] effects," *id.* at 16,479, and that evidence of this causal relationship "becomes increasingly uncertain at lower levels of exposure." *Id.* at 16,478. EPA explained this uncertainty by reference to intrinsic indicators of reliability and extrinsic sources of corroboration, both of which provide substantial evidence for EPA's decision. For example, at much lower levels of ozone exposure, EPA questioned whether it could attribute the

epidemiological effects to ozone alone "rather than to the broader mix of air pollutants present in the ambient air." *Id.* at 16,456; *see also* EPA, Responses to Significant Comments on the 2007 Proposed Rule, at 29 (Mar. 2008), EPA-HQ-OAR-2005-0172-7185. Additionally, EPA relied on controlled studies like the Adams studies to lend "biological plausibility" to the inferences of causation drawn from epidemiological studies. According to EPA, while "[t]he biological plausibility of the epidemiological associations is generally supported by controlled human exposure and toxicological evidence of respiratory morbidity effects for levels at and below 0.080 ppm," that "biological plausibility becomes increasingly uncertain at much lower levels." 2008 Final Rule, 73 Fed. Reg. at 16,456. EPA's discussion of the limitations of the epidemiological studies at lower levels of ozone exposure satisfies the "minimal standards of rationality" to which we hold the agency. *See National Environmental Development Ass'n's Clean Air Project*, 686 F.3d at 810 (internal quotation marks omitted).

Petitioners also challenge EPA's interpretation of its own risk and exposure assessments. EPA did not rely heavily on them, though petitioners think it should have. These assessments model real-world interactions between a host of variables in order to predict health outcomes based on available data. 2008 Final Rule, 73 Fed. Reg. at 16,441. As such, they adhere to the inviolable law of data analysis, "garbage in; garbage out." That is, as CASAC cautioned EPA, the risk and exposure assessments are only as reputable as the inputs upon which they rely to produce their predictions. Oct. 2006 CASAC Letter, at 12; *see also* Letter from Dr. Rogene Henderson, CASAC Chair, to Stephen L. Johnson, EPA Administrator, at D-39 (Feb. 10, 2006), EPA-CASAC-06-003 (discussing similar weaknesses in risk assessment for the secondary NAAQS). In this case, the inputs were the very

data whose reliability EPA questioned at lower levels. Recognizing their limitations, we have previously approved EPA's cautious treatment of risk and exposure assessments when EPA "consider[s] all aspects of the problem" and "catalogue[s] its concerns." *See American Farm Bureau*, 559 F.3d at 527. We do the same now.

Having reasonably explained the limitations it believed existed in each of these bodies of scientific evidence, EPA concluded that the standard "must be set at a level appreciably below 0.080 ppm, the level at which there is considerable evidence of effects in healthy people." 2008 Final Rule, 73 Fed. Reg. at 16,480; *see also id.* at 16,483 ("0.080 ppm [is] the level in controlled human exposure studies at which adverse effects have been demonstrated."). EPA concluded that a standard set at 0.075 ppm "would be requisite to protect public health with an adequate margin of safety, including the health of sensitive subpopulations." *Id.* at 16,483. EPA explained that a standard lower than 0.075 ppm was not required because it "would only result in significant further public health protection if, in fact, there is a continuum of health risks in areas with 8-hour average O_3 concentrations that are well below the concentrations observed in the key controlled human exposure studies and if the reported associations observed in epidemiological studies are, in fact, causally related to O_3 at those lower levels." *Id.* Based on the uncertainties EPA had identified "in interpreting the evidence from available controlled human exposure and epidemiological studies at very low levels," EPA was "not prepared to make these assumptions." *Id.* Finding that "the likelihood of obtaining benefits to public health with a standard set below 0.075 ppm O_3 decreases, while the likelihood of requiring reductions in ambient concentrations that go beyond those that are needed to protect public health increases," EPA judged that "the appropriate balance to be

drawn" was a standard set at 0.075 ppm. *Id.* We see nothing arbitrary and capricious about EPA's balancing of these considerations.

B.

The governmental and environmental petitioners next argue that, even if the scientific evidence of adverse effects at ozone levels below 0.075 ppm remained uncertain, the overwhelming evidence of adverse effects at 0.080 ppm required a primary NAAQS lower than 0.075 ppm to ensure an adequate margin of safety. EPA is required to "allow[] an adequate margin of safety" in setting a primary NAAQS that is "requisite to protect the public health." 42 U.S.C. § 7409(b)(1). By requiring an "adequate margin of safety," Congress was directing EPA to build a buffer to protect against uncertain and unknown dangers to human health. *Lead Industries Ass'n*, 647 F.2d at 1154; *see also ATA III*, 283 F.3d at 368. Our case law has left EPA with a wide berth when it comes to deciding how best to account for an adequate margin of safety. In *Lead Industries Association*, we held that the choice of how to set a margin of safety is "a policy choice of the type that Congress specifically left to the Administrator's judgment." 647 F.2d at 1162. And in *American Trucking Associations*, we clarified that EPA need not "identify[] a 'safe level' and then apply[] an additional margin of safety"; instead, it may "take into account margin of safety considerations throughout the process as long as such considerations are fully explained and supported by the record." *ATA III*, 283 F.3d at 368 (internal quotation marks omitted).

