

Supplement to Air Pollution, 3d Edition (Anderson Pub. Co. 1999)
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WHITMAN V. AMERICAN TRUCKING ASS'N, INC.
121 S. Ct. 903 (2001)

Justice SCALIA delivered the opinion of the Court.

These cases present the following questions: (1) Whether § 109(b)(1) of the Clean Air Act (CAA) delegates legislative power to the Administrator of the Environmental Protection Agency (EPA). (2) Whether the Administrator may consider the costs of implementation in setting national ambient air quality standards (NAAQS) under § 109(b)(1). (3) Whether the Court of Appeals had jurisdiction to review the EPA's interpretation of Part D of Title I of the CAA, 42 U.S.C. §§ 7501-7515, with respect to implementing the revised ozone NAAQS. (4) If so, whether the EPA's interpretation of that part was permissible.

I

Section 109(a) of the CAA requires the Administrator of the EPA to promulgate NAAQS for each air pollutant for which "air quality criteria" have been issued under § 108. Once a NAAQS has been promulgated, the Administrator must review the standard (and the criteria on which it is based) "at five-year intervals" and make "such revisions . . . as may be appropriate." CAA § 109(d)(1). These cases arose when, on July 18, 1997, the Administrator revised the NAAQS for particulate matter (PM) and ozone. *See* NAAQS for Particulate Matter, 62 Fed.Reg. 38652 (codified in 40 CFR § 50.7 (1999)); NAAQS for Ozone, *id.* at 38856 (codified in 40 CFR §§ 50.9, 50.10 (1999)). American Trucking Associations, Inc., and its co-respondents in No. 99-1257--which include, in addition to other private companies, the States of Michigan, Ohio, and West Virginia--challenged the new standards in the Court of Appeals for the District of Columbia Circuit, pursuant to § 307(b)(1).

The District of Columbia Circuit accepted some of the challenges and rejected others. It agreed with the No. 99-1257 respondents (hereinafter respondents) that § 109(b)(1) delegated legislative power to the Administrator in contravention of the United States Constitution, Art. I, § 1, because it found that the EPA had interpreted the statute to provide no "intelligible principle" to guide the agency's exercise of authority. *American Trucking Assns., Inc. v. EPA*, 175 F.3d 1027, 1034 (C.A.D.C.1999). The court thought, however, that the EPA could perhaps avoid the unconstitutional delegation by adopting a restrictive construction of § 109(b)(1), so instead of declaring the section unconstitutional the court remanded the NAAQS to the agency. *Id.* at 1038. * * * On the second issue that the Court of Appeals addressed, it unanimously rejected respondents' argument that the court should depart from the rule of *Lead Industries Assn., Inc. v. EPA*, 647 F.2d 1130, 1148 (C.A.D.C.1980), that the EPA may not consider the cost of implementing a NAAQS in setting the initial standard. It also rejected respondents' argument that the implementation provisions for ozone found in Part D, Subpart 2, of Title I of the CAA, 42 U.S.C. §§ 7511-7511f, were so tied to the existing ozone standard that the EPA lacked the power to revise the standard. The court held that although Subpart 2 constrained the agency's method of implementing the new standard, 175 F.3d at 1050, it did not prevent the EPA from revising the standard and designating areas of the

country as “nonattainment areas,” *see* 42 U.S.C. § 7407(d)(1), by reference to it, 175 F.3d at 1047-1048. On the EPA’s petition for rehearing, the panel adhered to its position on these points, and unanimously rejected the EPA’s new argument that the court lacked jurisdiction to reach the implementation question because there had been no “final” implementation action. *American Trucking Assns., Inc. v. EPA*, 195 F.3d 4 (C.A.D.C.1999). The Court of Appeals denied the EPA’s suggestion for rehearing en banc, with five judges dissenting. *Id.* at 13.

The Administrator and the EPA petitioned this Court for review of the first, third, and fourth questions described in the first paragraph of this opinion. Respondents conditionally cross-petitioned for review of the second question. We granted certiorari on both petitions, 529 U.S. 1129 (2000); 530 U.S. 1202 (2000), and scheduled the cases for argument in tandem. We have now consolidated the cases for purposes of decision.

II

In *Lead Industries Assn., Inc. v. EPA*, *supra*, at 1148, the District of Columbia Circuit held that “economic considerations [may] play no part in the promulgation of ambient air quality standards under Section 109” of the CAA. In the present cases, the court adhered to that holding, 175 F.3d at 1040-1041, as it had done on many other occasions. *See, e.g., American Lung Assn. v. EPA*, 134 F.3d 388, 389 (C.A.D.C.1998); *NRDC v. Administrator, EPA*, 902 F.2d 962, 973 (C.A.D.C.1990), *vacated in part on other grounds, NRDC v. EPA*, 921 F.2d 326 (C.A.D.C.1991); *American Petroleum Institute v. Costle*, 665 F.2d 1176, 1185 (C.A.D.C.1981). Respondents argue that these decisions are incorrect. We disagree; and since the first step in assessing whether a statute delegates legislative power is to determine what authority the statute confers, we address that issue of interpretation first and reach respondents’ constitutional arguments in Part III, *infra*.

Section 109(b)(1) instructs the EPA to set primary ambient air quality standards “the attainment and maintenance of which . . . are requisite to protect the public health” with “an adequate margin of safety.” Were it not for the hundreds of pages of briefing respondents have submitted on the issue, one would have thought it fairly clear that this text does not permit the EPA to consider costs in setting the standards. The language, as one scholar has noted, “is absolute.” D. CURRIE, *AIR POLLUTION: FEDERAL LAW AND ANALYSIS* 4-15 (1981). The EPA, “based on” the information about health effects contained in the technical “criteria” documents compiled under § 108(a)(2), is to identify the maximum airborne concentration of a pollutant that the public health can tolerate, decrease the concentration to provide an “adequate” margin of safety, and set the standard at that level. Nowhere are the costs of achieving such a standard made part of that initial calculation.

Against this most natural of readings, respondents make a lengthy, spirited, but ultimately unsuccessful attack. They begin with the object of § 109(b)(1)’s focus, the “public health.” When the term first appeared in federal clean air legislation--in the Act of July 14, 1955 (1955 Act), 69 Stat. 322, which expressed “recognition of the dangers to the public health” from air pollution--its ordinary meaning was “[t]he health of the community.” WEBSTER’S NEW INTERNATIONAL DICTIONARY 2005 (2d ed.1950). Respondents argue, however, that § 109(b)(1), as added by the Clean Air Amendments of 1970 (1970 Act), 84 Stat. 1676, meant to use the term’s secondary meaning: “[t]he ways and means of conserving the health of the members of a community, as by preventive medicine, organized care of the sick, etc.” *Ibid.* Words that can have more than one meaning are given content, however, by their surroundings, *FDA v. Brown & Williamson Tobacco*

Corp., 529 U.S. 120, 132-133 (2000); *Jones v. United States*, 527 U.S. 373 (1999), and in the context of § 109(b)(1) this second definition makes no sense. Congress could not have meant to instruct the Administrator to set NAAQS at a level “requisite to protect” “the art and science dealing with the protection and improvement of community health.” WEBSTER’S THIRD NEW INTERNATIONAL DICTIONARY 1836 (1981). We therefore revert to the primary definition of the term: the health of the public.

Even so, respondents argue, many more factors than air pollution affect public health. In particular, the economic cost of implementing a very stringent standard might produce health losses sufficient to offset the health gains achieved in cleaning the air--for example, by closing down whole industries and thereby impoverishing the workers and consumers dependent upon those industries. That is unquestionably true, and Congress was unquestionably aware of it. Thus, Congress had commissioned in the Air Quality Act of 1967 (1967 Act) “a detailed estimate of the cost of carrying out the provisions of this Act; a comprehensive study of the cost of program implementation by affected units of government; and a comprehensive study of the economic impact of air quality standards on the Nation’s industries, communities, and other contributing sources of pollution.” § 2, 81 Stat. 505. The 1970 Congress, armed with the results of this study, *see* The Cost of Clean Air, S. Doc. No. 91-40 (1969) (publishing the results of the study), not only anticipated that compliance costs could injure the public health, but provided for that precise exigency. Section 110(f)(1) of the CAA permitted the Administrator to waive the compliance deadline for stationary sources if, *inter alia*, sufficient control measures were simply unavailable and “the continued operation of such sources is *essential . . . to the public health or welfare.*” 84 Stat. 1683 (emphasis added). Other provisions explicitly permitted or required economic costs to be taken into account in implementing the air quality standards. Section 111(b)(1)(B), for example, commanded the Administrator to set “standards of performance” for certain new sources of emissions that as specified in § 111(a)(1) were to “reflec[t] the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction) the Administrator determines has been adequately demonstrated.” * * *

Accordingly, to prevail in their present challenge, respondents must show a textual commitment of authority to the EPA to consider costs in setting NAAQS under § 109(b)(1). And because § 109(b)(1) and the NAAQS for which it provides are the engine that drives nearly all of Title I of the CAA, 42 U.S.C. §§ 7401-7515, that textual commitment must be a clear one. Congress, we have held, does not alter the fundamental details of a regulatory scheme in vague terms or ancillary provisions--it does not, one might say, hide elephants in mouseholes. *See MCI Telecommunications Corp. v. American Telephone & Telegraph Co.*, 512 U.S. 218, 231 (1994); *FDA v. Brown & Williamson Tobacco Corp.*, *supra*, at 159-160. Respondents’ textual arguments ultimately founder upon this principle.

Their first claim is that § 109(b)(1)’s terms “adequate margin” and “requisite” leave room to pad health effects with cost concerns. Just as we found it “highly unlikely that Congress would leave the determination of whether an industry will be entirely, or even substantially, rate-regulated to agency discretion--and even more unlikely that it would achieve that through such a subtle device as permission to ‘modify’ rate-filing requirements,” *MCI Telecommunications Corp. v. American Telephone & Telegraph Co.*, *supra*, at 231, so also we find it implausible that Congress would give to the EPA through these modest words the power to determine whether implementation costs should moderate national air quality standards. * * *

The same defect inheres in respondents' next two arguments: that while the Administrator's judgment about what is requisite to protect the public health must be "based on [the] criteria" documents developed under § 108(a)(2), *see* § 109(b)(1), it need not be based *solely* on those criteria; and that those criteria themselves, while they must include "effects on public health or welfare which may be expected from the presence of such pollutant in the ambient air," are not necessarily *limited* to those effects. Even if we were to concede those premises, we still would not conclude that one of the unenumerated factors that the agency can consider in developing and applying the criteria is cost of implementation. That factor is *both* so indirectly related to public health *and* so full of potential for canceling the conclusions drawn from direct health effects that it would surely have been expressly mentioned in §§ 108 and 109 had Congress meant it to be considered. Yet while those provisions describe in detail how the health effects of pollutants in the ambient air are to be calculated and given effect, *see* § 108(a)(2), they say not a word about costs.

Respondents point, finally, to a number of provisions in the CAA that *do* require attainment cost data to be generated. Section 108(b)(1), for example, instructs the Administrator to "issue to the States," simultaneously with the criteria documents, "information on air pollution control techniques, which information shall include data relating to the cost of installation and operation." And § 109(d)(2)(C)(iv) requires the Clean Air Scientific Advisory Committee to "advise the Administrator of any adverse public health, welfare, social, economic, or energy effects which may result from various strategies for attainment and maintenance" of NAAQS. Respondents argue that these provisions make no sense unless costs are to be considered in setting the NAAQS. That is not so. These provisions enable the Administrator to assist the States in carrying out their statutory role as primary *implementers* of the NAAQS. It is to the States that the Act assigns initial and primary responsibility for deciding what emissions reductions will be required from which sources. *See* 42 U.S.C. §§ 7407(a), 7410 (giving States the duty of developing implementation plans). It would be impossible to perform that task intelligently without considering which abatement technologies are most efficient, and most economically feasible--which is why we have said that "the most important forum for consideration of claims of economic and technological infeasibility is before the state agency formulating the implementation plan," *Union Elec. Co. v. EPA*, 427 U.S. at 266. Thus, federal clean air legislation has, from the very beginning, directed federal agencies to develop and transmit implementation data, including cost data, to the States. *See* 1955 Act, § 2(b), 69 Stat. 322; Clean Air Act of 1963, amending §§ 3(a), (b) of the CAA, 77 Stat. 394; 1967 Act, §§ 103(a)-(d), 104, 107(c), 81 Stat. 486-488. That Congress chose to carry forward this research program to assist States in choosing the means through which they would implement the standards is perfectly sensible, and has no bearing upon whether cost considerations are to be taken into account in formulating the standards.³

³ Respondents scarcely mention in their arguments the *secondary* NAAQS required by § 109(b)(2). For many of the same reasons described in the body of the opinion, as well as the text of

§ 109(b)(2), which instructs the EPA to set the standards at a level “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*” (emphasis added), we conclude that the EPA may not consider implementation costs in setting the secondary NAAQS.

It should be clear from what we have said that the canon requiring texts to be so construed as to avoid serious constitutional problems has no application here. No matter how severe the constitutional doubt, courts may choose only between reasonably available interpretations of a text. *See, e.g., Miller v. French*, 530 U.S. 327, 341 (2000); *Pennsylvania Dept. of Corrections v. Yeskey*, 524 U.S. 206, 212 (1998). The text of § 109(b), interpreted in its statutory and historical context and with appreciation for its importance to the CAA as a whole, unambiguously bars cost considerations from the NAAQS-setting process, and thus ends the matter for us as well as the EPA. We therefore affirm the judgment of the Court of Appeals on this point.

III

Section 109(b)(1) of the CAA instructs the EPA to set “ambient air quality standards the attainment and maintenance of which in the judgment of the Administrator, based on [the] criteria [documents of § 108] and allowing an adequate margin of safety, are requisite to protect the public health.” The Court of Appeals held that this section as interpreted by the Administrator did not provide an “intelligible principle” to guide the EPA’s exercise of authority in setting NAAQS. “[The] EPA,” it said, “lack[ed] any determinate criteria for drawing lines. It has failed to state intelligibly how much is too much.” 175 F.3d at 1034. The court hence found that the EPA’s interpretation (but not the statute itself) violated the nondelegation doctrine. *Id.* at 1038. We disagree.

