

Notice: This opinion is subject to formal revision before publication in the Federal Reporter or U.S.App.D.C. Reports. Users are requested to notify the Clerk of any formal errors in order that corrections may be made before the bound volumes go to press.

United States Court of Appeals

FOR THE DISTRICT OF COLUMBIA CIRCUIT

Argued November 20, 2003 Decided February 3, 2004

No. 03-1084

SIERRA CLUB,
PETITIONER

v.

ENVIRONMENTAL PROTECTION AGENCY AND
MICHAEL O. LEAVITT, ADMINISTRATOR,
U.S. ENVIRONMENTAL PROTECTION AGENCY,
RESPONDENTS

STATE OF MARYLAND, *ET AL.*,
INTERVENORS

Consolidated with
03-1103, 03-1115, 03-1152

On Petitions for Review of Final Actions of the
Environmental Protection Agency

Bills of costs must be filed within 14 days after entry of judgment. The court looks with disfavor upon motions to file bills of costs out of time.

David S. Baron argued the cause and filed the briefs for petitioner.

Cynthia J. Morris, Attorney, U.S. Department of Justice, argued the cause for respondents. With her on the brief were *Howard J. Hoffman* and *Sara Schneeberg*, Attorneys.

Kathy M. Kinsey, Assistant Attorney General, State of Maryland, argued the cause for intervenors State of Maryland, *et al.* With her on the brief were *J. Joseph Curran, Jr.*, Attorney General, *Robert J. Spagnoletti*, Corporation Counsel, District of Columbia, *Edward E. Schwab*, Acting Deputy Corporation Counsel, *Donna M. Murasky*, Senior Litigation Counsel, *Jerry Kilgore*, Attorney General, Commonwealth of Virginia, *Roger L. Chaffe*, Senior Assistant Attorney General, and *Carl Josephson*, Assistant Attorney General.

Before: SENTELLE, HENDERSON, and GARLAND, *Circuit Judges*.

Opinion for the Court filed by *Circuit Judge* GARLAND.

GARLAND, *Circuit Judge*: In these consolidated cases, Sierra Club challenges two final actions of the Environmental Protection Agency (EPA) regarding ozone control plans for the Washington, D.C. area. Those plans were designed to bring the area into compliance with ozone standards prescribed by the Clean Air Act and EPA regulations. Sierra Club contends that EPA violated the Act by giving conditional approval to the plans notwithstanding that they lacked required statutory elements. Sierra Club also challenges the substance of two elements that were included in the plans, as well as EPA's extension of the deadlines by which revised plans must be submitted for final approval.

We agree with Sierra Club's principal contention that EPA was not authorized to grant conditional approval to plans that did nothing more than promise to do tomorrow what the Act requires today. We therefore vacate the conditional approval and remand the matter to EPA for further action consistent with this opinion. In other respects we deny the petitions for review.

The Clean Air Act (CAA), 42 U.S.C. § 7401 *et seq.*, directs EPA to establish National Ambient Air Quality Standards (NAAQS) that set maximum permissible concentration levels for air pollutants that endanger the public health and welfare. 42 U.S.C. §§ 7408, 7409. Pursuant to that direction, the agency has adopted NAAQS for ozone. 40 C.F.R. § 50.9.¹ Under the Act, EPA designates areas of the country as “attainment” or “nonattainment” (or as “unclassifiable”) based on whether they comply with the ozone NAAQS. 42 U.S.C. § 7407(d). Nonattainment areas are further classified as “marginal,” “moderate,” “serious,” “severe,” or “extreme,” depending upon the severity and duration of their noncompliance. *Id.* § 7511(a). The Act establishes air quality planning and control requirements that increase in stringency as the classification increases in severity. *See id.* § 7511a. It also establishes deadlines for attainment of the NAAQS depending upon an area’s nonattainment classification. *Id.* §§ 7410, 7502, 7511(a). If an area fails to attain the NAAQS by the applicable deadline, EPA must reclassify it to a higher classification. *Id.* § 7511(b)(2). Generally, reclassification grants the area a later attainment deadline, but requires it to comply with the more stringent pollution control measures applicable to the higher classification. *Id.* § 7511(a)(1), (b)(2); *id.* § 7511a.