In light of this deferential standard, we have only rarely found that the agency failed to build in a margin of safety. *See, e.g.*, *American Farm Bureau*, 559 F.3d at 525–26 (granting the petition for review in part because EPA failed to

account for a margin of safety). When we have, it has not been on the basis of our own untutored judgment about how large a margin is necessary, but rather for egregious procedural errors, such as EPA's failure to consider sensitive sub-populations, like asthmatics, children, or the elderly. *See id.* In this case, no such problem presents itself; EPA regularly and consistently considered the effects of its rules on these sensitive groups. *See, e.g.*, 2008 Final Rule, 73 Fed. Reg. at 16,476. EPA acknowledged that some of these subpopulations are more likely to experience adverse effects at all levels of exposure, requiring it to select a primary NAAQS level below the level at which adverse effects occur "with reasonable scientific certainty." *See id.* at 16,437 (explaining the purpose of the margin of safety); *id.* at 16,449 (describing CASAC's conclusion that existing studies do not adequately cover sensitive subpopulations); *id.* at 16,452 (adopting that conclusion in part). As a result, EPA set the standard "appreciably below" 0.080 ppm, the lowest level at which EPA expressed confidence that ozone causes adverse health effects in healthy individuals. *Id.* at 16,480. Petitioners have given us no reason to doubt EPA's characterization of the 0.075 ppm level as "appreciably below" 0.080 ppm. EPA complied with Congress's command in section 109(b)(1) to build in a margin of safety, and its judgment that this margin is adequate was not arbitrary or capricious.

C.

The governmental and environmental petitioners next argue that EPA failed to uphold its duty under the Act to provide "an explanation of the reasons" for departing from CASAC's recommendations. 42 U.S.C. § 7607(d)(3); *see also id.* § 7607(d)(6)(A). Congress created CASAC in the 1977 Clean Air Act Amendments and tasked it with providing scientific advice to aid EPA in setting NAAQS. *See id.* § 7409(d)(2). Expressing its "desire for continued

independent scientific review of the Environmental Protection Agency's exercise of judgment," H. Rep. No. 95-294, at 182 (1977), Congress directed CASAC to complete a review of the air quality criteria and primary and secondary NAAQS every five years and to "recommend to the Administrator any new national ambient air quality standards and revisions of existing criteria and standards as may be appropriate," 42 U.S.C. § 7409(d)(2)(B).

When Congress created CASAC, the promulgation of NAAQS was in its infancy. In describing the role it envisioned for CASAC, Congress emphasized the valuable role that advisory committees and expert groups had played in reviewing the first criteria documents and air quality standards issued in the late 1960s and early 1970s, explaining that "[f]or nearly 10 years the scientific basis for setting ambient air quality standards has been reviewed, evaluated, subjected to outside criticism, and reevaluated." H. Rep. No. 95-294, at 179–81. CASAC was intended to replicate this role by "provid[ing] an independent source of review and advice to the Administrator and to the Congress." *Id.* at 182. Thus, Congress explained that it established CASAC "[b]ecause of the admitted need for greater research, the importance of the national ambient air quality standards, the continuing controversy over the standards, and the committee's desire for continued independent scientific review of the Environmental Protection Agency's exercise of judgment." *Id.*

Congress expected that CASAC's central role would be one of scientific analysis, explaining that CASAC's "main function" was "to assess the health and environmental effects of ambient air pollution." *Id.* at 183. CASAC would "provide an outside mechanism for evaluating whether any pollutant may reasonably be anticipated to endanger public health or environment, for evaluating the scientific and medical data

which might bear on this question, and for reviewing gaps in the available data and recommending additional needs for research." *Id.* at 182. Given these functions, Congress expected that CASAC members would "be selected on the basis of their special expertise" in fields such as "environmental toxicology, epidemiology and/or clinical medicine." *Id.* at 183.