* * *

We agree with the Solicitor General that the text of § 109(b)(1) of the CAA at a minimum requires that “[f]or a discrete set of pollutants and based on published air quality criteria that reflect the latest scientific knowledge, [the] EPA must establish uniform national standards at a level that is requisite to protect public health from the adverse effects of the pollutant in the ambient air.” Tr. of Oral Arg. in No. 99-1257, p. 5. Requisite, in turn, “mean[s] sufficient, but not more than necessary.” *Id.* at 7. These limits on the EPA’s discretion are strikingly similar to the ones we approved in *Touby v. United States*, 500 U.S. 160 (1991), which permitted the Attorney General to designate a drug as a controlled substance for purposes of criminal drug enforcement if doing so was ““necessary to avoid an imminent hazard to the public safety.”” *Id.* at 163. * * *

The scope of discretion § 109(b)(1) allows is in fact well within the outer limits of our nondelegation precedents. In the history of the Court we have found the requisite “intelligible principle” lacking in only two statutes, one of which provided literally no guidance for the exercise of discretion, and the other of which conferred authority to regulate the entire economy on the basis of no more precise a standard than stimulating the economy by assuring “fair competition.” *See Panama Refining Co. v. Ryan*, 293 U.S. 388 (1935); *A.L.A. Schechter Poultry Corp. v. United States*, 295 U.S. 495 (1935). We have, on the other hand, upheld the validity of § 11(b)(2) of the Public Utility Holding Company Act of 1935, 49 Stat. 821, which gave the Securities and Exchange Commission authority to modify the structure of holding company systems so as to ensure that they are not “unduly or unnecessarily complicate[d]” and do not “unfairly or inequitably distribute voting power among security holders.” *American Power & Light Co. v. SEC*, 329 U.S. 90, 104 (1946). We have approved the wartime conferral of agency power to fix the prices of commodities at a level that

“will be generally fair and equitable and will effectuate the [in some respects conflicting] purposes of th[e] Act.” *Yakus v. United States*, 321 U.S. 414 (1944). And we have found an “intelligible principle” in various statutes authorizing regulation in the “public interest.” *See, e.g., National Broadcasting Co. v. United States*, 319 U.S. 190 (1943) (FCC’s power to regulate airwaves); *New York Central Securities Corp. v. United States*, 287 U.S. 12, 24-25 (1932) (ICC’s power to approve railroad consolidations). * * *

It is true enough that the degree of agency discretion that is acceptable varies according to the scope of the power congressionally conferred. *See Loving v. United States, supra*, at 772-773; *United States v. Mazurie*, 419 U.S. 544, 556-557 (1975). While Congress need not provide any direction to the EPA regarding the manner in which it is to define “country elevators,” which are to be exempt from new stationary source regulations governing grain elevators, *see* § 111(i), it must provide substantial guidance on setting air standards that affect the entire national economy. But even in sweeping regulatory schemes we have never demanded, as the Court of Appeals did here, that statutes provide a “determinate criterion” for saying “how much [of the regulated harm] is too much.” 175 F.3d at 1034. In *Touby*, for example, we did not require the statute to decree how “imminent” was too imminent, or how “necessary” was necessary enough, or even--most relevant here--how “hazardous” was too hazardous. 500 U.S. at 165-167. Similarly, the statute at issue in *Lichter* authorized agencies to recoup “excess profits” paid under wartime Government contracts, yet we did not insist that Congress specify how much profit was too much. 334 U.S. at 783-786. It is therefore not conclusive for delegation purposes that, as respondents argue, ozone and particulate matter are “nonthreshold” pollutants that inflict a continuum of adverse health effects at any airborne concentration greater than zero, and hence require the EPA to make judgments of degree. * * * Section 109(b)(1) of the CAA, which to repeat we interpret as requiring the EPA to set air quality standards at the level that is “requisite”--that is, not lower or higher than is necessary--to protect the public health with an adequate margin of safety, fits comfortably within the scope of discretion permitted by our precedent.

We therefore reverse the judgment of the Court of Appeals remanding for reinterpretation that would avoid a supposed delegation of legislative power. It will remain for the Court of Appeals--on the remand that we direct for other reasons--to dispose of any other preserved challenge to the NAAQS under the judicial-review provisions contained in § 307(d)(9).

IV

The final two issues on which we granted certiorari concern the EPA’s authority to implement the revised ozone NAAQS in areas whose ozone levels currently exceed the maximum level permitted by that standard. The CAA designates such areas “nonattainment,” § 107(d)(1), *see also* Pub.L. 105-178, § 6103, 112 Stat. 465 (setting timeline for new ozone designations), and it exposes them to additional restrictions over and above the implementation requirements imposed generally by § 110 of the CAA. These additional restrictions are found in the five substantive subparts of Part D of Title I, §§ 171-193. Subpart 1, §§ 171-179B, contains general nonattainment regulations that pertain to every pollutant for which a NAAQS exists. Subparts 2 through 5, §§ 181-192, contain rules tailored to specific individual pollutants. Subpart 2, added by the Clean Air Act Amendments of 1990, § 103, 104 Stat. 2423, addresses ozone. 42 U.S.C. §§ 181-185B. The dispute before us here, in a nutshell, is whether Subpart 1 alone (as the agency determined), or rather

Subpart 2 or some combination of Subparts 1 and 2, controls the implementation of the revised ozone NAAQS in nonattainment areas.

A

The Administrator first urges, however, that we vacate the judgment of the Court of Appeals on this issue because it lacked jurisdiction to review the EPA's implementation policy. Section 307(b)(1) of the CAA gives the court jurisdiction over "any . . . nationally applicable regulations promulgated, or final action taken, by the Administrator," but the EPA argues that its implementation policy was not agency "action," was not "final" action, and is not ripe for review. We reject each of these three contentions.

* * *

B

Our approach to the merits of the parties' dispute is the familiar one of *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837 (1984). If the statute resolves the question whether Subpart 1 or Subpart 2 (or some combination of the two) shall apply to revised ozone NAAQS, then "that is the end of the matter." *Id.* at 842-843. But if the statute is "silent or ambiguous" with respect to the issue, then we must defer to a "reasonable interpretation made by the administrator of an agency." *Id.* at 844. We cannot agree with the Court of Appeals that Subpart 2 clearly controls the implementation of revised ozone NAAQS, *see* 175 F.3d at 1048-1050, because we find the statute to some extent ambiguous. We conclude, however, that the agency's interpretation goes beyond the limits of what is ambiguous and contradicts what in our view is quite clear. We therefore hold the implementation policy unlawful. * * *

The text of Subpart 1 at first seems to point the way to a clear answer to the question, which Subpart controls? Two sections of Subpart 1, 172(a)(1)(C) and 172(a)(2)(D), contain switching provisions stating that if the classification of ozone nonattainment areas is "specifically provided [for] under other provisions of [Part D]," then those provisions will control instead of Subpart 1's. Thus it is true but incomplete to note, as the Administrator does, that the substantive language of Subpart 1 is broad enough to apply to revised ozone standards. *See, e.g.*, §172(a)(1)(A) (instructing the Administrator to classify nonattainment areas according to "any revised standard, including a revision of any standard in effect on November 15, 1990"); § 7502(a)(2)(A) (setting attainment deadlines). To determine whether that language *does* apply one must resolve the further textual issue whether some *other* provision, namely Subpart 2, provides for the classification of ozone nonattainment areas. If it does, then according to the switching provisions of Subpart 1 it will control.

So, does Subpart 2 provide for classifying nonattainment ozone areas under the revised standard? It unquestionably does. The backbone of the subpart is Table 1, printed in § 181(a)(1) and reproduced in the margin here,⁵ which defines five categories of ozone nonattainment areas and

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prescribes attainment deadlines for each. Section 181(a)(1) funnels all nonattainment areas into the table for classification, declaring that “[e]ach area designated nonattainment for ozone . . . shall be classified at the time of such designation, under table 1, by operation of law.” And once an area has been classified, “the primary standard attainment date for ozone shall be as expeditiously as practicable but not later than the date provided in table 1.” The EPA argues that this text is not as clear or comprehensive as it seems, because the title of § 181(a) reads “Classification and attainment dates for 1989 nonattainment areas,” which suggests that Subpart 2 applies only to areas that were in nonattainment in 1989, and not to areas later designated nonattainment under a revised ozone standard. The suggestion must be rejected, however, because § 181(b)(1) specifically provides for the classification of areas that *were* in attainment in 1989 but have subsequently slipped into nonattainment. It thus makes clear that Subpart 2 is *not* limited solely to 1989 nonattainment areas. This eliminates the interpretive role of the title, which may only “she[d] light on some ambiguous word or phrase in the statute itself,” *Carter v. United States*, 530 U.S. 255, 267 (2000). * * *

It may well be, as the EPA argues--and as the concurring opinion below on denial of rehearing pointed out, *see* 195 F.3d at 11-12--that some provisions of Subpart 2 are ill fitted to implementation of the revised standard. Using the old 1-hour averages of ozone levels, for example, as Subpart 2 requires, *see* § 181(a)(1); 44 Fed.Reg. 8202 (1979), would produce at best an inexact estimate of the new 8-hour averages, *see* 40 CFR § 50.10, and App. I (1999). Also, to the extent that the new ozone standard is stricter than the old one, *see* Reply Brief for Petitioners in No. 99-1257, p. 17 (“the stricter 8-hour NAAQS”); 62 Fed.Reg. 38856, 38858 (1997) (8-hour standard of 0.09 ppm

Area class	Design value*	Primary standard attainment date **
Marginal	0.121 up to 0.138	3 years after November 15, 1990
Moderate	0.138 up to 0.160	6 years after November 15, 1990
Serious	0.160 up to 0.180	9 years after November 15, 1990
Severe	0.180 up to 0.280	15 years after November 15, 1990
Extreme	0.280 and above	20 years after November 15, 1990

* The design value is measured in parts per million (ppm).

** The primary standard attainment date is measured from November 15, 1990.

rather than 0.08 ppm would have “generally represent[ed] the continuation of the [old] level of protection”), the classification system of Subpart 2 contains a gap, because it fails to classify areas whose ozone levels are greater than the new standard (and thus nonattaining) but less than the approximation of the old standard codified by Table 1. And finally, Subpart 2’s method for calculating attainment dates--which is simply to count forward a certain number of years from November 15, 1990 (the date the 1990 CAA Amendments took force), depending on how far out of attainment the area started--seems to make no sense for areas that are first classified under a new standard after November 15, 1990. If, for example, areas were classified in the year 2000, many of the deadlines would already have expired at the time of classification.

These gaps in Subpart 2’s scheme prevent us from concluding that Congress clearly intended Subpart 2 to be the exclusive, permanent means of enforcing a revised ozone standard in nonattainment areas. The statute is in our view ambiguous concerning the manner in which Subpart 1 and Subpart 2 interact with regard to revised ozone standards, and we would defer to the EPA’s reasonable resolution of that ambiguity. *See FDA v. Brown & Williamson Tobacco Corp.*, 529 U.S. at 132; *INS v. Aguirre-Aguirre*, 526 U.S. 415, 424 (1999). We cannot defer, however, to the interpretation the EPA has given.

Whatever effect may be accorded the gaps in Subpart 2 as implying some limited applicability of Subpart 1, they cannot be thought to render Subpart 2’s carefully designed restrictions on EPA discretion utterly nugatory once a new standard has been promulgated, as the EPA has concluded. The principal distinction between Subpart 1 and Subpart 2 is that the latter eliminates regulatory discretion that the former allowed. While Subpart 1 permits the EPA to establish classifications for nonattainment areas, Subpart 2 classifies areas as a matter of law based on a table. *Compare* §1722(a)(1) *with* § 181(a)(1) (Table 1). Whereas the EPA has discretion under Subpart 1 to extend attainment dates for as long as 12 years, under Subpart 2 it may grant no more than 2 years’ extension. *Compare* §§ 172(a)(2)(A) and (C) *with* § 181(a)(5). Whereas Subpart 1 gives the EPA considerable discretion to shape nonattainment programs, Subpart 2 prescribes large parts of them by law. *Compare* § 7502(c) and (d) *with* § 7511a. Yet according to the EPA, Subpart 2 was simply Congress’s “approach to the implementation of the [old] 1-hour” standard, and so there was no reason that “the new standard could not simultaneously be implemented under . . . subpart 1.” 62 Fed.Reg. 38856, 38885 (1997); *see also id.* at 38873 (“the provisions of subpart 1 . . . would apply to the implementation of the new 8-hour ozone standards”). To use a few apparent gaps in Subpart 2 to render its textually explicit applicability to nonattainment areas under the new standard utterly inoperative is to go over the edge of reasonable interpretation. The EPA may not construe the statute in a way that completely nullifies textually applicable provisions meant to limit its discretion.

The EPA’s interpretation making Subpart 2 abruptly obsolete is all the more astonishing because Subpart 2 was obviously written to govern implementation for some time. Some of the elements required to be included in SIP’s under Subpart 2 were not to take effect until many years after the passage of the Act. *See* § 182(e)(3) (restrictions on “electric utility and industrial and commercial boiler[s]” to be “effective 8 years after November 15, 1990”); §182(c)(5)(A) (vehicle monitoring program to “[b]egi[n] 6 years after November 15, 1990”); § 182(g)(1) (emissions milestone requirements to be applied “6 years after November 15, 1990, and at intervals of every 3 years thereafter”). A plan reaching so far into the future was not enacted to be abandoned the next time the EPA reviewed the ozone standard--which Congress knew could happen at any time, since the technical staff papers had already been completed in late 1989. *See* 58 Fed.Reg. 13008, 13010

(1993); *see also* § 109(d)(1) (NAAQS must be reviewed and, if appropriate, revised at least once every five years). Yet nothing in the EPA’s interpretation would have prevented the agency from aborting Subpart 2 the day after it was enacted. Even now, if the EPA’s interpretation were correct, some areas of the country could be required to meet the new, more stringent ozone standard in *at most* the same time that Subpart 2 had allowed them to meet the old standard. *Compare* § 172(a)(2) (Subpart 1 attainment dates) *with* § 181(a) (Subpart 2 attainment dates). Los Angeles, for instance, “would be required to attain the revised NAAQS under Subpart 1 no later than the same year that marks the outer time limit for attaining Subpart 2’s one-hour ozone standard.” Brief for Petitioners in No. 99-1257, p. 49. An interpretation of Subpart 2 so at odds with its structure and manifest purpose cannot be sustained.