The Act also prescribes the process by which areas must arrive at and maintain compliance with the NAAQS. Each state must adopt and submit for approval to EPA a state implementation plan (SIP) that provides for “implementation, maintenance, and enforcement” of applicable NAAQS in each air quality region (or portion thereof) within the state. *Id.* § 7410(a)(1). In addition to the general SIP requirements, states in ozone nonattainment areas must submit SIPs meet-

¹ Ozone, a principal component of urban smog, can cause acute respiratory problems. It presents a special health risk to people with lung ailments, and to children and adults who are active outdoors. Control of Air Pollution from New Motor Vehicles, Final Rule, 66 Fed. Reg. 5002, 5012 (Jan. 18, 2001); *see infra* note 4.

ing additional requirements that depend upon the severity of the ozone problem. *Id.* §§ 7502, 7511a. Each SIP must contain an “attainment demonstration” that shows that the area will achieve the NAAQS by the area’s statutory attainment deadline. *Id.* § 7511a(c)(2)(A); 40 C.F.R. § 51.112. The attainment demonstration is based on the state’s control strategy for ozone-precursor emissions, which must “include enforceable emissions limitations, and such other control measures . . . as may be necessary or appropriate to provide for attainment of such standard in such area by the applicable attainment date.” 42 U.S.C. § 7502(c)(6).

Particularly relevant for this case, SIPs from states in nonattainment areas must also: (1) provide for “the implementation of all reasonably available control measures [RACM] as expeditiously as practicable,” *id.* § 7502(c)(1); and, for serious and severe areas, (2) contain a rate of progress (ROP) plan that demonstrates an average reduction of baseline emissions of 3% per year for each consecutive three-year period commencing in 1996 until the attainment deadline for the classification area, *id.* § 7511a(c)(2)(B), (d); and (3) “provide for the implementation of specific [contingency] measures to be undertaken if the area fails” to meet any ROP milestone or to attain the NAAQS by the statutory deadline, *id.* §§ 7502(c)(9), 7511a(c)(9) & (d).

The Washington, D.C. Metropolitan Area (“D.C. area”) is made up of the District of Columbia and several Maryland and Virginia counties. Pursuant to the Clean Air Act, EPA classified the D.C. area as a “serious” nonattainment area for ozone in 1991. Designation of Areas for Air Quality Planning Purposes, Final Rule, 56 Fed. Reg. 56,694, 56,738, 56,772, 56,841 (Nov. 6, 1991). The statutory deadline for ozone attainment by serious areas was November 15, 1999, and revised SIPs including the attainment demonstration and ROP plans were due by November 15, 1994. 42 U.S.C. §§ 7511(a)(1), 7511a(c)(2).

Maryland, Virginia, and the District of Columbia (“the States”) did not submit their attainment demonstration and other plan provisions for the D.C. area until 1997-1998; they

amended and supplemented those submissions during 1998-2000. See Approval and Promulgation of Air Quality Implementation Plans, Final Rule, 66 Fed. Reg. 586 (Jan. 3, 2001). Those SIPs lacked the three statutory elements noted above: (1) the RACM analysis; (2) ROP plans for post-1999 emissions reductions; and (3) contingency measures. *Id.* at 603, 608, 615. Moreover, the SIPs did not demonstrate that the area would reach attainment by the statutory deadline of November 15, 1999. *Id.* at 630-31. Instead, the States asked EPA to extend the attainment deadline by six years to November 15, 2005, without reclassifying the area as “severe” as the Act would otherwise have required. *Id.* at 586. On January 3, 2001, EPA fully approved the SIPs and granted the States’ requests to extend the attainment deadline without reclassifying the D.C. area. *Id.* at 603, 608, 605, 630-31.

Sierra Club petitioned this court for review, contending (inter alia) that EPA could not approve the SIPs without the missing statutory elements, and that it had no authority to extend the statutory attainment deadline without reclassifying the area as severe. We agreed, vacated EPA’s approval of the SIPs, and remanded the matter to the agency. *Sierra Club v. EPA*, 294 F.3d 155, 160-65 (D.C. Cir. 2002) [*Sierra Club I*]. On November 13, 2002, Sierra Club filed a new action in the U.S. District Court for the District of Columbia, seeking an injunction to compel EPA to reclassify the D.C. area as severe and to take final action either approving or disapproving the previously submitted SIPs. The district court granted those requests and ordered EPA: (1) by January 27, 2003, to determine whether the D.C. area had attained the NAAQS for ozone by the applicable attainment date of November 15, 1999, and, if not, to reclassify the area; and (2) by April 17, 2003, to approve or disapprove the SIP submissions that had been remanded in *Sierra Club I*. *Sierra Club v. Whitman*, No. 02-2235 (D.D.C. Dec. 18, 2002).