Congress also required EPA to take CASAC's expert scientific recommendations into account in promulgating NAAQS. Although EPA is not bound by CASAC's recommendations, it must fully explain its reasons for any departure from them. Specifically, section 307(d)(3) of the Act mandates that when EPA proposes to issue new NAAQS or revise existing NAAQS, the proposed rule must include a "statement of its basis and purpose" that "set[s] forth or summarize[s] and provide[s] a reference to any pertinent findings, recommendations, and comments by [CASAC]." 42 U.S.C. § 7607(d)(3). If EPA's "proposal differs in any important respect from any of [CASAC's] recommendations," the proposed rule must provide "an explanation of the reasons for such differences." *Id.* Section 307(d)(6) of the Act requires that the final promulgated rule must also "be accompanied by . . . a statement of basis and purpose like that referred to in paragraph (3) with respect to a proposed rule." *Id.* § 7607(d)(6)(A). Thus if, as here, EPA departs from CASAC's recommendations in the final rule, EPA must also explain there its reasons for doing so. *See American Farm Bureau*, 559 F.3d at 521 (concluding that EPA failed in the final rule "adequately to explain its reason for not accepting the CASAC's recommendations").

Congress intended that CASAC's expert scientific analysis aid not only EPA in promulgating NAAQS but also the courts in reviewing EPA's decisions. As Congress explained, CASAC's "views are to be included in the record

of any such rulemaking proceeding and, therefore, to be considered by the courts in reviewing the Administrator's action or inaction." H. Rep. No. 95-294, at 182–83. In order to enable judicial review and to satisfy its statutory obligation to explain its reasons for departing from CASAC, EPA must be precise in describing the basis for its disagreement with CASAC. If EPA's quarrel is with CASAC's scientific analysis, then in order to preserve the integrity of CASAC's scientific role, EPA must give a sound scientific reason for its disagreement. In reviewing such scientific explanations, we undertake a "searching and careful" inquiry into the facts "to ascertain whether there is substantial evidence in the record when considered as a whole which supports the Administrator's determinations." *Lead Industries Ass'n*, 647 F.2d at 1145–46 (internal quotation marks omitted). Alternatively, EPA could accept CASAC's scientific analysis yet explain the policy considerations that led it to select a different level than that recommended by CASAC. *See id.* at 1147. Of course, EPA's policy judgments "are not susceptible to the same type of verification or refutation by reference to the record as are some factual questions," and thus "our paramount objective" in reviewing them "is to see whether the agency, given an essentially legislative task to perform, has carried it out in a manner calculated to negate the dangers of arbitrariness and irrationality." *National Lime Ass'n v. EPA*, 627 F.2d 416, 431 n.48 (D.C. Cir. 1980) (internal quotation marks omitted).

In this case, the CASAC Ozone Review Panel was composed of twenty-three scientists who are professors, analysts, and other practitioners in fields such as medicine, anatomy, environmental science, and chemical engineering. Drawing on this substantial expertise, the twenty-three members of the panel, in an October 2006 letter to EPA following CASAC's peer review of the second draft of the

agency's Ozone Staff Paper, unanimously recommended that "the current primary ozone NAAQS be revised and that the level that should be considered for the revised standard be from 0.060 to 0.070 ppm." Oct. 2006 CASAC Letter, at 5. In explaining the basis for this recommendation, CASAC noted that "[a] large body of data clearly demonstrates adverse human health effects at the current level of the 8-hr primary ozone standard." *Id.* According to CASAC, "[r]etaining this standard would continue to put large numbers of individuals at risk for respiratory effects and/or significant impact on quality of life including asthma exacerbations, emergency room visits, hospital admissions and mortality." *Id.*

CASAC also noted a large body of studies providing "evidence for adverse health effects at concentrations lower than the current standard." *Id.* at 3. Among this evidence was a "broad range of epidemiologic and controlled exposure studies" observing multiple "adverse health effects due to low-concentration exposure to ambient ozone." *Id.* at 4. In addition, CASAC explained that the Adams (2006) study had observed "[s]tatistically-significant decrements in lung function . . . at the 0.08 ppm exposure level," as well as "adverse lung function effects . . . in some individuals at 0.06 ppm." *Id.* at 3. CASAC also noted that "these findings were observed in healthy volunteers" and that asthmatics and children had been found in other studies "to be more sensitive and to experience larger decrements in lung function in response to ozone exposures than would healthy volunteers." *Id.* at 4. Finally, pointing to the exposure and risk assessments, CASAC explained that "a significant decrease in adverse effects due to ozone exposures can be achieved by lowering the exposure concentrations below the current standard," noting that "[b]eneficial effects in terms of reduction of adverse health effects were calculated to occur at the lowest concentration considered (*i.e.*, 0.064 ppm)." *Id.* On

the basis of all this evidence, CASAC concluded that "the current primary 8-hr standard of 0.08 ppm needs to be substantially reduced to be protective of human health, particularly in sensitive subpopulations" and that the standard should be set within the range of 0.060 to 0.070 ppm. *Id.* at 4–5. CASAC reiterated this recommendation in a March 2007 letter to EPA, underscoring that "overwhelming scientific evidence" supported its recommendation "that the level of the current primary ozone standard should be lowered from 0.08 ppm to no greater than 0.070 ppm." Mar. 2007 CASAC Letter, at 2.