We therefore find the EPA’s implementation policy to be unlawful, though not in the precise respect determined by the Court of Appeals. After our remand, and the Court of Appeals’ final disposition of this case, it is left to the EPA to develop a reasonable interpretation of the nonattainment implementation provisions insofar as they apply to revised ozone NAAQS.

* * *

To summarize our holdings in these unusually complex cases: (1) The EPA may not consider implementation costs in setting primary and secondary NAAQS under § 109(b) of the CAA. (2) Section 109(b)(1) does not delegate legislative power to the EPA in contravention of Art. I, § 1, of the Constitution. (3) The Court of Appeals had jurisdiction to review the EPA’s interpretation of Part D of Title I of the CAA, relating to the implementation of the revised ozone NAAQS. (4) The EPA’s interpretation of that Part is unreasonable.

The judgment of the Court of Appeals is affirmed in part and reversed in part, and the cases are remanded for proceedings consistent with this opinion.

It is so ordered.

* * *

Justice BREYER, concurring in part and concurring in the judgment.

I join Parts I, III, and IV of the Court’s opinion. I also agree with the Court’s determination in Part II that the Clean Air Act does not permit the Environmental Protection Agency to consider the economic costs of implementation when setting national ambient air quality standards under § 109(b)(1) of the Act. But I would not rest this conclusion solely upon § 109’s language or upon a presumption, such as the Court’s presumption that any authority the Act grants the EPA to consider costs must flow from a “textual commitment” that is “clear.” In order better to achieve regulatory goals—for example, to allocate resources so that they save more lives or produce a cleaner environment—regulators must often take account of all of a proposed regulation’s adverse effects, at least where those adverse effects clearly threaten serious and disproportionate public harm. Hence, I believe that, other things being equal, we should read silences or ambiguities in the language of regulatory statutes as permitting, not forbidding, this type of rational regulation.

In this case, however, other things are not equal. Here, legislative history, along with the statute’s structure, indicates that § 109’s language reflects a congressional decision not to delegate to the agency the legal authority to consider economic costs of compliance.

For one thing, the legislative history shows that Congress intended the statute to be “technology forcing.” Senator Edmund Muskie, the primary sponsor of the 1970 amendments to the Act, introduced them by saying that Congress’ primary responsibility in drafting the Act was not “to be limited by what is or appears to be technologically or economically feasible,” but “to establish what the public interest requires to protect the health of persons,” even if that means that “*industries will be asked to do what seems to be impossible at the present time.*” 116 Cong. Rec. 32901-32902 (1970), 1 Legislative History of the Clean Air Amendments of 1970 (Committee Report compiled for the Senate Committee on Public Works by the Library of Congress), Ser. No. 93-18, p. 227 (1974) (hereinafter Leg. Hist.) (emphasis added).

The Senate directly focused upon the technical feasibility and cost of implementing the Act’s mandates. And it made clear that it intended the Administrator to develop air quality standards set independently of either. The Senate Report for the 1970 amendments explains:

In the Committee discussions, considerable concern was expressed regarding the use of the concept of technical feasibility as the basis of ambient air standards. The Committee determined that 1) *the health of people is more important than the question of whether the early achievement of ambient air quality standards protective of health is technically feasible*; and, 2) the growth of pollution load in many areas, even with application of available technology, would still be deleterious to public health. . . .

Therefore, the Committee determined that *existing sources of pollutants either should meet the standard of the law or be closed down.* . . .

S.Rep. No. 91-1196, pp. 2-3 (1970), 1 Leg. Hist. 402-403 (emphasis added).

Indeed, this Court, after reviewing the entire legislative history, concluded that the 1970 amendments were “expressly designed to force regulated sources to develop pollution control devices that *might at the time appear to be economically or technologically infeasible.*” *Union Elec. Co. v. EPA*, 427 U.S. 246 (1976) (emphasis added). * * *

To read this legislative history as meaning what it says does not impute to Congress an irrational intent. Technology-forcing hopes can prove realistic. Those persons, for example, who opposed the 1970 Act’s insistence on a 90% reduction in auto emission pollutants, on the ground of excessive cost, saw the development of catalytic converter technology that helped achieve substantial reductions without the economic catastrophe that some had feared. * * *

At the same time, the statute’s technology-forcing objective makes regulatory efforts to determine the costs of implementation both less important and more difficult. It means that the relevant economic costs are speculative, for they include the cost of unknown future technologies. It also means that efforts to take costs into account can breed time-consuming and potentially unresolvable arguments about the accuracy and significance of cost estimates. Congress could have thought such efforts not worth the delays and uncertainties that would accompany them. In any event, that is what the statute’s history seems to say. * * *

Moreover, the Act does not, on this reading, wholly ignore cost and feasibility. As the majority points out, the Act allows regulators to take those concerns into account when they determine how to implement ambient air quality standards. Thus, States may consider economic costs when they select the particular control devices used to meet the standards, and industries

experiencing difficulty in reducing their emissions can seek an exemption or variance from the state implementation plan. See *Union Elec.*, *supra*, at 266, 96 S.Ct. 2518 (“[T]he most important forum for consideration of claims of economic and technological infeasibility is before the state agency formulating the implementation plan”).

* * *

Finally, contrary to the suggestion of the Court of Appeals and of some parties, this interpretation of § 109 does not require the EPA to eliminate every health risk, however slight, at any economic cost, however great, to the point of “hurtling” industry over “the brink of ruin,” or even forcing “deindustrialization.” *American Trucking Assns., Inc. v. EPA*, 175 F.3d 1027, 1037, 1038, n. 4 (C.A.D.C.1999). The statute, by its express terms, does not compel the elimination of *all* risk; and it grants the Administrator sufficient flexibility to avoid setting ambient air quality standards ruinous to industry.

Section 109(b)(1) directs the Administrator to set standards that are “requisite to protect the public health” with “an adequate margin of safety.” But these words do not describe a world that is free of all risk--an impossible and undesirable objective. See *Industrial Union Dept., AFL-CIO v. American Petroleum Institute*, 448 U.S. 607, 642 (1980) (plurality opinion) (the word “safe” does not mean “risk-free”). Nor are the words “requisite” and “public health” to be understood independent of context. We consider football equipment “safe” even if its use entails a level of risk that would make drinking water “unsafe” for consumption. And what counts as “requisite” to protecting the public health will similarly vary with background circumstances, such as the public’s ordinary tolerance of the particular health risk in the particular context at issue. The Administrator can consider such background circumstances when “decid[ing] what risks are acceptable in the world in which we live.” *Natural Resources Defense Council, Inc. v. EPA*, 824 F.2d 1146, 1165 (C.A.D.C.1987).

* * *

Although I rely more heavily than does the Court upon legislative history and alternative sources of statutory flexibility, I reach the same ultimate conclusion. Section 109 does not delegate to the EPA authority to base the national ambient air quality standards, in whole or in part, upon the economic costs of compliance.

NOTES

1. Following the lead of the District of Columbia Circuit, the Court finds that economic considerations play no part in setting primary and secondary ambient air quality standards. In considering language under the Occupational Safety and Health Act, however, which requires OSHA to set standards for certain toxic materials in the workplace at levels necessary to assure that “no employee will suffer material impairment of health or functional capacity,” the Court made clear that “Safe is not the equivalent of risk-free.” *Industrial Union Dep’t, AFL-CIO v. American Petroleum Institute*, 448 U.S. 607 (1981). In deciding what risks are acceptable, isn’t it necessary to

consider the costs associated with various levels of risk? Does the majority in the *Whitman* case accept the propriety of considering costs in the context of risk analysis in setting ambient air quality standards? Does Justice Breyer? Would the majority agree with Justice Breyer that the statute “grants the Administrator sufficient flexibility to avoid setting ambient air quality standards ruinous to industry”?

2. In part IV of the majority opinion, the Court finds that EPA’s attempt to use the revised ozone standards to supplant the specific requirements of Part D, Subpart II (and, in particular, the standards established at § 181), is unlawful. On remand, how should the EPA address this part of the decision? What options, if any, are potentially available to the EPA?

3. Following the Court of Appeals decision striking down the 8-hour standard, the EPA reinstated the 1-hour standard. 65 Fed. Reg. 45182 (July 20, 2000). At the time of this writing, EPA had not taken further action on the ozone rules, but it appears that both the 1-hour and 8-hour standards are now in effect.

Insert at Chapter 6, page 124 in place of Natural Resources Defense Council v. EPA.

STATE OF MICHIGAN V. ENVIRONMENTAL PROTECTION AGENCY
213 F.3d 663 (D.C. Cir. 2000)

PER CURIAM.

Introduction

Under the Clean Air Act the Environmental Protection Agency promulgates national ambient air quality standards (“NAAQS”) for air pollutants, and states must then adopt state implementation plans (“SIPs”) providing for the implementation, maintenance, and enforcement of the NAAQS; such plans are then submitted to EPA for approval. *See* Clean Air Act (“CAA”) § 110(a)(1), 42 U.S.C. § 7410(a)(1) (1994). Even after a SIP is approved, EPA may at a later time call for SIP revisions if the Administrator finds a SIP inadequate to attain or maintain the NAAQS, to meet the dictates of pollutant transport commissions, or “to otherwise comply with any requirement of this chapter.” CAA § 110(k)(5), 42 U.S.C. § 7410(k)(5).

In October 1998 EPA issued a final rule mandating that 22 states and the District of Columbia revise their SIPs to mitigate the interstate transport of ozone.¹ *See* Finding of Significant Contribution and Rulemaking for Certain States in the Ozone Transport Assessment Group Region for Purposes of Reducing Regional Transport of Ozone (“Final Rule”), 63 Fed.Reg. 57,356 (1998). The statutory hook for EPA’s action was a 1990 amendment to the Clean Air Act which requires that SIPs contain “adequate provisions” prohibiting any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will . . . contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard. CAA § 110(a)(2)(D)(i)(I), 42 U.S.C. § 7410(a)(2)(D)(i)(I) (1994). EPA uniformly required that each state reduce nitrogen oxides (NOx--an ozone precursor) by the amount accomplishable by what EPA dubbed “highly cost-effective controls,” namely, those controls EPA found capable of removing NOx at a cost of \$2000 or less per ton. Numerous petitions for review challenge various aspects of EPA’s decision.

In Part I we reject the following claims: that EPA could not call for the SIP revisions without convening a transport commission; that EPA failed to undertake a sufficiently state-specific determination of ozone contribution; that EPA unlawfully overrode past precedent regarding “significant” contribution; that EPA’s consideration of the cost of NOx reduction violated the

¹ The states are Alabama, Connecticut, Delaware, Georgia, Illinois, Indiana, Kentucky, Maryland, Massachusetts, Michigan, Missouri, North Carolina, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Virginia, West Virginia, and Wisconsin.

statute; that EPA's scheme of uniform controls is arbitrary and capricious; that CAA § 110(a)(2)(D)(i)(I) as construed by EPA violates the nondelegation doctrine.

* * *

In Part III we reject the claim that EPA impermissibly intruded on the statutory rights of states to fashion their SIPs.* * *

* * *

We note at the outset that one challenge has been stayed. In 1979, EPA set the acceptable level for ozone in the ambient air at 0.12 parts per million ("ppm"), averaged over intervals of one hour. This standard is commonly known as the "1-hour standard." By 1997, EPA had concluded that the 1-hour standard no longer adequately protected public health. *See* National Ambient Air Quality Standards for Ozone, 62 Fed.Reg. 38,856 (1997). Pursuant to the agency's statutory mandate to review and revise NAAQS as appropriate, 42 U.S.C. § 7409(d)(1), EPA promulgated a new, more stringent "8-hour standard" which limits ozone levels to 0.08 ppm, averaged over an 8-hour period. *See* 62 Fed.Reg. 38,856 (codified at 40 C.F.R. § 50.10).

EPA has undertaken the phasing out of the 1-hour standard on an area-by-area basis, mandating that the standard would no longer apply to an area once it is "determine[d] that the area has air quality meeting the 1-hour standard." 40 C.F.R. § 50.9(b).^{*} The call for SIP revisions in question here requires the covered upwind states to submit SIP revisions pursuant to the 8-hour standard even though EPA was not designating any 8-hour nonattainment areas prior to July 1999. *See* 63 Fed.Reg. at 57,370; Transportation Equity Act for the 21st Century, Pub.L. No. 105-178, § 6103, 112 Stat. 107, 465 (1998) (providing that states submit suggested designations no later than July 1999 and EPA finalize those designations no later than July 2000). EPA maintains that it has the authority to include the 8-hour standard in the current § 110(a)(2)(D)-specific SIP call pursuant to its authority under § 110(a)(1). Section 110(a)(1) provides that

[e]ach State shall . . . adopt and submit to [EPA], within 3 years (or such shorter period as [EPA] may prescribe) after the promulgation of a national primary ambient air quality standard (or any revision thereof) . . . , a plan which provides for implementation, maintenance, and enforcement of such primary standard in each air quality control region (or portion thereof) within such State.

42 U.S.C. § 7410(a)(1).

* * *

^{*} Editor's note: In *Whitman v. American Trucking Ass'n*, ___ U.S. ___, 121 S. Ct. 903 (2001), the Supreme Court held that EPA could adopt a new 8-hour ozone standard, but could not use that standard to supplant the 1-hour standard requirements established by Congress in the 1990 amendments to the Clean Air Act.