EPA responded to the district court’s order with the two actions that are at issue in this case. On January 24, 2003, in a decision known as the “bump-up” action, EPA determined that the D.C. area had not attained the NAAQS for serious ozone nonattainment areas by the statutory deadline and

therefore reclassified the area as severe. Determination of Nonattainment as of November 15, 1999 and Reclassification of the Metropolitan Washington, DC Ozone Nonattainment Area, Final Rule, 68 Fed. Reg. 3410 (Jan. 24, 2003) [hereinafter Reclassification]. A statutory consequence of the reclassification was the extension of the ozone attainment deadline to “as expeditiously as possible but not later than” November 15, 2005. 42 U.S.C. § 7511(a)(1). At the same time, EPA extended until March 1, 2004 the deadline for submitting revised SIPs to comply with the requirements for severe nonattainment areas. Reclassification, 68 Fed. Reg. at 3410.

In a second decision issued on April 17, 2003, the so-called “conditional approval” action, EPA granted conditional approval to the existing SIPs, notwithstanding the absence of the three elements that *Sierra Club I* had identified as precluding final approval. Approval and Promulgation of Air Quality Implementation Plans, Final Rule, 68 Fed. Reg. 19,106, 19,107 (Apr. 17, 2003) [hereinafter Conditional Approval]. The agency based its conditional approval on letters submitted by the States that committed to cure those deficiencies and to comply with the additional requirements of the severe area classification by April 17, 2004. *Id.* at 19,131-33. The agency also made determinations regarding, inter alia, two elements that were contained in the existing SIPs: it concluded that the attainment demonstration showed that implementation of already adopted control measures would result in attainment of the ozone NAAQS by the statutory deadline, and it conditionally approved the States’ ROP plans for 1996-1999.

Sierra Club now petitions for review of both actions pursuant to the jurisdictional grant of 42 U.S.C. § 7607(b)(1). In Part II, we consider Sierra Club’s attack on the April 17, 2003 conditional approval action, based on EPA’s acceptance of the States’ commitments to cure the SIPs’ deficiencies by April 17, 2004. In Part III, we consider petitioner’s additional attack on the conditional approval action, based on EPA’s acceptance of the two elements that were contained in the SIPs. Finally, in Part IV, we consider petitioner’s challenge

to the deadline extension in the January 24, 2003 bump-up action.

II

We begin with Sierra Club's primary challenge: its contention that EPA violated the Clean Air Act by conditionally approving the concededly deficient D.C. area SIPs on the basis of the States' commitment letters. EPA's response is that conditional approval was authorized by CAA § 110(k)(4), which provides:

(4) Conditional approval

The administrator may approve a plan revision based on a *commitment of the State to adopt specific enforceable measures* by a date certain, but not later than 1 year after the date of approval of the plan revision. Any such conditional approval shall be treated as a disapproval if the State fails to comply with such commitment.

42 U.S.C. § 7410(k)(4) (emphasis added). We review EPA's construction of that section under the framework set forth in *Chevron U.S.A. Inc. v. Natural Resources Defense Council*, 467 U.S. 837 (1984). Under *Chevron's* first step, we ask "whether Congress has directly spoken to the precise question at issue." If we determine that "the intent of Congress 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." *Id.* at 842-43. Only "if the statute is silent or ambiguous with respect to the specific issue," do we proceed to *Chevron's* second step, and ask "whether the agency's answer is based on a permissible construction of the statute." *Id.* at 843. We conclude that EPA's construction of the conditional approval provision is contrary to Congress' unambiguous intent, and we therefore reject it.

EPA acknowledges that the SIPs did not contain a number of the elements required for full approval. Indeed, it concedes that the SIPs were missing the same three features that led this court to vacate EPA's full approval in *Sierra Club I*: (1) RACM analyses and the implementation of reasonable available control measures necessitated by such anal-

yses; (2) post-1999 ROP plans with control measures adequate to ensure emission reductions of 3% per year; and (3) contingency control measures to be implemented automatically if the area fails to meet a ROP milestone or to reach attainment by the deadline. Conditional Approval, 68 Fed. Reg. at 19,106, 19,109, 19,119–20; *see* 42 U.S.C. §§ 7502(c)(1) & (c)(9), 7511a(c)(2)(B) & (c)(9).² As the agency further concedes, the plans were also missing the additional elements required for severe nonattainment areas, including specific enforceable measures to offset growth in vehicle emissions and reasonably available control technology for additional major sources. Conditional Approval, 68 Fed. Reg. at 19,106–07; *see* 42 U.S.C. § 7511a(d).

Notwithstanding these deficiencies, EPA argues that the SIPs qualified for conditional approval — rather than disapproval — because they contained other required elements (including the attainment demonstration and control strategy), and because the States submitted letters committing to remedy the deficiencies within one year, by April 17, 2004. But while the States did file commitment letters, those letters identified no “specific enforceable measures” of any kind. Maryland’s commitment regarding contingency measures and RACM is typical of the States’ submissions, and reads in full:

We also commit to submit to EPA, not later than April 17, 2004, adopted contingency measures to be implemented if the D.C. area does not attain the one-hour ozone NAAQS by November 15, 2005. Additionally, by April 17, 2004, we commit to submitting to EPA an appropriate RACM analysis for the D.C. Area, along with any revisions to the attainment demonstration SIP necessitated by such analysis, including adopted measures to demonstrate timely attainment and to meet RACM requirements, should there be any.