When EPA issued its notice of proposed rulemaking, it proposed to revise the primary ozone standard to within a range from 0.070 ppm, the high end of CASAC's recommended range, to 0.075 ppm. 2007 Proposed Rule, 72 Fed. Reg. at 37,878. EPA explained why it believed a standard set below 0.070 ppm would be inappropriate. *Id.* at 37,880. In the final rule, EPA departed from CASAC's recommended range and set the standard at 0.075 ppm. EPA acknowledged that this standard was "above the range recommended by the CASAC." 2008 Final Rule, 73 Fed. Reg. at 16,482. In explaining its departure, EPA catalogued its disputes with CASAC over the interpretation of specific bodies of scientific evidence and also noted that "the basis for [CASAC's] recommendation appears to be a mixture of scientific and policy considerations." *Id.* "[T]here is," EPA stated, "no bright line clearly directing the choice of level, and the choice of what is appropriate is clearly a public health policy judgment entrusted to the Administrator." *Id.* at 16,482–83. In explaining this policy judgment, EPA reasoned that "[a] standard set at a level lower than 0.075 would only result in significant further public health protection if, in fact, there is a continuum of health risks in areas with 8-hour average O_3 concentrations that are well below the

concentrations observed in the key controlled human exposure studies and if the reported associations observed in epidemiological studies are, in fact, causally related to O_3 at those lower levels." *Id.* at 16,483. "Based on the available evidence," EPA declared that it was "not prepared to make these assumptions." *Id.* "Taking into account the uncertainties that remain in interpreting the evidence from available controlled human exposure and epidemiological studies at very low levels," EPA concluded that "the likelihood of obtaining benefits to public health with a standard set below 0.075 ppm O_3 decreases, while the likelihood of requiring reductions in ambient concentrations that go beyond those that are needed to protect public health increases." *Id.* EPA thus "judge[d] that the appropriate balance to be drawn, based on the entire body of evidence and information available in this review, is a standard set at 0.075." *Id.*

This explanation rests largely on EPA's policy judgment about the appropriate NAAQS level. We have explained that, where EPA operates within the realm of uncertain science, its decisions about the appropriate NAAQS level must "necessarily . . . rest largely on policy judgments." *Lead Industries Ass'n*, 647 F.2d 1147 (internal quotation marks omitted). But this presupposes that the scientific evidence is actually uncertain—a question that itself requires a scientific determination. EPA did not make such a specific scientific determination about the 0.070 ppm level that served as the ceiling of CASAC's recommendation; instead, EPA referred generally to declining certainty below 0.075 ppm. Had CASAC reached a scientific conclusion that adverse health effects were likely to occur at the 0.070 ppm level, EPA's failure to justify its uncertainty regarding the existence of

adverse health effects at this level would be unacceptable.[6] Indeed, it is a familiar principle that agencies may not "merely recite the terms 'substantial uncertainty' as a justification for [their] actions"; instead, they "must explain the evidence which is available, and must offer a rational connection between the facts found and the choice made." *State Farm*, 463 U.S. at 52 (internal quotation marks omitted). In other words, EPA must explain why the evidence on which CASAC relied cannot support the degree of confidence CASAC placed in it. This is especially true given the added layer of stringency imposed by EPA's obligations under section 307(d)(6).

But we are unable to determine whether CASAC reached any such scientific conclusion. Although CASAC stated that "overwhelming scientific evidence" supported its recommendation that the standard be set no higher than 0.070 ppm, Mar. 2007 CASAC Letter, at 2, it never explained whether this proposal was based on its scientific judgment that adverse health effects would occur at that level or instead based on its more qualitative judgment that the range it proposed would be appropriately protective of human health with an adequate margin of safety. Indeed, although CASAC concluded that "there is no longer significant scientific uncertainty regarding [its] conclusion that the current 8-hr primary NAAQS must be lowered," given the "large body of data clearly demonstrat[ing] adverse human health effects at the current level," CASAC recognized that "[s]cientific uncertainty does exist with regard to the lower level of ozone

[6] This conclusion concerns only disagreements regarding the certainty of the science; of course, EPA could also have accepted CASAC's scientific conclusion and explained its view that any health effects at that level were not severe enough to be considered "adverse."

exposure that would be fully-protective of human health." Oct. 2006 CASAC Letter, at 5.