I. GENERAL CLAIMS

A. Transport Commission

States have the primary responsibility to attain and maintain NAAQS within their borders. *See* CAA § 107(a), 42 U.S.C. § 7407(a). When EPA concludes that an “implementation plan for any area is substantially inadequate to attain or maintain the relevant [NAAQS], to mitigate adequately the interstate pollutant transport described in section [176A] or [184], or to otherwise comply with any requirement of this chapter,” the CAA requires EPA to order a state to revise and correct its SIP “as necessary” (“SIP call”). CAA § 110(k)(5), 42 U.S.C. § 7410(k)(5). One such “requirement of this chapter,” is the “good neighbor provision” of section 110(a)(2)(D). As amended, section 110(a)(2)(D) requires that a SIP “contain adequate provisions”

(i) prohibiting, consistent with the provisions of this subchapter, any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will . . . *contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard* . . . [and]

(ii) insuring compliance with the applicable requirements of sections [126] and [115] . . . (relating to interstate and international pollution abatement).

42 U.S.C. § 7410(a)(2)(D) (emphasis added). Section 126(b) enables an individual state or a political subdivision of a state to petition EPA to make a “finding that any major source or group of stationary sources emits or would emit any air pollutant in violation of the prohibition of [§ 110(a)(2)(D)(ii)].” 42 U.S.C. § 7426(b). EPA may make or deny such a finding. *See id.* Section 115 pertains to petitions made by foreign countries. *See* 42 U.S.C. § 7415.

Title I, the subchapter referenced in section 110(a)(2)(D), also includes sections 176A and 184, the provisions referenced in section 110(k)(5). In 1990, Congress added a provision to section 176A stating that EPA “may” establish an interstate air pollution transport region whenever EPA “has reason to believe that the interstate transport of air pollutants from one or more States contributes significantly to a violation of a national ambient air quality standard in one or more other States.” 42 U.S.C. § 7506a(a). The section also provides that whenever EPA “establishes a transport region . . . [EPA] shall establish a transport commission.” 42 U.S.C. § 7506a(b)(1). Among other things, a section 176A commission is to assess the interstate transport situation in the relevant transport region, assess interstate pollution mitigation strategies, and recommend to EPA measures necessary “to ensure that the plans for the relevant States meet the requirements of [section 110(a)(2)(D)].” 42 U.S.C. § 7506a(b)(2). In addition, section 176A permits a transport commission to request that EPA “issue a finding under [section 110(k)(5)] . . . that the implementation plan for one or more of the States in the transport region is substantially inadequate to meet [section 110(a)(2)(D) requirements].” 42 U.S.C. § 7506a(c). After public comment, EPA has the authority to approve, approve in part, or disapprove such a request. *See id.*

In part, section 184, an ozone-specific provision, establishes an ozone transport region in the northeast (“NOTR”) and sets the deadline for convening the transport commission required as a result of NOTR’s establishment. *See* 42 U.S.C. § 7511c(a). The section also requires that “[i]n accordance with [section 110] . . . each State included [or subsequently included] within a transport

region established for ozone shall submit a State implementation plan or revision” regarding vehicle inspection programs and volatile organic compounds control technology. 42 U.S.C. § 7511c(b). In addition, section 184 contains provisions giving states within an established transport region the opportunity to use their section 176A-established transport commission to help develop additional ozone control measures. *See* 42 U.S.C. § 7511c(c).

Efforts to control states’ upwind contributions to ozone pollution continued to fall short during the early 1990s. In 1995, upon the recommendation of the Environmental Council of the States, thirty-seven states and representatives from EPA, industry, and environmental groups formed a national work-group called the Ozone Transport Assessment Group (“OTAG”) to study and devise solutions to the interstate ozone transport problem. *See* 62 Fed.Reg. 60,318, at 60,319; EPA, Ozone Transport Assessment Group Executive Report, EPA Document No. A 95-56, Doc. No. II-G-05 (“Executive Report”) at ii. More specifically, OTAG’s purpose was to “identify and recommend a strategy to reduce transported ozone and its precursors, which, in combination with other measures, will enable attainment and maintenance of the ozone standard in the OTAG region.” Executive Report at ii. OTAG concluded that upwind states needed to reduce NO_x emissions in order to address the transport problem. However, the OTAG members could not agree on specific control measure recommendations. *See* 62 Fed.Reg. at 60,320. In response to OTAG’s efforts, EPA engaged in further analysis and devised the SIP call challenged here.

Industry/Labor petitioners argue that the CAA required EPA to convene a transport commission pursuant to sections 176A/184 prior to issuing the challenged SIP call. EPA concedes that OTAG was not a statutorily-mandated 176A/184 transport commission as defined in the CAA. If a transport commission is required, EPA would be bound by statute to follow certain procedures in establishing and executing its commission obligation. However, we hold that the CAA does not require EPA to establish such a commission.

Industry/Labor petitioners contend that the reference to the transport commission provisions in section 110(k)(5) and the mandate of section 110(a)(2)(D) that SIP requirements be consistent with Title I provisions obligated EPA, prior to issuing the SIP call, to create a transport commission guided by the terms in sections 176A and 184 of the statute. Industry/Labor petitioners also note that sections 176A and 184 reference both sections 110(a)(2)(D) and 110(k)(5). *See* 42 U.S.C. §§ 7506a(b)(2), (c), 7511c(c)(5). From this hodgepodge of largely unrelated cross-references, Industry/Labor petitioners argue that EPA can only issue a section 110(k)(5) SIP call to enforce section 110(a)(2)(D)’s requirement after forming a 176A/184 transport commission. We disagree.

As a threshold matter, subsections 176A(a) and (b)(1) make clear that EPA must establish a transport commission *if* the agency exercises its discretion to create a transport region pursuant to section 176A(a). *See* 42 U.S.C. §§ 7506a(a), (b)(1). However, EPA can address interstate transport apart from convening a 176A/184 transport commission as subsection (a) provides that EPA “may” establish a transport region and subsection (b)(1) only requires a transport commission upon the establishment of a transport region because “[w]henver the Administrator establishes a transport region under subsection (a) . . . , the Administrator shall establish a transport commission.” Moreover, the relevant section 184 requirements apply to states within established *transport regions*. *See* 42 U.S.C. § 7511c (a)-(c). Thus, Industry/Labor petitioners cannot reason around the determinative statutory language contained in section 176A. Statutory construction is not an exercise in picking apart a complex statute and piecing the parts back together in a manner to effect a particular end. Ideally, a statute’s directive concerning a certain issue will be plain and clear. Just so

here.

B. State-Specific Analysis

Section 110(a)(2)(D)(I)(i) requires that the relevant offending emissions be “emissions activity within the State.” Several petitioners charge that EPA did not sufficiently analyze each particular state in determining which states contributed unduly to ozone downwind.

In issuing its Notice of Proposed Rulemaking (“NPRM”), EPA relied on data collected from OTAG. The data were multi-state and regional in nature and were framed as a model of how ozone was transported downwind from 12 different regions that covered the eastern half of the United States. *See* Final Rule, 63 Fed.Reg. at 57,382. The OTAG regions do not track state boundaries, so several states are split between regions. EPA also relied upon the NO_x emissions of the individual states. *See id.* at 57,383-84. A potential shortcoming of the NPRM’s approach was that it was too multi-state in nature. EPA knew how much NO_x each state was emitting, but a state’s emissions as a share of total emissions do not necessarily correspond proportionately to its share in the creation of ozone in downwind states. OTAG’s multi-state modeling of such downwind transportation painted with a rather broad brush.

We need not pass judgment on whether the evidence and approach of the NPRM would have supported the final rule. After receiving comments regarding the insufficiently state specific analysis of the NPRM, EPA performed state-specific modeling. *Id.* at 57,384. According to EPA, this confirmed the results of the regional modeling. *Id.*

The two types of state-specific modeling go by the names UAM-V and CAMx. In the UAM-V approach, the researchers model an affected downwind area to establish a base case, and then “zero-out” a particular source state. Thus with UAM-V it can be estimated what ozone concentrations would be like if a particular state contributed no ozone or ozone precursors. The CAMx modeling, on the other hand, is a source apportionment analysis which tracks modeled ozone from its precursors (NO_x and volatile organic compounds (VOCs)) through the formation of ozone and subsequent migration. Whereas UAM-V tells modelers how much ozone is missing when one state is zeroed out, CAMx models an ozone concentration and provides apportionment, *i.e.*, who sent what. An advantage of the CAMx model used by EPA was that, unlike the UAM-V modeling, with CAMx EPA could isolate man-made emissions, or ozone creation based on reactions between man-made and biogenic emissions. UAM-V modeling was less discriminating.

Petitioners really do nothing more than quibble with the state-specific modeling. For example, Industry/Labor petitioners argue that zero-out modeling is inappropriate because it models an impossible scenario--the elimination of all manmade NO_x emissions; but they do not suggest how much this characteristic is likely to distort the results. State petitioners charge that sometimes the results of the two models were inconsistent, with, for example, the CAMx showing a larger migration of ozone from a state than the UAM-V showed for all man-made NO_x in that state. EPA itself noted this infrequent inconsistency. *See id.* at 57,385. Neither criticism affords ground for non-expert judges to find a material likelihood of serious error. *See Appalachian Power Co. v. EPA*, 135 F.3d 791, 802 (D.C.Cir.1998).

* * *

C. Determining “Significant” Contribution

Section 110(a)(2)(D)(i)(I) applies only to states that “contribute significantly” to nonattainment in a downwind state. Petitioners make essentially four arguments challenging EPA’s determination of “significance”: (1) EPA acted contrary to precedent; (2) EPA considered forbidden factors, namely, costs of reduction; (3) EPA irrationally imposed uniform NOx controls on the states; (4) EPA’s determination was so devoid of intelligible principles as to violate the nondelegation doctrine.

1. Past Precedent

Before the 1990 amendments to the Clean Air Act, § 110(a)(2)(E)(I) directed the EPA to insist on SIP provisions adequate to prevent sources within a state from emitting air pollution that would “*prevent attainment or maintenance [of primary or secondary standards] by any other State.*” 42 U.S.C. § 7410(a)(2)(E) (1982) (emphasis added). In a number of decisions EPA found, with approval of the courts, that various emissions of a particular state, having a proportionate impact on some downwind state greater than the impacts involved here, did *not* meet that standard. *See New York v. EPA*, 852 F.2d 574 (D.C.Cir.1988); *Air Pollution Control Dist. of Jefferson County v. EPA*, 739 F.2d 1071 (6th Cir.1984); *New York v. EPA*, 716 F.2d 440 (7th Cir.1983); *New York v. EPA*, 710 F.2d 1200 (6th Cir.1983); *Connecticut v. EPA*, 696 F.2d 147 (2d Cir.1982). According to the states, these decisions, and what they claim to be Congress’s implicit endorsement in the 1990 amendments, bar EPA from regarding the ozone emissions here as “significant” within the meaning of § 110(a)(2)(D)(i)(I). Thus the states would equate the old standard--“prevent attainment”--with the new standard: “contribute significantly to nonattainment.”

Nothing in the text of the new section or any other provision of the statute spells out a criterion for classifying “emissions activity” as “significant.” Nor did EPA, under the then-existing provision, bind itself to any criterion. Further, given EPA’s finding as to the cumulative effects of the pollutants that generate ozone, EPA might well be able to distinguish this case from the sulfur dioxide cases that the states have cited. *See* 63 Fed.Reg. at 57,359 (“The chemical reactions that create ozone take place while the pollutants are being blown through the air by the wind, which means that ozone can be more severe many miles away from the source of emissions than it is at the source.”). But the states point to nothing suggesting any prior adoption by EPA of any binding concept of how much was too much, so the claim falls short at the threshold.

2. Consideration of costs

Petitioners claim § 110(a)(2)(D)(i)(I) does not permit EPA to take into consideration the cost of reducing ozone. The full section provides that SIPs must contain provisions adequately prohibiting

any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will . . . *contribute significantly* to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard.

42 U.S.C. § 7410(a)(2)(D)(i)(I) (emphasis added).

Before reviewing the petitioners' attacks we must first describe how EPA went about the business at hand. It first determined that 23 jurisdictions are "significant" contributors to downwind nonattainment. 63 Fed.Reg. 57,398. In making this listing EPA drew lines based on the magnitude, frequency, and relative amount of each state's ozone contribution to a nonattainment area. For example, in one calculation it looked at the number of NOx parts per billion ("ppb") that a candidate state's emissions made to exceedances in specific downwind locations (examined as a proportion of those exceedances). Indiana was found to contribute at least 2 ppb to 4% of the 1-hour ozone exceedances in New York City, and was deemed a "significant contributor" to nonattainment there. On the other hand, Alabama, Georgia, Massachusetts, Missouri, South Carolina, Tennessee, and Wisconsin were not deemed "significant contributors" to New York City nonattainment because none of these states ever contributed more than 2 ppb to a 1-hour exceedance in that area. * * *

Although the dividing line was a very low threshold of contribution, in the end EPA's rule called for termination of only a subset of each state's contribution. EPA decided that the 23 "significant contributors" need only reduce their ozone by the amount achievable with "highly cost-effective controls." 63 Fed.Reg. at 57,403. Thus, once a state had been nominally marked a "significant contributor," it could satisfy the statute, *i.e.*, reduce its contribution to a point where it would not be "significant" within the meaning of § 110(a)(2)(D)(i)(I), by cutting back the amount that could be eliminated with "highly cost-effective controls." EPA's design was to have a lot of states make what it considered modest NOx reductions, uniformly limited to ones that could be achieved (in EPA's estimate) for less than \$2000 a ton. As a result, naturally, the ultimate line of "significance," whether measured in volume of NOx emitted or arriving in nonattainment areas, would vary from state to state depending on variations in cutback costs.