² Sierra Club contends that, due to these deficiencies, the decision in *Sierra Club I* alone bars conditional approval. That case is not dispositive, however, because it addressed only the question of full approval: at that time, EPA had not sought to employ its conditional approval authority under CAA § 110(k)(4).

Letter from Md. Dep't of Env't to EPA 2 (Apr. 7, 2003) (J.A. at 784) (emphasis added); *see also* Letter from D.C. Dep't of Health to EPA 2 (Apr. 7, 2003) (J.A. at 791); Letter from Va. Dep't of Env't Quality to EPA 2 (Apr. 8, 2003) (J.A. at 798).

EPA does not dispute that the States' letters failed to identify specific measures that the States committed to adopt. Indeed, EPA argues that the States do not yet know what those measures will be because they have not yet completed the necessary analyses. As the agency explains: "It is true that the States have not yet identified the specific measures that could ultimately be adopted, however, it would be impossible for them to do so in advance of conducting the requisite RACM and modeling analyses." Conditional Approval, 68 Fed. Reg. at 19,109. EPA's contention is that all that the States need do to qualify for conditional approval is to *commit to adopt* specific enforceable measures by a date certain; they do not need to tell EPA what those measures are — or even know what they are. Oral Arg. Tr. at 35. The agency frames the issue as follows:

EPA interprets the provision to require that the States commit to adopt specific enforceable measures by a date certain, but does not require that the individual measures be identified in the commitment. Petitioner, on the other hand, interprets the provision to require the States to identify, in their commitments, the individual enforceable measures that will be adopted by a date certain.

Resp'ts' Br. at 33.

EPA's interpretation cannot be squared with the unambiguous statutory language. The statute requires that the States commit to adopt *specific* enforceable measures. Here, the agency has accepted as sufficient a commitment to adopt what it concedes are *unspecified* measures — with the specifics to be named later. Moreover, the statute requires a commitment to *adopt* specific enforceable measures by a date certain. Here, not only are the measures unspecified, but the States have committed to adopt them only "*if* such measures are determined to be needed based on further analysis." Conditional Approval, 68 Fed. Reg. at 19,109 (emphasis add-

ed); *see id.* (“[T]he States have clarified in [their] letters their intent to submit specific measures in support of the demonstrations, *if appropriate.*”) (emphasis added). Section 110(k)(4), however, contains no such qualifier.

This is not the first time that EPA has defended a construction of § 110(k)(4) that we have found plainly inconsistent with the statute. Indeed, in *Natural Resources Defense Council v. EPA*, 22 F.3d 1125 (D.C. Cir. 1994) [*NRDC*], we rejected the agency’s use of that section to permit states to meet statutory SIP deadlines by submitting “committal” SIPs that contained nothing “more than a mere promise to take appropriate but unidentified measures in the future.” *Id.* at 1134. That “construction of the conditional approval provision,” we held, “is contrary to Congress’s unambiguous intent and must therefore be rejected.” *Id.* at 1133. EPA insists that *NRDC* is distinguishable because the committal SIPs at issue there contained no specific enforceable measures at all, while the SIPs here — though concededly lacking several important measures — do contain an attainment demonstration that includes adopted control measures and that shows attainment by the 2005 deadline.

Although *NRDC* is factually distinguishable on the ground suggested by EPA, it is not legally distinguishable. It is true that the SIPs in *NRDC* were bereft of substantive provisions. But we did not suggest that the States’ failure to submit the specific elements of concern to the petitioner there — vehicle inspection and maintenance programs, and emission controls at stationary emission sources — would have been cured had substantive provisions addressing different requirements been included. Nor is there anything in the language of § 110(k)(4) to support EPA’s contention that it may conditionally approve a SIP “as long as the SIP submittal contains substantive provisions but not all of them.” Oral Arg. Tr. at 36; *see also Virginia v. EPA*, 108 F.3d 1397, 1404 n.7 (D.C. Cir. 1997) (holding, where SIPs contained many specific control measures, that EPA could not use § 110(k)(4) to grant conditional approval based on “other measures that may be promulgated thereafter” to make up an emission reduction shortfall).