To be sure, EPA's statutory obligation to respond to CASAC does not evaporate whenever CASAC exercises judgment amidst scientific uncertainty. Quite to the contrary, had CASAC acknowledged uncertainty in the scientific evidence but explained that, based on its expert scientific judgment, it nonetheless believed adverse health effects were likely to occur at the 0.070 ppm level, then section 307(d)(6) would have required EPA to explain why it disagreed with this scientific conclusion. Put differently, to the extent that CASAC has exercised scientific judgment, EPA must respond in kind. But because CASAC never made clear the precise basis for its recommendation, all we know for certain is this: both CASAC and EPA believed the existence of adverse health effects to be certain at the 0.08 ppm level and reached differing conclusions about what level below 0.08 ppm was requisite to protect the public health with an adequate margin of safety.

The task of determining what standard is "requisite" to protect the qualitative value of public health or what margin of safety is "adequate" to protect sensitive subpopulations necessarily requires the exercise of policy judgment. Here, EPA's policy judgment was informed by its view of the limitations of the scientific evidence—namely, that at lower levels of ozone exposure, the clinical and epidemiological studies provide less conclusive evidence of the existence of adverse health effects. *See* 2008 Final Rule, 73 Fed. Reg. at 16,483 (noting "the uncertainties that remain in interpreting the evidence from available controlled human exposure and epidemiological studies at very low levels"). Striking a balance between "the increasing uncertainty associated with [its] understanding of the likelihood of such effects at lower

O_3 exposure levels" and "concern about the potential for health effects and their severity," *id.* at 16,477, EPA set the standard at 0.075 ppm, a level the agency believed to be "appreciably below" the 0.08 ppm level at which both EPA and CASAC expressed certainty about the existence of adverse health effects, *id.* at 16,483. Absent a definitive scientific conclusion from CASAC that adverse health effects would occur at the 0.070 ppm level, we must assume that it too took these same considerations into account and simply exercised its judgment to recommend a standard set at a lower level. Although both CASAC and EPA must exercise public health policy judgment when confronted with scientific evidence that does not *direct* it to a specific outcome, it is to EPA's judgment that we must defer.

In our view, this conclusion is perfectly consistent with the role Congress intended CASAC to play in the NAAQS-setting process. In order to ensure that EPA's NAAQS decisions rest on sound scientific judgment, Congress required EPA not only to describe CASAC's recommendations in any rulemaking but also, if it departs from such recommendations, to explain its reasons for doing so. *See* 42 U.S.C. § 7607(d)(3), (6). But in order for EPA to explain adequately its reasons for disagreeing with CASAC, CASAC itself must be precise about the basis for its recommendations. Because in this case CASAC failed to specify whether the 0.070 ppm level it recommended as a maximum rested on a scientific conclusion about the existence of adverse health effects at that level, EPA's invocation of scientific uncertainty and more general public health policy considerations satisfies its obligations under the statute.

IV.

We turn finally to EPA's decision to set the secondary ozone NAAQS "identical in every way to the revised primary standard." 2008 Final Rule, 73 Fed. Reg. at 16,500. The governmental and environmental petitioners argue, among other things, that EPA's failure to "specify a level of air quality . . . [that] is requisite to protect the public welfare," 42 U.S.C. § 7409(b)(2), violates the statute as interpreted in our decision in *American Farm Bureau*. Because we agree that EPA's justification for the secondary standard is inadequate under *American Farm Bureau*, we need not reach petitioners' other arguments.

As described above, the Clean Air Act requires secondary NAAQS to "specify a level of air quality the attainment and maintenance of which . . . is requisite to protect the public welfare from any known or anticipated adverse effects associated with the presence of such air pollutant in the ambient air." *Id.* Regarding ozone, EPA set the secondary NAAQS in 1997 to protect against harmful effects on vegetation and indirect effects on other ecosystem components. *See* 2008 Final Rule, 73 Fed. Reg. at 16,485. In the current review of the secondary standard, before EPA came to its final decision, agency staff examined new scientific evidence and risk assessments that evaluated ozone's welfare effects. *Id.* On the basis of this new evidence, EPA staff concluded that the existing 0.08 ppm 8-hour standard was inadequate because ozone at that level directly causes adverse effects to vegetation and has indirect adverse effects on soil, water, and wildlife. 2007 Proposed Rule, 72 Fed. Reg. at 37,883, 37,897–99. EPA staff also considered whether the evidence still justified a standard that measured ozone over an 8-hour interval or whether instead the secondary standard should measure ozone cumulatively over a seasonal period. *Id.* at 37,882–83. In the end, EPA staff

found that new evidence about the cumulative effect of ozone on vegetation supported a seasonal standard and recommended that the agency consider a range of seasonal levels between 7 and 21 ppm-hours. *Id.* at 37,900, 37,903.