State and Industry/Labor petitioners argue that this approach runs afoul of § 110(a)(2)(D), which they read as prohibiting any consideration of costs or cost-effectiveness in determining what contributions are "significant." So far as appears, none of the states proposes that EPA, if reversed, must require complete extirpation of their NOx emissions. Rather, the gamble--at least of the small contributors--is evidently that if EPA were barred from considering costs, it would never have included such states. Because the attacks from the states and Industry/Labor are somewhat dissimilar and have shifted back-and-forth between the opening briefs, reply briefs, and oral argument, a summary of the relevant differences and vacillations is in order. We note that no party makes any claim that EPA was either confined to adopting rules whose benefits exceeded their costs, or permitted to use that criterion in selecting its final rule.² Nor has it been argued that the term

² Indeed, accepting EPA's belief that ozone cannot be held responsible for mortality effects, *see* Proposed Rule, 62 Fed.Reg. at 60,321 (not listing death as a health effect of ground level ozone); *compare* Final Rule, 63 Fed.Reg. at 57,359 (listing "[p]ossible long-term damage to the lungs or even premature death" as health effects), and mainly using EPA data, some outside observers have calculated the benefit per ton of NOx reduction as ranging from a high of \$750 per ton (for mobile sources in certain areas) to a low of negative \$6 per ton (for other mobile sources). Alan Krupnick & Virginia McConnell, "Cost-Effective NOx control in the Eastern U.S." (Draft July 1999) (Table 4); *see* Krupnick & Anderson, *A Dilemma Downwind*, 137 RESOURCES FOR THE FUTURE 5, 7 (1999) ("If one assumes that ozone does not cause deaths, the EPA's proposal is much too restrictive, incurring costs far out of proportion with the benefits it would bring.").

“significant” required consideration of costs.

* * *

For convenience we repeat the statutory language. Section 110(a)(2)(D)(i)(I) provides that SIPs must contain provisions adequately prohibiting

any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will . . . *contribute significantly* to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard.

42 U.S.C. § 7410(a)(2)(D)(i)(I) (emphasis added). By its terms the statute is focused on “amounts” of “emissions activity” that “contribute significantly to nonattainment.” The fundamental dispute is over the clarity of the phrase “contribute significantly.” Must EPA simply pick some flat “amount” of contribution, based exclusively on health concerns, such that any excess would put a state in the forbidden zone of “significance”? Or was it permissible for EPA to consider differences in cutback costs, so that, after reduction of all that could be cost-effectively eliminated, any remaining “contribution” would not be considered “significant”? In deciding on the permissible ceiling, EPA used “significant” in the second way.

The term “significant” does not in itself convey a thought that significance should be measured in only one dimension--here, in the petitioners’ view, health alone. Indeed, “significant” is a very odd choice to express unidimensionality; consider the phrase “significant other.” In some contexts, “significant” begs a consideration of costs. In finding a threshold requirement of “significant risk” in § 3(8) of the Occupational Health and Safety Act, 29 U.S.C. § 652(8), a plurality of the Supreme Court understood a “significant” risk as something more than a “mathematical straitjacket,” and held that “[s]ome risks are plainly acceptable and others are plainly unacceptable.” *Industrial Union Dept., AFL-CIO v. American Petroleum Institute* (“*Benzene*”), 448 U.S. 607, 655 (1980) (plurality opinion). The plurality withheld judgment on whether the Act required a “reasonable correlation between costs and benefits,” *id.* at 615, but the upshot of inserting the adjective “significant” was a consideration of which risks are worth the cost of elimination. * * *

* * *

Although the ambiguity of the word “significant” and the implications of a health-only reading are potentially fatal flaws in petitioners’ theory (aside from their own inability to discern the “plain language” consistently), the most formidable obstacle is the settled law of this circuit. It is only where there is “clear congressional intent to preclude consideration of cost” that we find agencies barred from considering costs. [Citations omitted.]

* * *

These cases are unexceptional in their general view that preclusion of cost consideration requires a rather express congressional direction. *See* Edward W. Warren & Gary E. Marchant, “*More Good Than Harm*”: *A First Principle for Environmental Agencies and Reviewing Courts*, 20

ECOLOGY L.Q. 379, 421 (1993) (“The need to compare benefits and costs has long played a role in judicial review of agency actions regulating health and safety risks.”); Cass R. Sunstein, *Interpreting Statutes in the Regulatory State*, 103 HARV. L.REV. 405, 487 (1989) (suggesting an “interpretive principle” drawn from case law, including *NRDC v. EPA*, 824 F.2d 1146, that reviewing courts will read statutes as authorizing regulations with benefits at least “roughly commensurate with their costs, unless there is a clear legislative statement to the contrary”). * * *

Petitioners point to no evidence of the requisite “clear congressional intent to preclude consideration of cost.” *NRDC*, 824 F.2d at 1163. The text, we have already seen, works no such preclusion. As for the statutory structure, petitioners willingly concede that costs may be considered under § 110(k)(5) in determining the adequacy of a state plan. Why would a Congress intent on precluding cost considerations allow such an escape hatch? The petitioners cite no legislative history suggesting that cost considerations should be barred.

In sum, there is nothing in the text, structure, or history of § 110(a)(2)(D) that bars EPA from considering cost in its application.

3. Uniform Controls

As we have seen, EPA required that all of the covered jurisdictions, regardless of amount of contribution, reduce their NO_x by an amount achievable with “highly cost-effective controls.” Petitioners claim that EPA’s uniform control strategy is irrational in two distinct ways. First, they observe that where two states differ considerably in the amount of their respective NO_x contributions to downwind nonattainment, under the EPA rule even the small contributors must make reductions equivalent to those achievable by highly cost-effective measures. This of course flows ineluctably from the EPA’s decision to draw the “significant contribution” line on a basis of cost differentials. Our upholding of that decision logically entails upholding this consequence.

The second objection is that because of distance and the vagaries of pollutant migration and ozone formation, a molecule of NO_x emitted in Indiana (for example) may cause far less adverse health impact than a molecule emitted in eastern Pennsylvania. EPA acknowledges that “[s]ources that are closer to the nonattainment area tend to have much larger effects on air quality than sources that are far away.” 63 Fed.Reg. at 25,919. While EPA’s cost-effectiveness standard and emissions trading seem to mean that EPA will secure the resulting aggregate NO_x reduction at roughly the lowest possible cost, they do not necessarily mean that it will have secured the resulting aggregate health benefits at the lowest cost. Petitioners ask, in effect, why EPA did not, by one means or another (*e.g.*, in the emissions trading system), make reductions from sources near the nonattainment areas (or otherwise more damaging, molecule for molecule) more valuable than ones from distant sources?

EPA considered this approach, modeling the efficacy of regional alternatives compared to its uniform strategy. *See* Final Rule, 63 Fed.Reg. at 57,423. Its researchers found that non-uniform regional approaches by comparison did not “provide either a significant improvement in air quality or a substantial reduction in cost.” *Id.* The complaining states offer no material critique of EPA’s methodology in reaching this answer, which in fact some independent investigators have confirmed. *See* Krupnick & Anderson, *A Dilemma Downwind*, 137 RESOURCES FOR THE FUTURE 5, 6 (1999) (“[Even with] spatial differences, when viewed across the entire study region, RFF concluded that there was no clear benefit to an exposure-based trading system, compared with simple ton-for-ton

NOx trading. Public health benefits would be approximately the same, and there would be no significant difference in costs to the utilities.”). We have no basis to upset EPA’s judgment.

* * *

III. FEDERALISM AND REGULATORY FLEXIBILITY ACT

A. NOx Budgets

Building on OTAG’s work, EPA ordered the challenged SIP call under the authority of section 110(k)(5) in order to address significant contribution to 1-hour ozone nonattainment as described under section 110(a)(2)(D). In fashioning the SIP call, EPA focused on OTAG’s determination that “[r]egional NOx emissions reductions are effective in producing ozone benefits.” Proposed Rule, 62 Fed.Reg. 60,318, at 60,320. EPA also took into consideration OTAG’s conclusion that while NOx controls are effective in addressing regional ozone problems, VOC controls are most effective locally and are most advantageous to urban nonattainment areas. *See id.* Because OTAG concluded that NOx reductions provide the key to addressing regional ozone problems, EPA’s SIP call addresses regional ozone nonattainment through NOx emissions “budgets” established by the agency for each covered state. The budgets represent the amount of allowable NOx emissions remaining after a covered state prohibits the NOx amount contributing significantly to downwind nonattainment. *See* Final Rule, 63 Fed.Reg. 57,356, at 57,368. While EPA calculated the budgets using highly cost-effective emission controls, the agency allows the states to choose the control measures necessary to bring their emissions within the budget requirements. *See id.* at 57,377; *id.* at 57,400. Under EPA’s budget plan, a state “may choose from a broader menu of cost-effective, reasonable alternatives” including alternatives that “may even be more advantageous in light of local concerns.” *Id.* at 57,369-70. In fact, EPA has stated that the states have “full discretion in selecting the controls, so that [the states] may choose any set of controls that would assure achievement of the budget.” *Id.* at 57,378. In addition, each state has the option of adopting an interstate trading program that allows it to purchase NOx “allowances” from sources that have elected to over-control. *Id.* at 57,430. The SIP call also gives the states the option in some circumstances to use “banked” allowances (*i.e.* allowances from prior years) to comply with emissions limits. *See id.*

Petitioners assert that EPA’s NOx budget program impermissibly intrudes on the statutory right of the states to fashion their SIP submissions in the first instance. In support of this position, the petitioners primarily rely on our decision in *Virginia v. EPA*, 108 F.3d 1397 (D.C.Cir.), *modified on other grounds*, 116 F.3d 499 (D.C.Cir.1997), where we held that EPA may not use a section 110(k)(5) SIP call to order states to adopt a particular approach to achieving the SIP requirements listed in section 110. Under the rule at issue in *Virginia*, EPA required states to adopt California’s vehicle emission program and in effect set the numerical emissions limitations and mandated the means for the states to achieve the necessary emissions reductions. That case involved an EPA rule that required several states to reduce ozone precursors by a particular program and only allowed states to implement a more stringent program as an alternative or substitute. We held that EPA’s approach exceeded its authority under section 110 because each state retains the authority to determine in the first instance the necessary and appropriate control measures needed to satisfy section 110’s standards. *See id.* at 1407-09 (*citing Train v. NRDC*, 421 U.S. 60, 78-79).

Our holding in *Virginia* was mandated by the Supreme Court’s decision in *Train v. NRDC*, 421 U.S. 60 (1975). *Train* involved a challenge to Georgia’s procedures for revising source-specific emission limits adopted in a SIP. *See id.* at 68-71, 95 S.Ct. 1470. The *Train* Court held that states have the authority under the CAA to initially propose specific emission limitations. *See id.* at 79. The Court defined “emission limitations” as “*regulations of the composition of substances emitted into the ambient air from such sources as power plants, service stations, and the like. They are the specific rules to which operators of pollution sources are subject, and which if enforced should result in ambient air which meets the national standards.*” *Id.* at 78 (emphasis added). The Court further held that EPA has only “a secondary role in the process of determining and enforcing the *specific, source-by-source* emission limitations.” *Id.* at 79 (emphasis added). The *Train* decision and subsequent precedent make clear that section 110 left to the states “the power to [initially] determine *which sources* would be burdened by regulation and to *what extent.*” *Union Elec. Co. v. EPA*, 427 U.S. 246, 269 (1976) (emphasis added) * * * For the reasons set forth below, we conclude that the NOx budgets do not fall within the realm of impermissible SIP call regulation as defined in *Virginia* and *Train*.

Given the *Train* and *Virginia* precedent, the validity of the NOx budget program underlying the SIP call depends in part on whether the program in effect constitutes an EPA-imposed control measure or emission limitation triggering the *Train-Virginia* federalism bar: in other words, on whether the program constitutes an impermissible source-specific means rather than a permissible end goal. However, the program’s validity also depends on whether EPA’s budgets allow the covered states real choice with regard to the control measure options available to them to meet the budget requirements.

* * *

* * * EPA does not tell the states how to achieve SIP compliance. Rather, EPA looks to section 110(a)(2)(D) and merely provides the levels to be achieved by state-determined compliance mechanisms. Specifically, EPA set NOx reduction levels based, in part, on assumptions about reductions obtainable through highly cost-effective controls. *See* Final Rule, 63 Fed.Reg. at 57,426. However, EPA made clear that states do not have to adopt the control scheme that EPA assumed for budget-setting purposes. *See id.* at 57,369-70. States can choose from a myriad of cost-effective options to achieve the assigned reduction levels. *See, e.g., id.* at 57,438 (noting possibilities with regard to mobile sources); *id.* at 57,378 (noting possibilities with regard to stationary sources); *id.* at 57,416. While EPA bases the budgets here on “highly cost-effective” control measures, the states remain free to implement other “cost-effective” or “reasonably cost-effective” measures in place of the ones identified by EPA. *See id.* at 57,378; 62 Fed.Reg. 60,318 at 60,328 (1997) (noting that “one State may choose to primarily achieve emissions reductions from stationary sources while another State may focus on emissions reductions from the mobile source sector”). More importantly, EPA went so far as to give the states “full discretion in selecting . . . controls,” 63 Fed.Reg. at 57,378, thereby allowing states to attain their budgets by imposing even quite unreasonable, very cost-ineffective controls. In *Virginia*, we did not bar EPA from permitting more costly alternatives but rather alternatives states would consider “unreasonable or impracticable.” Here, EPA accommodates *Virginia*’s mandate by allowing reasonable control alternatives and allowing states to focus reduction efforts based on local needs or preferences. *See* 63 Fed.Reg. at 57,369; *id.* at 57,399-405;

62 Fed.Reg. at 60,328. Thus, real choice exists for the covered states.

Regarding EPA's decision not to rely on VOC reductions, EPA reasonably concluded that long-range ozone transport can only be addressed adequately through NOx reductions. Petitioners' reliance and emphasis on VOC reductions in lieu of NOx reductions ignores the scientific basis for EPA's rule. OTAG and EPA concluded that VOC controls would not effectively address interstate ozone transport. Furthermore, states can cure any NOx reduction "disbenefits" with corresponding optional VOC controls. *See* 62 Fed Reg. at 60,344-45; 63 Fed.Reg. at 57,425. Thus, the SIP call cannot be invalidated merely because EPA reasonably chose not to regulate VOCs.