EPA's retreat to an argument based on legislative purpose is no more successful. "EPA does not require the commitments to identify the specific measures the States will adopt," the agency argues, "because that would defeat the purpose of the conditional approval which is, in large part, to allow the States additional time to identify the measures needed." Resp'ts' Br. at 34. But as we explained in *NRDC*, the purpose of the conditional approval provision is not to permit *states* more time to *identify* control measures, but rather to give *EPA* the opportunity to *determine* whether a SIP, "although not approvable in its present form, can be made so by adopting specific EPA-required changes within the prescribed conditional period." *NRDC*, 22 F.3d at 1134 (emphasis added). As we further explained, "[s]uch a determination cannot reasonably be made unless the conditionally approved submittal contains something more than a mere promise to take appropriate but unidentified measures in the future." *Id.* And that requires that the States complete the analyses necessary to identify appropriate measures before, rather than after, conditional approval is granted.

At bottom, *NRDC* rejected EPA's construction of § 110(k)(4) because it turned conditional approval into a "means of circumventing" SIP deadlines. *Id.* at 1134-35. The same is true here. In the absence of conditional approval, EPA would have been required to determine, by April 17, 2003, whether the SIPs demonstrated that the States had already adopted the required specifically enforceable measures. Conditional Approval, 68 Fed. Reg. at 19,107 (reciting deadline issued by district court order); *see* 42 U.S.C. § 7410(a)(1), (a)(2)(A) (requiring states to "adopt and submit" SIPs including "enforceable . . . control measures" by relevant deadlines). Instead, EPA's conditional approval purports to grant the States an additional year to adopt such measures — without specifying what they will be. In short, as EPA conceded at oral argument, the agency's position is that it may grant conditional approval on nothing more than the States' promise to do next year what the Clean Air Act requires them to have already done. Oral Arg. Tr. at 34-35. And that amounts to nothing more than the use of § 110(k)(4)

“to postpone SIP deadlines,” a power that the section does not confer. *NRDC*, 22 F.3d at 1135.

III

In the previous Part, we considered Sierra Club’s attack on EPA’s conditional approval action insofar as it was based on mere promises to adopt SIP elements in the future. In this Part, we consider petitioner’s attacks on the substance of two elements that the States did submit as part of their SIPs.

A

The Clean Air Act requires that each SIP contain an attainment demonstration showing that the area will achieve the ozone NAAQS by the statutory deadline. 42 U.S.C. § 7511a(c). After reclassification as a severe nonattainment area, the D.C. area’s outside attainment deadline became November 15, 2005. *Id.* § 7511(a)(1). In the conditional approval action, EPA determined that the States had demonstrated that the D.C. area would in fact meet the NAAQS by that date. Sierra Club contends that EPA should not have approved the States’ attainment demonstration, because it was inconsistent with statutory requirements.

Under CAA § 182(c)(2)(A), each state in a serious or severe nonattainment area must submit a SIP that includes:

A demonstration that the plan, as revised, will provide for attainment of the ozone national ambient air quality standard by the applicable attainment date. This attainment demonstration *must be based on photochemical grid modeling* or any other analytical method determined by the Administrator, in the Administrator’s discretion, to be at least as effective.

42 U.S.C. § 7511a(c)(2)(A) (emphasis added). Sierra Club argues that, in this case, the States’ attainment demonstration³ was insufficient because it was neither “based on photo-

³ Although Maryland, Virginia, and the District of Columbia each submitted a separate SIP, they jointly conducted modeling and

chemical grid modeling,” nor based on “any other analytical method that the Administrator had determined . . . to be at least as effective.” EPA defends solely on the first ground: that the attainment demonstration was in fact “based on” photochemical grid modeling.

A photochemical grid model is a mathematical model that predicts ozone levels on the attainment date based on monitoring data, meteorology, planned emission reductions, the area’s projected growth, and other factors. *BCCA Appeal Group v. EPA*, 348 F.3d 93, 106 n.12 (5th Cir. 2003).⁴ Both parties agree that the States’ demonstration began with a photochemical grid model known as the Urban Airshed Model (UAM). The model was used to predict ozone levels in 2005 by assuming implementation of the control strategy adopted in the SIPs and extrapolating from data collected on three high-ozone summer days in 1991: July 16, 19, and 20. Both parties also agree that use of the model alone showed peak ozone concentrations exceeding the NAAQS on those three days in 2005; the model indicated that on those days the area’s SIPs would result in daily one-hour maximum ozone levels of 139, 150, and 178 parts per billion (ppb) — all in excess of the 120 ppb NAAQS for ozone.⁵ EPA, First

other analyses and submitted the same attainment demonstration. Resp’ts’ Br. at 11 n.7.