CASAC unanimously agreed with EPA staff that adverse effects on vegetation occur under the existing standard and that "it is not appropriate to try to protect vegetation . . . by continuing to promulgate identical primary and secondary standards for O_3." 2008 Final Rule, 73 Fed. Reg. at 16,492. All but one member of the CASAC panel "encourage[d] [EPA] to establish an alternative cumulative secondary standard for O_3 and related photochemical oxidants that is distinctly different in averaging time, form and level from the currently existing or potentially revised 8-hour primary standard." 2007 Proposed Rule, 72 Fed. Reg. at 37,899 & n.62 (internal quotation marks omitted). CASAC also agreed with EPA staff that the lowest seasonal level that the agency should consider was 7 ppm-hours, but recommended that EPA consider a level no higher than 15 ppm-hours. *Id.* at 37,903.

In the final rule, EPA agreed that new evidence indicates that ozone causes adverse effects on vegetation and related ecosystems at the current level of the secondary standard and concluded that it was appropriate to revise the secondary standard to provide increased protection. 2008 Final Rule, 73 Fed. Reg. at 16,496, 16,499–500. Regarding the recommendations to adopt a cumulative seasonal standard, EPA cited a staff analysis that found "significant overlap" between counties expected to meet the revised 8-hour primary standard and counties that would meet a cumulative seasonal standard. *Id.* at 16,499. EPA "focused [its] consideration on a level for an alternative [seasonal] standard at the upper end of the proposed range (i.e., 21 ppm-hours)" and found

"essentially no counties with air quality that would be expected both to exceed such an alternative [seasonal] standard and to meet the revised 8-hour primary standard." *Id.* at 16,499–500. From this comparison, EPA concluded that merely revising the secondary standard to match the revised primary standard would "provide a significant degree of additional protection for vegetation" and that "a [seasonal] standard would be unlikely to provide additional protection in any areas beyond that likely to be provided by the revised primary standard." *Id.* at 16,499–500. Citing the "significant uncertainties in determining or quantifying the degree of risk attributable to varying levels of O_3 exposure, the degree of protection that any specific cumulative, seasonal standard would produce, and the associated potential for error in determining the standard that will provide a requisite degree of protection," EPA rejected a cumulative seasonal standard in favor of a secondary standard that was identical to the revised primary standard. *Id.* at 16,500.

In *American Farm Bureau*, we rejected EPA's explanation for setting the fine particulate matter secondary NAAQS—which protects public welfare from adverse visibility effects—identical to the primary fine particulate matter standard. 559 F.3d at 530–31. While the primary standard measured fine particulate matter levels annually, EPA staff and CASAC had recommended that the secondary standard measure fine particulate matter over 4- or 8-hour periods, suggesting a range of appropriate levels for this alternatively measured standard. *Id.* at 528. EPA rejected these recommendations on the ground that the evidence supporting the recommended alternative standard was "limited and uncertain," instead adopting a secondary standard that was identical to the primary standard. *Id.* at 529 (internal quotation marks omitted). In so doing, EPA relied on a comparison purporting to show that the revised primary

NAAQS would actually provide slightly more visibility protection than one proposed level of the alternative standard. *Id.*

Relying on the statute's plain language—EPA "shall specify a level of air quality the attainment and maintenance of which . . . is requisite to protect the public welfare from any known or anticipated adverse effects," 42 U.S.C. § 7409(b)(2)—we rejected EPA's explanation, finding that EPA must "determine what level of visibility protection is requisite to protect the public welfare," *American Farm Bureau*, 559 F.3d at 530. We also found that EPA's reliance on the comparison between the primary standard and the recommended secondary standards "fail[ed] on its own terms." *Id.* "[T]wo-thirds of the potential standards within the CASAC's recommended range," we explained, "would be substantially more protective than the primary standards," and "EPA failed to explain why it looked only at one of the few potential standards that would be less protective." *Id.* Furthermore, we faulted EPA's failure to respond to technical problems with the comparison identified by CASAC and EPA staff. *Id.* at 530–31.

Although *American Farm Bureau* was decided after EPA issued the rule challenged here, the decision is binding on us now—a proposition that EPA nowhere disputes. *Bradley v. School Board of City of Richmond*, 416 U.S. 696, 714 (1974) ("[A]n appellate court must apply the law in effect at the time it renders its decision." (quoting *Thorpe v. Housing Authority of City of Durham*, 393 U.S. 268, 281 (1969))). Indeed, the statutory requirement that the secondary NAAQS "specify a level of air quality the attainment and maintenance of which . . . is requisite to protect the public welfare," 42 U.S.C. § 7409(b)(2), existed when EPA issued the rules at issue in *American Farm Bureau* and here.