In sum, we conclude that EPA's NOx budget program reasonably establishes reduction levels and leaves the control measure selection decision to the states. In addition, unlike the rule invalidated in *Virginia*, states implementing alternative control measures will not be penalized with more stringent emissions targets. Since the challenged budget program does not mandate a "specific, source-by-source emission limitation[]," the NOx budget plan does not run afoul of *Train* or *Virginia*.

[The court remanded the cases for reasons not included in this excerpt of the opinion.]

NOTES

1. In *Appalachian Power Company v. EPA*, 249 F.3d 1032 (D.C. Cir. 2001), the court considered a related EPA rule granting a § 126 petition from several northeastern states finding that stationary sources in 12 upwind states and the District of Columbia contribute significantly to ozone nonattainment in the northeastern states. Findings of Significant Contribution and Rulemaking on Section 126 Petitions for Purposes of Reducing Interstate Ozone Transport, 64 Fed. Reg. 28250 (1999), *revised at* 65 Fed. Reg. 2674 (2000). Among other things, the court found--

(1) that the references to § 110(a)(2)(D)(ii) in § 126 of the Act were a "scrivener's error" and that the reference was intended to be to § 110(a)(2)(D)(i), *id.* at 1040-41;

(2) that the SIP call made under § 110(k)(5) did not preclude a related decision to grant a § 126 petition, *id.* at 1047-48;

(3) that the constraints imposed on individual sources in granting a § 126 petition did not violate principles of federalism or unlawfully limit the discretion of states to allocate emissions under § 110, *id.* at 1046-47;

(4) that EPA could require § 126 controls on individual sources based upon its finding that a state's aggregate man-made emissions make a significant contribution to downwind pollution and that accordingly, the state's sources were "at risk" of being subject to SIP controls. (The court acknowledged that the imposition of § 126 controls might limit the discretion that a state might otherwise enjoy under the SIP call.) *Id.* at 1049-50.

(5) that the EPA has the authority to regulate future emissions under a § 126 rule, *id.* at 1056-57.

2. The § 126 rule establishes a “cap and trade” program for NO_x emissions. Under the program, EPA established a NO_x emissions cap for each state based upon the emissions reductions that might be expected from “highly cost-effective emission controls” in each state as of 2007. The cap allocates 95% proportionately to existing sources. The remaining 5% is for future sources. *See* 65 Fed. Reg. 2674, 2733 (2000).

3. On August 30, 2000, the Court of Appeals entered an order amending the deadline for full implementation of NO_x SIP revisions from May 1, 2003 to May 31, 2004. *Michigan v. EPA*, No. 98-1497, 2000 WL 1341477 (D.C. Cir. 2000).

At Chapter 6, page 176, refer to note 1 following the Michigan case above for current developments under § 126 of the Act.

Insert at Chapter 7, page 236 in place of the proposed regional haze regulations

**FACT SHEET: FINAL REGIONAL HAZE REGULATIONS FOR PROTECTION
OF VISIBILITY IN NATIONAL PARKS AND WILDERNESS AREAS
(Issued by the Environmental Protection Agency, 6-2-99)**

The Environmental Protection Agency (EPA) is issuing regulations to improve visibility, or visual air quality, in 156 national parks and wilderness areas across the country. These areas include many of our best known and most treasured natural areas, such as the Grand Canyon, Yosemite, Yellowstone, Mount Rainier, Shenandoah, the Great Smokies, Acadia, and the Everglades. More than 280 million visitors come to enjoy the scenic vistas and unique natural features in these and other park and wilderness areas each year.

Today's action addresses visibility impairment in the form of **regional haze**. Haze obscures the clarity, color, texture, and form of what we see. Some haze-causing pollutants (mostly fine particles) are directly emitted to the atmosphere by a number of activities (such as electric power generation, various industrial and manufacturing processes, truck and auto emissions, burning related to forestry and agriculture, construction activities, etc.). Others are formed when gases emitted to the air form particles as they are carried downwind. Examples include sulfate, formed from sulfur dioxide, and nitrates, formed from nitrogen oxides.

Emissions from these activities generally span broad geographic areas and can be transported great distances, sometimes hundreds or thousands of miles. Consequently, haze occurs regionally throughout the nation.

Today's regulations call for States to establish goals for improving visibility in national parks and wilderness areas and to develop long-term strategies for reducing emissions of air pollutants that cause visibility impairment. EPA strongly encourages the States to work together in developing and implementing their air quality plans.

The final regulation includes a separate section that allows nine Western States participating in the Grand Canyon Visibility Transport Commission to implement their specific recommendations for improving visibility across the Colorado Plateau within the framework of the national program.

The steps States take to implement these regulations are expected to have the additional benefit of improving visibility in broad areas across the country beyond these 156 national parks and wilderness areas addressed specifically in today's action.

BACKGROUND

The Clean Air Act established special goals for visibility in many national parks, wilderness areas,

and international parks. Through the 1977 amendments to the Clean Air Act, Congress set a national goal for visibility as “the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory Class I Federal areas which impairment results from manmade air pollution.” The Amendments required EPA to issue regulations to assure “reasonable progress” toward meeting the national goal.

EPA issued regulations in 1980 to address the visibility problem that is “reasonably attributable” to a single source or small group of sources. At that time, EPA acknowledged that the regulations were only the first phase addressing visibility impairment and deferred regulations dealing with regional haze until improved monitoring and modeling techniques were developed, and EPA could improve its understanding of the pollutants causing the impairment.

In 1988, the States, Federal Land Managers (*e.g.* National Park Service, U.S. Forest Service, U.S. Fish and Wildlife Service, Bureau of Land Management), and EPA began monitoring of fine particle concentrations and visibility in 30 national parks and wilderness areas across the country. This data is analyzed to understand what portion of fine particles and visibility impairment can be attributed to various pollutants in the air--sulfates, nitrates, organic and elemental carbon, and crustal material (soil dust).

In 1990, Congress amended the Clean Air Act, providing additional emphasis on regional haze issues. Among other things, the 1990 Amendments required EPA to work with several Western States to establish a Commission to address visibility in the Grand Canyon National Park. EPA established the Grand Canyon Visibility Transport Commission in 1991.

Under the 1990 Amendments, Congress required EPA to take regulatory action on regional haze within 18 months of receiving the Commission’s recommendations. The Commission delivered its final report to EPA in 1996. It included significant technical analyses and broad-based consensus on strategies to improve visibility in 16 Class I areas on the Colorado Plateau

EPA proposed the regional haze regulations in July 1997 in conjunction with issuing new national ambient air quality standards for fine particulate matter (known as PM_{2.5}--those particles less than 2.5 microns in diameter). The same particulate matter that causes serious respiratory health effects also degrade visibility.

In developing the final regional haze regulations, EPA took into account the findings of the Grand Canyon Visibility Transport Commission, as well as findings from a 1993 report by the National Academy of Sciences (NAS), *Protecting Visibility in National Parks and Wilderness Areas*, which confirmed that “current scientific knowledge is adequate and available control technologies exist to justify regulatory action to improve and protect visibility.”

WHAT ARE THE ENVIRONMENTAL AND HEALTH BENEFITS?

Visibility impairment is one of the most basic indicators of pollution in the air.

Visibility impairment occurs as a result of the scattering and absorption of light by particles and gases in the atmosphere. Without the effects of pollution, a natural visual range is approximately 140 miles in the West and 90 miles in the East. However, over the years, in many parts of the United States, fine particles have significantly reduced the range that people can see. In the West, the current range is 33-90 miles, and in the East, the current range is only 14-24 miles. The regional haze regulations allow states to develop coordinated strategies and implement programs to make reasonable progress toward the goal of “no manmade impairment” in national parks and wilderness areas by reducing emissions that contribute to haze.

Good visibility is valued by people throughout the country--in the places they live, work, and enjoy recreational activities. The regional haze program is designed to improve visibility and air quality in our most treasured natural areas so that these areas may be preserved and enjoyed by current and future generations. At the same time, control strategies designed to improve visibility in the national parks and wilderness areas will improve visibility over broad geographic areas, including other recreational sites, our cities and residences.

The same particles (sulfates, nitrates, organic carbon, smoke, and soil dust) comprising PM_{2.5}, which are linked to serious health effects and environmental effects (*e.g.*, ecosystem damage), can also significantly degrade visual air quality. Thus, actions to reduce levels of visibility-impairing pollutants will benefit public health and reduce certain adverse effects to the environment.

WHAT ARE THE KEY ELEMENTS OF THE REGIONAL HAZE REGULATIONS? States/Areas Subject to the Rule

The regional haze regulations will improve visibility in 156 specific areas of concern, known as “Class I” areas. The Clean Air Act defines mandatory Class I Federal areas as certain national parks (over 6000 acres), wilderness areas (over 5000 acres), national memorial parks (over 5000 acres), and international parks that were in existence as of August 1977.

Because of evidence that fine particles are frequently transported hundreds of miles, all 50 states--including those that do not have Class I areas--will have to participate in planning, analysis, and in many cases, emission control programs under the regional haze regulations. Even though a given State may not have any Class I areas, pollution that occurs in that State may contribute to impairment in Class I areas elsewhere. The rule encourages States to work together to determine whether or how much emissions from sources in a given State affect visibility in a downwind Class I area.

The regulations also include specific provisions allowing the Grand Canyon Visibility Transport Commission States (Arizona, California, Colorado, Idaho, Nevada, New Mexico, Oregon, Utah, and Wyoming) to implement their specific recommendations (according to different time frames) within the framework of the national regional haze program.

Reasonable Progress Goals

EPA's final regional haze regulations do not establish "presumptive targets" for showing reasonable progress, as originally proposed in 1997. Instead, States have flexibility in determining reasonable progress goals for Class I areas, taking into consideration the statutory requirements of the Clean Air Act.

States are required to conduct certain analyses to ensure that they consider the possibility of setting an ambitious reasonable progress goal, one that is aimed at reaching natural background conditions in 60 years. The rule requires States to establish goals for each affected Class I area to 1) improve visibility on the haziest days and 2) ensure no degradation occurs on the clearest days over the period of each implementation plan.

Long-Term Strategy

The rule requires States to develop long-term strategies including enforceable measures designed to meet reasonable progress goals. The first long-term strategy will cover 10 to 15 years, with reassessment and revision of those goals and strategies in 2018 and every 10 years thereafter. States' strategies should address their contribution to visibility problems in Class I areas both within and outside the State.

In identifying the emission reduction measures to be included in the long-term strategy, States should address all types of manmade emissions contributing to impairment in Class I areas, including those from mobile sources, stationary sources (such as factories), smaller, so-called "area" sources (such as residential wood combustion and gas stations), and prescribed fires.

EPA recognizes that fire of all kinds (wildfire, prescribed fire, etc.) contributes to regional haze, and there is a complex relationship between what is considered a natural source of fire versus a human-caused source of fire. For example the increased use of prescribed fire in some areas may lead to particulate emissions levels lower than those that would be expected from a catastrophic wildfire. Given that in many instances the purpose of prescribed fires is to restore the natural fire cycles to forest ecosystems, EPA will work with States and Federal Land Managers to support development of enhanced smoke management plans to minimize the effects of fire emissions on public health and welfare.

In developing their long term strategy for regional haze, States can take into account emission reductions due to ongoing air pollution control programs (such as implementation of programs to meet the national ambient air quality standards for particulate matter). EPA expects that some States may be able to demonstrate reasonable progress based on these emission reductions alone, particularly for the first period of the long-term strategy.

Best Available Retrofit Technology (BART)

One of the principal elements of the visibility protection provisions of the Clean Air Act addresses installation of best available retrofit technology--or BART--for certain existing sources placed into operation between 1962 and 1977. The regional haze rule requires three basic state plan elements

related to BART:

- 1) a list of BART-eligible sources (includes sources of air pollutants that are reasonably anticipated to contribute to visibility impairment in a Class I area);
- 2) a regional analysis of the cumulative emission reductions and changes in visibility that would result from “best retrofit” control levels on sources subject to BART; and
- 3) the BART emission limits for each subject source, or an alternative measure such as an emissions trading program for achieving greater reasonable progress in visibility protection than implementation of source-by-source BART controls.

In determining BART, the State can take into account several factors, including the existing control technology in place at the source, the costs of compliance, energy and nonair environmental impacts of compliance, remaining useful life of the source, and the degree of visibility improvement that is reasonably anticipated from the use of such technology.

Expanded Monitoring

EPA is expanding the existing Class I area visibility monitoring network from 30 to 108 sites in 1999. EPA is working closely with State air pollution agencies and Federal Land Managers to efficiently design and deploy the network to provide regionally representative data for all 156 Class I areas.

Optional Approach for Regional Planning

Regional haze is caused by many sources located across a broad region often covering several states. The final regional haze regulations incorporate an optional set of requirements for States to submit coordinated strategies for regional haze and PM_{2.5}. Some States will be able to take additional time to develop their strategies if they commit to participate in regional planning.

A given State’s commitment to regional planning includes a two-step process. As a first step, a State electing to participate in regional planning must submit a plan demonstrating the State’s ongoing participation and commitment to a regional planning process. This plan must address all areas in the State and demonstrate the need for regional planning by showing that emissions from their State are reasonably anticipated to contribute to visibility impairment in another State, or by showing that another State may contribute to visibility impairment in their State. The State plan must also include a detailed description of the regional planning process and it must include a commitment by the State to submit a coordinated control strategy at a later date.

WHEN MUST STATES SUBMIT THEIR PLANS?

States are required to submit revisions to their visibility protection requirements following the time that EPA designates areas for the national ambient air quality standard for PM_{2.5}. For those areas EPA designates as “attainment” and “unclassifiable,” States will have 1 year following the designation to submit their implementation plans (generally 2004 to 2006). For those areas EPA designates as “nonattainment,” States will have 3 years from the date of designation to submit their

plans (about 2006 to 2008).