⁴ Ozone is formed in the atmosphere when oxides of nitrogen (NOx) and volatile organic compounds (VOCs) are emitted into the air in the presence of sunlight. Clean Air Act Amendments of 1990, H.R. Rep. No. 101-490, at 202 (1990). The “photochemical” reactions that produce ozone from these pollutants are complex, and sophisticated computer models are required to accurately predict future ozone levels. 40 C.F.R. pt. 51, app. W §§ 6.1, 6.2.1 (2002). The photochemical grid model makes a grid on the geographic area in question and simulates emissions and ozone concentrations in each “cell” of the grid. *BCCA*, 348 F.3d at 106 n.12; see *1000 Friends of Maryland v. Browner*, 265 F.3d 216, 220 n.4 (4th Cir. 2001); 40 C.F.R. pt. 51, app. W at app. A, § A.6 (2002).

⁵ EPA’s regulations set the one-hour NAAQS for ozone at 0.12 parts per million (ppm), which is 120 parts per billion (ppb). However, EPA uses a rounding convention under which 0.124 ppm

Amendment to Technical Support Document for Approval and Promulgation of Air Quality Implementation Plans 5 (Table IV G-1) (Apr. 10, 2003) (J.A. at 808) [hereinafter Amendment to Technical Support Document].

EPA did not, however, conclude its analysis with these exceedances. Rather, it adjusted the model's extrapolations in light of the agency's concerns about the model's reliability and uncertainty. In particular, the agency noted that, when it applied the model to the three days in the base year (1991) and compared the model's results to the actual monitored results for those days, the model over-predicted known ozone concentrations by an average of 19%. *Id.* at 10-11 (J.A. at 813-14). It therefore adjusted the model's calculations, using a variety of supplemental statistical techniques, to correct "average modeled peak over-prediction" and "day-specific over-prediction." *Id.* Those adjustments resulted in demonstrated attainment for two out of the three modeled days. *Id.* Although the adjustments still did not indicate attainment for July 20, 2005, EPA determined that the base-year data used to model that day was too anomalous to demonstrate nonattainment. July 20, 1991, the agency found, had been the 13th most severe ozone-producing day in 44 years. *Id.* at 12-13 (J.A. at 815-16). EPA reasoned that "[t]his type of day is not likely to occur often enough to be a major causative factor for nonattainment because the [NAAQS] allows up to three monitored exceedances in any three year period." Conditional Approval, 68 Fed. Reg. at 19,114. It therefore concluded "that attainment of the 1-hour ozone standard has been successfully demonstrated for the Washington area by no later than 2005." Amendment to Technical Support Document at 13 (J.A. at 816).

Sierra Club insists that once the model showed exceedances on three days, that should have been the end of the matter.

is rounded to 0.12 ppm (120 ppb) and is therefore in compliance with the standard. Conditional Approval, 68 Fed. Reg. at 19,111. Sierra Club argues that EPA cannot relax the standard in that manner. We need not resolve this issue, since the difference between 120 and 124 ppb is not dispositive in this case.

In petitioner’s view, because the SIPs did not demonstrate attainment without EPA’s adjustments, the demonstration was not “based on” photochemical grid modeling within the meaning of § 182(c)(2)(A). According to Sierra Club, the Clean Air Act “uses ‘based on’ to identify the *sole* basis for a decision.” Reply Br. at 13.

We disagree. Under *Chevron*, “when the statute ‘is silent or ambiguous’ we must defer to a reasonable construction by the agency charged with its implementation.” *Barnhart v. Thomas*, 124 S. Ct. 376, 382 (2003) (quoting *Chevron*, 467 U.S. at 843).⁶ There is no question that the phrase “based on” is ambiguous. As EPA points out, it does not necessarily require that attainment demonstrations rest *solely on* grid modeling. See *BCCA*, 348 F.3d at 111 (holding that “the statute is ambiguous” and “does not require that an attainment demonstration be based *solely* . . . on photochemical grid modeling”); cf. *McDaniel v. Chevron Corp.*, 203 F.3d 1099, 1111 (9th Cir. 2000) (noting that, in the context of various statutes, courts have held that the phrase “‘based on’ is synonymous with ‘arising from’ and ordinarily refers to a ‘starting point’ or a ‘foundation’”); *United States ex rel. Kreindler & Kreindler v. United Tech. Corp.*, 985 F.2d 1148, 1158 (2d Cir. 1993) (holding that “based upon” in the False Claims Act does not mean based “solely” upon).⁷ On the other hand, as the agency also properly concedes, the phrase would not permit an attainment demonstration that wholly abandoned the results of a model by using a supplemental analysis that effectively supplanted the model’s calculations. Oral Arg. Tr. at 26-27.

Because the statute is ambiguous, the question is whether the results obtained by adjusting the model can still reasonably be described as “based on” that model. We agree with

⁶ As the Supreme Court indicated in *United States v. Mead Corp.*, 533 U.S. 218 (2001), *Chevron* deference is required (inter alia) where, as here, an agency’s interpretation is ensconced in the product of notice-and-comment rulemaking. See *id.* at 230.