EPA's explanation for setting the secondary standard identical to the primary standard fails under *American Farm Bureau*. As we explained there, it is insufficient for EPA merely to compare the level of protection afforded by the primary standard to possible secondary standards and find the two roughly equivalent. EPA must expressly "determine what level of . . . protection is requisite to protect the public welfare," *American Farm Bureau*, 559 F.3d at 530, and explain why this is so. Here EPA found "significant overlap" between the revised primary standard and "selected levels" of a seasonal standard, 2008 Final Rule, 73 Fed. Reg. at 16,499, and it did say that the revised primary standard "would be sufficient to protect public welfare from known or anticipated adverse effects," *id.* at 16,500. But it justified this conclusion only by comparing the revised primary standard to a seasonal level of 21 ppm-hours that EPA never "specif[ed]" was "requisite to protect the public welfare," 42 U.S.C. § 7409(b)(2)—exactly what *American Farm Bureau* held is inconsistent with the statute.

EPA argues that it "identified a target level of protection in terms of a cumulative, seasonal standard." Respondent's Br. 122. In support, the agency points to the sentence in the final rule stating that EPA "focused [its] consideration on a level . . . at the upper end of the proposed range (i.e., 21 ppm-hours)." 2008 Final Rule, 73 Fed. Reg. at 16,499–500. But neither this statement nor anything else EPA said indicated that the 21 ppm-hours level was "requisite to protect the public welfare." Perhaps more importantly, EPA never explained *why* a 21 ppm-hours level would, in fact, be requisite to protect vegetation. That a seasonal standard of 21 ppm-hours was one of the levels proposed by EPA staff hardly shows that the level was "requisite to protect the public welfare."

Also as in *American Farm Bureau*, EPA's comparison between the primary and secondary standards "fails on its own terms." 559 F.3d at 530. Although the comparison between the revised 8-hour standard and a seasonal standard showed that the level of protection afforded by the revised primary standard would be arguably equivalent to the level of protection afforded by a 21 ppm-hours seasonal standard, the comparison also showed that the primary standard would offer less protection than other seasonal levels within the range recommended by CASAC and EPA staff. *See* 2007 Proposed Rule, 72 Fed. Reg. at 37,892–93. In *American Farm Bureau*, "EPA failed to explain why it looked only at one of the few potential standards that would be less protective . . . than the primary standard," 559 F.3d at 530; in this case, EPA failed to explain why it looked only at one potential seasonal standard that the primary standard would arguably protect as well as.

At oral argument, counsel for EPA repeatedly insisted that petitioners "tacitly conceded" that the agency identified a target level of protection by "criticiz[ing] the reason EPA focused on 21 [ppm-hours]." Oral Arg. Rec. 1:50:43–51:06; *see also id.* 1:50:02–16. But counsel confuses assuming a premise for the sake of argument with conceding the point. Petitioners argue both that EPA failed to identify a target level of protection and that, even if EPA had in fact determined that the "requisite" level was 21 ppm-hours, that finding was irrational. *See* Environmental Petitioners' Br. 35–37 ("EPA Acted Illegally and Arbitrarily in Failing to Identify the Level of Air Quality Requisite to Protect Against Adverse Vegetation Impacts."); *id.* at 37–39 ("EPA's Decision on the Secondary Standard Was Irrational."); *id.* at 39–40 ("EPA's Attempts to Justify Its Secondary Standard Were Groundless."). Contending that settling on 21 ppm-hours

would be senseless hardly precludes petitioners from arguing that EPA never expressly made the required determination.

Because EPA failed to determine what level of protection was "requisite to protect the public welfare," EPA's explanation for the secondary standard violates the Act. We therefore remand this portion of the final rule for further explanation or reconsideration by EPA. In the meantime, we leave the standard in place rather than vacating the rule. "First, the EPA's failure adequately to explain itself is in principle a curable defect. Second, vacating a standard because it may be insufficiently protective would sacrifice such protection as it now provides, making the best an enemy of the good." *American Farm Bureau*, 559 F.3d at 528. Given these principles, neither EPA nor petitioners advocate vacatur.

V.

For the foregoing reasons, we remand the secondary NAAQS to EPA for reconsideration in view of this opinion. In all other respects, the petitions for review are denied.

So ordered.

ORAL ARGUMENT HEARD ON NOVEMBER 16, 2012

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

STATE OF MISSISSIPPI, Petitioner, v. UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, Respondent.	No. 08-1200 (and consolidated cases)

CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES

Environmental Petitioners American Lung Association, Environmental Defense Fund, Natural Resources Defense Council, National Parks Conservation Association, and Appalachian Mountain Club submit this certificate as to parties, rulings, and related cases.