For a State that commits to regional planning, its first implementation plan committing to regional planning is due one year after EPA first designates an area within that State as attainment or nonattainment for PM_{2.5}. Complete control strategy plans for regional haze would be due to EPA at the same time as the PM_{2.5} state plans are due (3 years after EPA designates an area nonattainment for PM_{2.5}, but no later than 2008).

Subsequent revisions to the State implementation plans are required in 2018, and every 10 years thereafter. With each revision, the State is required to set new progress goals and strategies to meet the goals.

States must also submit progress reports to EPA every 5 years. These reports will document actual changes in visibility and emission reductions within the State. At the time of each progress report, States will compare their current visibility conditions to baseline conditions (*i.e.* baseline is the average conditions for 2000 to 2004). The report, which will be subject to public review and comment, must also include any needed mid-course corrections to emission management strategies.

WHO WILL BE AFFECTED BY EPA'S REGIONAL HAZE RULE?

State and local air quality agencies will implement the regional haze program through revisions to their state implementation plans. However, because regional haze often results from pollution emitted across broad regions, EPA encourages States to participate in multi-state planning efforts to develop regional strategies for meeting progress goals. While the Clean Air Act specifically identifies certain source types as potential contributors to visibility impairment, ultimately the States will make decisions about specific emission management strategies. In some areas, existing strategies for other air quality programs (such as the program to attain the PM_{2.5} national air quality standards) may provide steady visibility improvements in the near-term.

Both the regional haze program and Clean Air Act require consultation between the States and the Federal Land Managers responsible for managing Class I areas. Such collaboration will help in developing state implementation plans and monitoring plans and in predicting the visibility impacts of potential new sources.

The principal manmade sources of pollutants contributing to fine particles in the air include electric power generation, automobiles, trucks, and other mobile sources, industrial manufacturing activities, burning related to forestry and agricultural activities, and dust from roadways and construction activities. Sources in these and other categories may be affected by this rule, depending on the reasonable progress goals and emission management strategies adopted by each State.

WHAT ARE THE ESTIMATED COSTS AND BENEFITS ASSOCIATED WITH IMPLEMENTING THE REGIONAL HAZE REGULATIONS?

EPA has developed best estimates of the annual costs through the first planning phase of the rule, the

year 2018. The costs and the corresponding benefits of implementing the regional haze rule depend on the extent to which control measures, already required under the Clean Air Act, will meet the visibility goals. At the low end, costs would be \$1 billion with corresponding benefits of \$3.5 billion per year. At the high end, costs would be \$4 billion with corresponding benefits of \$10.8 billion per year.

The costs and benefits of the regional haze program are directly linked to the eventual choices that States will make regarding visibility goals in their Class I areas and associated control strategies.

Some States may be able to demonstrate that visibility improvement associated with other Clean Air Act programs, such as the new automotive emission standards, and programs to meet the national ambient air quality standards for PM_{2.5}, may be sufficient to reach their reasonable progress goals for the first 10 year period (generally 2008 to 2018 for most States). In that situation, the incremental effects of the haze rule are limited to administrative activities (*i.e.* planning, analyses, etc.) with some potential for associated control costs at some BART source category plants.

EPA conducted a number of illustrative analyses of costs and benefits for various progress goal levels. For the most stringent progress goal (10% improvement for the worst visibility days over 10 years), EPA estimated control costs would be \$4 billion and associated benefits at \$10.8 billion. These benefits are due to reductions of particulate matter under the regional haze rule, which will lead to reduced health risks as well as improvements in visibility.

FOR FURTHER INFORMATION

Interested parties can download the rule from EPA's website on the Internet board under "Recent Actions" at the following address: <http://www.epa.gov/oar/vis/overview.html>. For further information about the rule, contact Mr. Richard Damberg at (919)-541-5592 of EPA's Office of Air Quality Planning and Standards.

EPA's Office of Air and Radiation's homepage on the Internet contains a wide range of information on air pollution programs and issues, including visibility issues. The Office of Air and Radiation's home page address is: <http://www.epa.gov/oar/>.

Insert at Chapter 9, page 301 in place of National Mining Association v. EPA.

NATIONAL LIME ASSOCIATION V. ENVIRONMENTAL PROTECTION AGENCY
233 F.3D 625 (D.C. CIR. 2000)

GINSBURG and TATEL, Circuit Judges:

In this case we consider petitions by the Sierra Club and the National Lime Association challenging the Environmental Protection Agency's hazardous air pollutant emission regulations for cement manufacturing. With respect to the Sierra Club petition we (1) reject its challenge to the emission standards for hazardous metals and dioxin/furan; (2) find the Agency's failure to set standards for hydrogen chloride, mercury, and total hydrocarbons contrary to the Clean Air Act's plain language; (3) direct EPA to consider the health impacts of potentially stricter standards for hazardous metals; and (4) sustain the regulation's monitoring requirements. Concluding that the National Lime Association has associational standing, we (1) reject its argument that EPA's use of particulate matter as a surrogate for non-volatile metal hazardous air pollutants violates the Clean Air Act and is arbitrary and capricious; and (2) reject its challenge to the testing method EPA adopted for determining whether a manufacturer qualifies as a "major source" of hazardous air pollutants.

I. BACKGROUND

The Clean Air Act requires the Environmental Protection Agency to establish emission standards for "major sources" of hazardous air pollutants listed in the statute. 42 U.S.C. § 7412(d)(1). The Act directs the Agency to review the list periodically and, where appropriate, to revise it by rule. *Id.* § 7412(b)(2). Hazardous air pollutants are known as HAPs.

A "major source" is any stationary source that emits ten tons per year or more of any single HAP or twenty-five tons per year or more of any combination of HAPs. *Id.* § 7412(a)(1). Under section 7412(d)(2) of the statute, emission standards must require the maximum degree of reduction in emissions [of HAPs] . . . that the Administrator, taking into consideration the cost of achieving such emission reduction, and any nonair quality health and environmental impacts and energy requirements, determines is achievable . . . through application of measures, processes, methods, systems or techniques including, but not limited to, . . . process changes, substitution of materials or other modifications.

In addition to this general guidance, the statute includes minimum stringency requirements for emission standards that apply without regard to either costs or the other factors and methods listed in section 7412(d)(2). These stringency requirements differ depending on whether a source is "new" or "existing." New sources are defined as "stationary source[s], the construction or modification of which is commenced after the publication of regulations (or, if earlier, proposed regulations) prescribing" air pollution standards that will be applicable to such sources. *Id.* § 7411(a)(2). For new sources, the statute provides that "[t]he maximum degree of reduction in emissions that is deemed *achievable* for new sources . . . shall not be less stringent than the emission control that is *achieved* in practice by the best controlled similar source, as determined by the Administrator." *Id.* § 7412(d)(3) (emphasis added). For existing sources, defined as all stationary

sources other than new sources, *id.* § 7411(a)(6), the statute provides that standards shall not be less stringent than “the average emission limitation achieved by the best performing 12 percent of the existing sources (for which the Administrator has emissions information).” *Id.* § 7412(d)(3)(A).

EPA implements these statutory requirements through a two-step process. The Agency begins by setting the minimum stringency standards required by section 7412(d)(3) for new and existing sources. Adding confusion to this already complex statute, EPA calls these minimum stringency requirements “floors,” even though they in fact establish maximum emission levels. *See Sierra Club v. EPA*, 167 F.3d 658, 660 (D.C.Cir.1999) (“*Sierra*”). Once the Agency sets statutory floors, it then determines, considering cost and the other factors listed in section 7412(d)(2), whether stricter standards are “achievable.” 42 U.S.C. § 7412(d)(2). The Agency calls such stricter requirements “beyond-the-floor” standards.

This case concerns emission standards for portland cement manufacturing plants. *See National Emission Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry*, 40 C.F.R. §§ 63.1340-.1359. Patented in 1824 by Joseph Aspdin and named for its resemblance to portland stone (limestone from the Isle of Portland), *see* 9 THE NEW ENCYCLOPEDIA BRITANNICA 629 (15th ed.1998), portland cement is a fine powder that serves as the key ingredient in the concrete used in most construction. *See National Emission Standards for Hazardous Air Pollutants; Proposed Standards for Hazardous Air Pollutants Emissions for the Portland Cement Manufacturing Industry*, 63 Fed.Reg. 14,182, 14,185 (Mar. 24, 1998). The cement manufacturing process begins by grinding together materials such as limestone, clay, shale, sand, iron ore, and flyash and heating the mixture in a kiln. *See* 40 C.F.R. § 63.1341; 63 Fed.Reg. at 14,194. Known as “clinker,” the heated mixture is then cooled in a “clinker cooler” and ground to a fine powder in a mill. *See* 40 C.F.R. § 63.1341.

Prior to setting cement manufacturing emission standards, EPA estimated that portland cement plants throughout the country emitted a total of 290 tons of HAPs per year. 63 Fed.Reg. at 14,183. EPA found that most individual cement plants released over ten tons of hydrogen chloride (“HCl”) annually, qualifying them as major sources of HAPs for which the Clean Air Act required the Agency to set emission standards. *See id.* at 14,192-93. In addition to HCl, EPA found that cement plants emitted significant levels of HAP metals, dioxin/furan, mercury, and organic HAPs other than dioxin/furan. *See id.* at 14,195-96. These HAPs were released by kilns, clinker coolers, and mills, as well as by storage and transportation of materials within cement plants. *See id.* at 14,183. According to EPA, the potential health effects of these pollutants include inflammation of the respiratory tract, reproductive problems, cancer, nausea, blood disorders, and damage to the immune system. *See id.* at 14,184.

Acting on this information, EPA began by considering emission “floors” for each of the five major categories of HAPs released by cement plants. For dioxin/furan, the Agency set emission floors for both new and existing sources. Considering particulate matter (“PM”) to be an appropriate surrogate for non-volatile HAP metals--components of PM that are difficult to measure directly--EPA established emission floors for new and existing sources for PM as well. EPA set no floors--referred to as floors of “no control”--for the three remaining HAPs: HCl, mercury, and organic HAPs other than dioxin/furan.

The Agency took a technology-based approach to setting emission floors. For cement plants qualifying as new sources, EPA identified the emission control technology used by the best performing plant for which it had information and called this the MACT floor technology. MACT

means “maximum achievable control technology.” EPA then looked at emissions data for all plants using the MACT floor technology for which it had information, not just data from the best performing plant, and set the new source emission floor at the highest emission level reported by a plant using that technology. To set existing source emission floors, EPA followed a similar procedure. It identified the technology used by the median plant out of the best twelve percent of plants for which it had information and set the existing source emission floor at the emission level of the worst performing plant in its database using that technology. If, as in the case of HCl, mercury, and organic HAPs other than dioxin/furan, EPA found an insufficient number of plants in its database (one for new sources or twelve percent for existing sources) controlling a particular HAP with pollution control technology, it set no standard at all, *i.e.*, it determined that the emission floor was “no control.”

Proceeding to the next stage of the emission standard setting process, EPA declined (with one exception not relevant to this case) to set beyond-the-floor standards for either new or existing sources for any of the five HAPs.

In addition to requiring EPA to set emission standards, the Clean Air Act directs the Agency to require owners and operators of major sources to conduct “enhanced monitoring” of their emissions and to submit “compliance certifications” reporting compliance with the emission standards. 42 U.S.C. § 7414(a)(3). Acting pursuant to this requirement, EPA directed cement plants to use a technique known as Fourier transform infrared spectroscopy (“FTIR”) to measure their HCl emissions to determine whether they qualify as major sources. *See* 40 C.F.R. § 63.1352(a); *id.* pt. 63, app. A. Plants qualifying as major sources must conduct performance tests that measure PM emissions every five years. *See id.* § 63.1349(b)(1), (c). To test for compliance with PM standards between performance tests, cement plants must monitor opacity either with a continuous opacity monitor or through visual inspections. *See id.* § 63.1350(c). Cement plants must also develop site-specific operations and maintenance plans to be submitted to EPA for approval as part of the permitting process. *See id.* § 63.1350(a).

Petitioners Sierra Club and National Lime Association (“NLA”) challenge these regulations. The Sierra Club mounts four specific challenges: (1) EPA’s approach to setting emission floors for PM and dioxin/furan both violates the Clean Air Act and is arbitrary and capricious; (2) the Agency’s refusal to set standards for HCl, mercury, and total hydrocarbons violates the statute; (3) EPA’s rejection of beyond-the-floor standards for mercury, total hydrocarbons, and HAP metals (for which PM is a surrogate) is arbitrary and capricious; and (4) the monitoring requirements fail to provide adequate assurance of compliance with the PM standard. NLA, a trade association representing lime manufacturers, some of which also manufacture cement, argues that (1) EPA’s decision to use PM as a surrogate for HAP metals violates the statute and is arbitrary and capricious; and (2) the Agency’s decision to require cement plants to use the FTIR method to determine their major source status is arbitrary and capricious. The American Portland Cement Alliance, a trade association representing cement manufacturers and marketers, intervenes in support of EPA. We consider the Sierra Club’s challenges in Section II and NLA’s in Section III.

II. SIERRA CLUB PETITION

A. PM and Dioxin/Furan Floors

Relying on *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837,

842-43 (1984) (establishing that when Congress’s intent is clear, “that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress”), the Sierra Club argues that the Agency’s technology-based approach conflicts with the Clean Air Act’s plain language. According to the Sierra Club, section 7412(d)(3) requires EPA to set new source floors at the lowest recorded emission level for which it has data and existing source floors at the average of the lowest twelve percent of recorded emission levels for which it has data. Nothing in the statute, the Sierra Club argues, permits the Agency to set floors based on the performance of technology as opposed to the recorded performance of plants.