⁷ Indeed, the only ground on which the phrase might be labeled unambiguous is that it unambiguously grants EPA at least some discretion to apply a supplemental analysis to the results generated by a photochemical grid model.

EPA that in this case they can, because here “photochemical modeling is the primary basis for the attainment demonstration,” while the supplementary analysis “is merely an adjunct for assessing the photochemical grid modeling.” Conditional Approval, 68 Fed. Reg. at 19,113. As explained above, that analysis was employed to ensure that the model achieved its statutory purpose: determining whether the SIPs actually “provide for attainment of the ozone national ambient air quality standard by the applicable attainment date.” 42 U.S.C. § 7511a(c)(2)(A). And the adjustments appear well-suited to that end, as they do no more than correct for the model’s over-prediction of ozone levels as compared to actual observations, and for its reliance on a base day that appears to be a statistical outlier.

Sierra Club further contends that, even if supplemental adjustments of the model are not statutorily barred, the agency was nonetheless arbitrary and capricious in applying them in this case. *See* 5 U.S.C. § 706(2)(A).⁸ But to withstand such an attack, the agency need only demonstrate that it “examine[d] the relevant data and articulate[d] a satisfactory explanation for its action including a rational connection between the facts found and the choice made.” *Motor Vehicle Mfg. Ass’n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) (internal quotation marks omitted). The agency has done so.

The relevant data here are the agency’s findings that the model “systematically over-predict[ed] ozone concentration” in comparison to actual observed results, and that it over-weighted conditions on a single day that were “not likely to occur often enough to be a major causative factor for nonattainment.” Conditional Approval, 68 Fed. Reg. at 19,114-15. Sierra Club offers no evidence to dispute either finding. The rational connection between these data and the agency’s

⁸ Petitioner also argues that, even if the adjustments are statutorily permissible, EPA cannot use them without first subjecting the methodology to notice-and-comment rulemaking. But even if that were correct, Sierra Club does not explain why the notice-and-comment rulemaking that specifically approved the supplemental adjustments in this case, *see* Conditional Approval, 68 Fed. Reg. at 19,111-19, was procedurally insufficient.

choice is that which we have just described: the adjustments were necessary to ensure consistency with real-world observations and thus to ensure reliable prognostications about the future. Making adjustments in such circumstances is hardly arbitrary; indeed, the failure to make such adjustments may itself incur such a charge. *Cf. Columbia Falls Aluminum Co. v. EPA*, 139 F.3d 914, 923 (D.C. Cir. 1998) (“An agency’s use of a model is arbitrary if that model bears no rational relationship to the reality it purports to represent”) (internal quotation marks omitted); *Chemical Mfrs. Ass’n v. EPA*, 28 F.3d 1259, 1265 (D.C. Cir. 1994) (noting that “we must reverse the agency’s application of [a] model as arbitrary and capricious if there is simply no rational relationship between the model and the known behavior of the hazardous air pollutant to which it is applied”). Accordingly, “[to] reject the EPA’s conclusion under these circumstances would be to substitute our judgment concerning mathematical modeling techniques for that of the Agency. . . . This we cannot do.” *Connecticut v. EPA*, 696 F.2d 147, 159 (2d Cir. 1982).

Finally, we note that our conclusion, that EPA was reasonable in interpreting § 182(c)(2)(A) to permit the supplementation of the photochemical grid model, is in accord with that reached by the other circuits that have considered the issue. *See BCCA*, 348 F.3d at 110-11 (holding that, although “Texas’ modeled control strategy alone did not demonstrate attainment of the NAAQS for ozone,” the state’s supplemental analysis did and EPA’s approval of the attainment demonstration on that basis was “reasonable and . . . entitled to deference”); *1000 Friends of Maryland v. Browner*, 265 F.3d 216, 234 (4th Cir. 2001) (upholding as neither arbitrary nor capricious EPA’s “use of supplemental analysis . . . to demonstrate attainment in cases where the modeling shows ozone levels exceeding the NAAQS”). Our conclusion certainly does not mean that EPA has unlimited authority to adjust the calculations of a photochemical grid model. Neither the government nor this court disputes Sierra Club’s contention that EPA is not free to apply any “adjustment” that it wishes and still claim that the results are “based on” the model. In this case, however, the agency has offered both substantial

(and uncontradicted) evidence and a reasonable explanation for the alterations that it has made. Nothing more is required.⁹

B

Sierra Club also takes issue with another component of the States' SIPs that EPA conditionally approved in its order of April 17, 2003: the rate-of-progress (ROP) plans for 1996-1999.¹⁰ Petitioner contends that the agency's approval of those plans was arbitrary and capricious because the plans relied on an outdated emissions model.