(A) Parties and *Amici*

(i) Parties, Intervenors, and *Amici* Who Appeared in the District Court

This case is a petition for review of final agency action, not an appeal from the ruling of a district court.

(ii) Parties to This Case

Petitioners

The Petitioner in case no. 08-1200 is the State of Mississippi.

The Petitioners in case no. 08-1202 are the State of New York, the State of California, the California Air Resources Board, the State of Connecticut, the State of Delaware, the State of Illinois, the State of Maine, the State of Maryland, the Commonwealth of Massachusetts, the State of New Hampshire, the State of New Mexico, the State of Oregon, the State of Rhode Island, the District of Columbia, and the City of New York.

The Petitioners in case no. 08-1203 are the American Lung Association, Environmental Defense Fund, Natural Resources Defense Council, National Parks Conservation Association, and Appalachian Mountain Club.

The Petitioners in case no. 08-1204 are the Ozone NAAQS Litigation Group and the Utility Air Regulatory Group.

The Petitioner in case no. 08-1206 is the National Association of Home Builders.

Respondent

The U.S. Environmental Protection Agency is the Respondent in all these consolidated cases.

Intervenors

On the side of petitioners New York et al. in case no. 08-1202 is the County of Nassau.

On the side of EPA in case nos. 08-1200, 08-1204, and 08-1206, American Lung Association, Appalachian Mountain Club, Environmental Defense Fund, and Natural Resources Defense Council.

On the side of EPA in case nos. 08-1202 and 08-1203, Mississippi, the Ozone NAAQS Litigation Group, the Utility Air Regulatory Group, and the National Association of Homebuilders.

(iii) Amici in This Case

Amicus Curiae in support of New York et al. and American Lung Association et al. is the Province of Ontario.

(iv) Circuit Rule 26.1 Disclosures for Petitioners

See the attached Environmental Petitioners' Rule 26.1 Disclosure Statement.

(B) Rulings Under Review

Petitioners seek review of the final action taken by respondent at 73 Fed. Reg. 16,436 (March 27, 2008), entitled "National Ambient Air Quality Standards for Ozone."

(C) Related Cases

Petitioners are unaware of any related cases (other than those already consolidated with this) within the meaning of Circuit Rule 28(a)(1)(C).

DATED: September 6, 2013

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ENVIRONMENTAL PETITIONERS'
RULE 26.1 DISCLOSURE STATEMENT

Pursuant to Fed. R. App. P. 26.1, petitioners make the following disclosures:

American Lung Association: American Lung Association has no parent companies, and there are no publicly held companies that have a 10 percent or greater ownership interest in the American Lung Association.

American Lung Association, a corporation organized and existing under the laws of the State of Maine, is a national nonprofit organization dedicated to preventing lung disease and promoting lung health.

Environmental Defense Fund: Environmental Defense Fund has no parent companies, and there are no publicly held companies that have a 10 percent or greater ownership interest in the Environmental Defense Fund.

Environmental Defense Fund, a corporation organized and existing under the laws of the State of New York, is a national nonprofit organization that links science, economics, and law to create innovative, equitable, and cost-effective solutions to the most urgent environmental problems.

Natural Resources Defense Council: Natural Resources Defense Council has no parent companies, and there are no publicly held companies that have a 10 percent or greater ownership interest in the Natural Resources Defense Council.

Natural Resources Defense Council, a corporation organized and existing under the laws of the State of New York, is a national nonprofit organization dedicated to improving the quality of the human environment and protecting the nation's endangered natural resources.

National Parks Conservation Association: National Parks Conservation Association has no parent companies, and there are no publicly held companies that have a 10 percent or greater ownership interest in the National Parks Conservation Association.

National Parks Conservation Association, a corporation organized and existing under the laws of the District of Columbia, is a national nonprofit organization dedicated to protecting and enhancing America's National Parks for present and future generations.

Appalachian Mountain Club: Appalachian Mountain Club has no parent companies, and there are no publicly held companies that have a 10 percent or greater ownership interest in the Appalachian Mountain Club.

Appalachian Mountain Club, a corporation organized and existing under the laws of the State of Massachusetts, is a national nonprofit organization dedicated to promoting the protection, enjoyment, and wise use of the mountains, rivers, and trails of the Northeast Outdoors.

DATED: September 6, 2013

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on this 6th day of September, 2013, I have served the foregoing **Petition for Panel Rehearing** on all registered counsel through the Court's electronic filing system (ECF).

/s/David S. Baron
David S. Baron