* * *

We agree that to comply with the statute, EPA’s method of setting emission floors must reasonably estimate the performance of the relevant best performing plants. *See* 42 U.S.C. § 7412(d)(3); *Sierra*, 167 F.3d at 665. Yet the Sierra Club’s brief does not explain why the emission standards EPA set might not accurately estimate the performance of the best performing twelve percent of plants. The brief never even suggests that the MACT approach in fact fails to predict the emission levels of the best performing sources. When we asked about this at oral argument, it became clear that the Sierra Club believes that EPA’s MACT approach would not accurately estimate emission levels of the best performing twelve percent of plants if the best performing plants achieved their emission levels not just by using technology, but also by selecting cleaner manufacturing inputs. For example, the best performing twelve percent of plants might perform well because, in comparison to other plants having the same technology, they use less-polluting fuels or purer raw materials. Such plants would have predictably lower emissions than plants using MACT floor technology alone. Under such circumstances, the Sierra Club argues, because technology would represent only one of the factors determining emission levels of the best performing plants, EPA could not assume that emission levels from the worst-performing plant using MACT floor technology predict the performance of the best performing plants under the worst conditions.

Although this argument may well have merit, the Sierra Club’s failure to include the argument in its opening brief precludes us from considering it. *See Corson & Gruman Co. v. NLRB*, 899 F.2d 47, 50 n. 4 (D.C.Cir.1990). Claiming only that the Agency has “never explained” why the MACT approach accurately predicts the performance of the relevant best performing sources falls far short of alerting EPA to the argument we now understand the Sierra Club to be making, thus giving the Agency no opportunity to respond. The Sierra Club’s failure is particularly serious because the MACT approach would accurately estimate the performance of the best performing sources of a particular HAP if pollution control technology were the only factor determining emission levels of that HAP--in other words, if emissions were unaffected by the use of either alternative fuels or raw materials. To be sure, as the Sierra Club points out in a letter submitted after oral argument pursuant to Rule 28(j) of our rules, it did raise its multiple control factors argument during the rulemaking in a comment regarding emission standards for mercury. Record comments, however, cannot cure a failure to raise a key argument here. We will therefore deny the Sierra Club’s petition for review with respect to emission floors for PM and dioxin/furan.

B. Failure to Set Floors for HCl, Mercury, and Total Hydrocarbons

EPA established emission floors of “no control” for HCl, mercury, and total hydrocarbons (a surrogate for organic HAPs other than dioxin/furan) because the Agency found no cement plants using control technologies for these pollutants. The Sierra Club argues that EPA’s failure to set emission limits for these HAPs violates the statute’s requirement that the Agency establish emission standards for each of “the hazardous air pollutants listed for regulation.” 42 U.S.C. § 7412(d)(1). Defending its decision, EPA points to *Sierra*’s suggestion that the worst foreseeable performance of the best performing unit might be predictable from the performance of the worst performing unit using the same technology. *See* 64 Fed.Reg. at 31,915 (citing *Sierra*, 167 F.3d at 665). According to EPA, if no control technology exists, then the worst foreseeable performance “could vary day by day” and the standard must be no control. *See* EPA Response to Comments (May 7, 1999), at 190.

On this issue, we agree with the Sierra Club. Nothing in the statute even suggests that EPA may set emission levels only for those listed HAPs controlled with technology. To the contrary, the statute lists over one hundred specific HAPs, 42 U.S.C. § 7412(b)(1), and requires EPA to “promulgate regulations establishing emission standards for each category or subcategory of major sources . . . of hazardous air pollutants listed for regulation.” *Id.* § 7412(d)(1). The statute directs the Agency to promulgate these emission standards by November 15, 2000. *Id.* § 7412(e)(1)(E).

* * *

Contrary to EPA’s argument, nothing in *Sierra* relieves it of the clear statutory obligation to set emission standards for each listed HAP. Although *Sierra* permits the Agency to look at technological controls to set emission standards, *see* 167 F.3d at 665, it does not say that EPA may avoid setting standards for HAPs not controlled with technology.

Although we thus believe that section 7412(d)(1)’s language disposes of this issue, we add that our reading of that section is reinforced by the Clean Air Act’s legislative history. A report by the Senate Committee on Environment and Public Works states:

The technologies, practices or strategies which are to be considered in setting emission standards under this subsection go beyond the traditional end-of-the-stack treatment or abatement system. The Administrator is to give priority to technologies or strategies which reduce the amount of pollution generated through process changes or the substitution of materials less hazardous. Pollution prevention is to be the preferred strategy wherever possible.

S. REP NO. 101-228, at 168.

For all of these reasons, the absence of technology-based pollution control devices for HCl, mercury, and total hydrocarbons did not excuse EPA from setting emission standards for those pollutants. We thus will remand for EPA to do so.

C. Beyond-the-Floor Standards

The Sierra Club presents a number of objections to EPA’s refusal to set general beyond-the-floor emission standards for mercury, total hydrocarbons, and HAP metals (for which PM is a surrogate). Because EPA will now need to initiate new rulemaking proceedings to establish emission

floors for mercury and total hydrocarbons, we need not consider the Agency's refusal to set beyond-the-floor standards for those two HAPs. We address only the Sierra Club's challenge to the Agency's refusal to set beyond-the-floor standards for HAP metals.

When determining whether to set beyond-the-floor standards, the Clean Air Act requires EPA to consider "the cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements." 42 U.S.C. § 7412(d)(2). The Sierra Club argues that EPA violated the statute by failing to consider the non-air quality health and environmental impacts of potential beyond-the-floor standards for HAP metals. Again, we agree. Although EPA considered costs and energy requirements, nowhere in the record does it appear to have taken account of any non-air quality health effects.

EPA's analysis of potential beyond-the-floor standards for HAP metals suffers from a second defect. As the Sierra Club points out, EPA, responding to a comment in the rulemaking suggesting that stricter emission standards for HAP metals could be achieved if cement kilns switched to natural gas, asserted that "[t]here are no data available to EPA that indicate that [fuel switching] can or has achieved metals emission reductions." 64 Fed.Reg. 31,917. Yet a study in the record contains just such information, demonstrating that switching to natural gas would in fact reduce metal emissions. *See* OFFICE OF AIR QUALITY PLANNING AND STANDARDS, U.S. EPA, STUDY OF HAZARDOUS AIR POLLUTANTS EMISSIONS FROM ELECTRIC UTILITY STEAM GENERATING UNITS 13-2 (1998). EPA now tells us that fuel switching is not a viable alternative because of inadequate supplies of natural gas. In support of this proposition, the Agency points to a handwritten notation on a report in the administrative record. But that note, supposedly written by an EPA employee, is virtually illegible--even the Agency's counsel was unable to decipher it at oral argument. Therefore, the note cannot supply a basis for EPA's decision. Although the Agency's brief cites one other study in support of its assertion that the supply of natural gas is inadequate, nothing in the rulemaking indicates that EPA relied on it. "[A]n agency's action must be upheld, if at all, on the basis articulated by the agency." *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 50 (1983).

Thus, because EPA failed to consider non-air quality health and environmental impacts of potential beyond-the-floor standards for HAP metals, and because it relied on a factually incorrect assertion in rejecting such standards, we will remand the beyond-the-floor determination for HAP metals for further consideration consistent with this opinion. In view of the Sierra Club's request that we not vacate the EPA's regulations, because "to do so would at least temporarily defeat [Sierra Club's] purpose, the enhanced protection" of the environment, *Environmental Defense Fund, Inc. v. Adm'r of the EPA*, 898 F.2d 183, 190 (D.C.Cir.1990), we will leave the current PM regulations in place during remand.

D. Monitoring

In its final challenge, the Sierra Club argues that the regulation's monitoring requirements fail to provide reasonable assurance of compliance with the emission standards. Specifically, it argues that the opacity monitoring required by the regulation will not guarantee compliance with the PM standard. EPA responds that opacity monitoring promotes good operation and maintenance, which in turn reasonably ensure compliance with the PM standard. Because the Sierra Club has given us no basis for doubting this assertion, and because analysis of this issue "requires a high level of technical expertise, we must defer to the informed discretion" of the Agency. *Marsh v. Oregon*

Natural Resources Council, 490 U.S. 360, 377 (1989) (internal quotation marks omitted).

III. PETITION OF THE NATIONAL LIME ASSOCIATION

Petitioner National Lime Association (NLA) claims that two additional aspects of the portland cement rule are contrary to law and arbitrary and capricious: the EPA's use of PM as a surrogate for HAP metals, and its requirement that cement kilns use a specified technique to measure their HCl emissions under certain circumstances. * * *

* * *

B. The Use of PM as a Surrogate

The NLA's primary objection to the portland cement rule is that it limits PM emissions from cement kilns instead of regulating emissions of HAP metals individually. The EPA justifies its decision to regulate PM as "a surrogate for nonvolatile HAP metals" by noting first that PM generated by cement kilns invariably contains HAP metals, so that preventing the emission of a unit of PM necessarily prevents the emission of some quantum of HAP metals. Using PM as a surrogate thus "achieves exactly the same level of HAP metal emissions limitation" as would be reached were the metals to be regulated directly. The agency also states that "the MACT floor equipment and level of control for HAP metals . . . is identical to that for PM." Finally, the agency notes that the use of a surrogate "eliminates the cost of performance testing to comply with numerous standards for individual metals." 64 Fed.Reg. at 31,916/3.

The EPA may use a surrogate to regulate hazardous pollutants if it is "reasonable" to do so. *See Dithiocarbamate Task Force v. EPA*, 98 F.3d 1394, 1399 (D.C.Cir.1996) (EPA may attribute characteristics of a subclass of substances to an entire class of substances if doing so is scientifically reasonable); *NRDC v. EPA*, 822 F.2d 104, 125 (D.C.Cir.1987) (EPA may regulate pollutant indirectly when its emissions are controllable by regulation of other pollutants). Even a reasonable surrogate, of course, may not be used where doing so would be otherwise contrary to law. The NLA does not challenge the legality of surrogacy in general, but does maintain that in this case the use of PM as a surrogate is both contrary to law and unreasonable.

1. Legality of using a criteria pollutant as a surrogate

[The court finds that the use of a criteria pollutant as a surrogate for HAPs is not contrary to law.]

2. Reasonableness of the PM surrogate

The NLA also contends that PM is an unreasonable surrogate for HAP metals because HAP metals make up a "very small and variable" portion of cement kiln PM emissions. The NLA faults the EPA both because it did not demonstrate and quantify a consistent correlation between PM stack emissions and their HAP metal content, and because it selected a surrogate of which HAP metals make up only "about one tenth of one percent."

The EPA acknowledges both points. The closest the agency comes to making a numerical estimate of the correlation between PM and the HAP metals it contains is the statement that “the total average HAP metal content of kiln exhaust PM is approximately one weight percent.” 63 Fed.Reg. at 14,195/2. The EPA thus admits that the ratio of HAP metals to total particulates is small; and the agency nowhere discusses the variance associated with its estimated average. The EPA contends, however, that it justified the surrogacy adequately by demonstrating that “where there is cement kiln PM, HAP metals are always in it, and when cement kiln PM is removed from emissions, HAP metals are always removed with it.” According to the EPA, as long as it demonstrates that there is a correlation between HAP metals and PM, it need not quantify that correlation or assess its variability because PM control technology is such that each unit of PM emissions avoided “carries” within it some quantum of HAP metals.

The agency’s analysis is not unreasonable. If HAP metals are invariably present in cement kiln PM, then even if the ratio of metals to PM is small and variable, or simply unknown, PM is a reasonable surrogate for the metals--assuming, as both the EPA and the NLA appear to do, that PM control technology indiscriminately captures HAP metals along with other particulates, an assumption about which we say more in the next paragraph. The EPA is under no obligation to achieve a particular numerical reduction in HAP metal emissions; it must reduce their emission only to the level “achieved” by the best performing facility or, for existing sources, to the level achieved by the median of the best-performing 12 percent of facilities. 42 U.S.C. § 7412(d)(3). If PM control is the only means by which facilities “achieve” reductions in HAP metal emissions, then the EPA may require PM control without quantifying the reduction in HAP metals thus achieved.

We should add, however, that the EPA may need to reconsider whether PM is an appropriate surrogate for HAP metals when, upon remand, it considers whether to establish beyond-the-floor standards for HAP metals (for which PM is a proxy). We held above that the EPA must consider the potential impact upon emissions of changes in inputs to the cement manufacturing process, especially the possibility of fuel switching. The EPA decided to use PM as a surrogate for HAP metals because PM control technology traps HAP metal particles and other particulates indiscriminately. In considering the role of inputs, the EPA must also assure itself that fuels and other inputs affect HAP metal emissions in the same fashion that they affect the other components of PM. For example, PM might not be an appropriate surrogate for HAP metals if switching fuels would decrease HAP metal emissions without causing a corresponding reduction in total PM emissions.

* * *

C. Measurement of HCl Emissions

HCl is emitted in sufficient quantity from most cement kilns to qualify each kiln as a “major source,” that is, a source that “emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any [HAP],” 42 U.S.C. § 7412(a)(1). *See* 63 Fed.Reg. at 14,192-93. The challenged rule allows a single technique for measuring HCl emissions from a cement kiln--Fourier Transform Infrared Spectroscopy (FTIR)--if the kiln “wishes to claim it is not a major source.” 64 Fed.Reg. at 31,907/2. The EPA refused to allow kilns to use two other methods--so-called Method 26 and its variant, Method 26A--to support such a claim because, in the agency’s

view, these methods “may underestimate HCl emissions by a factor of 2 to 25.” 63 Fed.Reg. at 14,193/1. The NLA claims that this determination was unlawful and arbitrary and capricious. It also asserts that the EPA acted unlawfully when it refused to consider NLA’s comments suggesting potential improvements in Method 26/26A.

* * *

* * * [T]he EPA concedes that it failed to consider the NLA’s properly submitted comments regarding possible improvements to Method 26/26A. We therefore remand this matter to the agency so that it may respond to those comments.

IV. CONCLUSION

In summary, we remand the rule to the EPA to allow the agency to (1) set “MACT floor” standards for HCl, mercury, and total hydrocarbons; (2) consider setting “beyond-the-floor” standards for HAP metals; and (3) respond to comments suggesting improvements to Method 26/26A for measuring HCl emissions. With respect to all other issues discussed herein, the petitions are denied.

So ordered.