As we have discussed, the Clean Air Act requires that SIPs for serious and severe nonattainment areas include ROP plans that demonstrate an average reduction of baseline emissions of 3% per year for each consecutive three-year period from 1996 to the attainment deadline. 42 U.S.C. § 7511a(c)(2)(B), (d). To facilitate compliance with the Act, EPA makes available computer programs that determine baseline emissions and predict future emissions from motor vehicles. At issue here is the computer model on which the States' ROP plans for 1996-1999 were based: the so-called MOBILE5 model. Sierra Club contends that the ROP plans

⁹ Sierra Club also challenges EPA's conditional approval of the attainment demonstration on the ground that it relied on modeling solely for 2005, rather than over the three-year period of 2003-2005. According to an EPA regulation, an area has not achieved *actual* attainment if monitoring data shows that the average number of annual exceedances at any monitor over a three-year period is greater than one. 40 C.F.R. pt. 50, app. H. Sierra Club reads this to say that the States should have demonstrated *predicted* attainment over three years — from 2003 to 2005 — and not just in 2005. But Sierra Club's reading would effectively move up the attainment deadline by two years. Although the statute anticipates improvement in the years leading to attainment, it does not require attainment to be achieved before the final deadline. *See* 42 U.S.C. § 7511(a) (declaring that the attainment date for severe ozone areas shall be "not later than" November 15, 2005).

¹⁰ The SIPs did contain 1996-1999 ROP plans, although — as noted above — they did not contain ROP plans for the post-1999 period.

were inaccurate because they were not based on the updated MOBILE6 model.

EPA explained that it accepted the States' use of MOBILE5 because it was the most recent model available at the time the plans were prepared. Conditional Approval, 68 Fed. Reg. at 19,121. The States originally submitted their ROP plans in 1999, and then resubmitted them as part of the D.C. area SIPs in February 2002. EPA did not make MOBILE6 available until January 29, 2002 — just one month before the States submitted their SIPs and long after the modeling had been completed and the ROP plans prepared. *See* Official Release of the MOBILE6 Motor Vehicle Emissions Factor Model, Notice of Availability, 67 Fed. Reg. 4254 (Jan. 29, 2002); *see also* Conditional Approval, 68 Fed. Reg. at 19,120-21.

Sierra Club argues that the States should nonetheless have revised the D.C. area ROP plans to incorporate the advances of MOBILE6, for two reasons. First, MOBILE6 was available, albeit for only one month, before the States submitted their plans. Second, EPA did not approve the plans until April 17, 2003, over a year after MOBILE6's release.

EPA responds that, although it requires that states use the latest model available at the time a plan is developed, *see* 42 U.S.C. § 7502(c)(3); 40 C.F.R. § 51.112(a)(1), its policy was not to “require states that have already submitted SIPs or will submit SIPs shortly after MOBILE6's release to revise these SIPs simply because a new motor vehicle emissions model is now available.” Conditional Approval, 68 Fed. Reg. at 19,121; *see also* Memorandum from EPA Office of Air Quality Planning & Standards 2 (Jan. 18, 2002) (J.A. at 530) (same). As the agency explains, “emissions factors, as well as inventory calculation methodologies, are continually being improved.” 68 Fed. Reg. at 19,120. Indeed, as its name suggests, MOBILE5 is the fifth generation of this particular model; MOBILE6 is the sixth. To require states to revise completed plans every time a new model is announced would lead to significant costs and potentially endless delays in the approval processes. EPA's decision to reject that course, and

to accept the use of MOBILE5 in this case, was neither arbitrary nor capricious.

IV

Finally, we consider Sierra Club's attack on EPA's bump-up action of January 24, 2003, which reclassified the D.C. area from "serious" to "severe" nonattainment. Reclassification, 68 Fed. Reg. at 3410. Needless to say, Sierra Club does not contest the decision to reclassify D.C. as a severe nonattainment area: to the contrary, petitioner's suit in *Sierra Club I* sought just that result. What Sierra Club does dispute is EPA's concomitant decision to extend the States' final deadline for submitting revised SIPs complying with the Act's requirements for severe areas, including post-1999 ROP plans, to March 1, 2004. *Id.*

By statute, the reclassification of the D.C. area extended the attainment deadline from November 1999 (the deadline for serious nonattainment areas) to November 2005 (the deadline for severe areas), and required the States to revise their SIPs to comply with the additional requirements applicable to the new classification. 42 U.S.C. § 7511(a)(1), (b)(2). By extending the attainment deadline from 1999 to 2005, the reclassification also obligated the States to submit ROP plans for the 2000-2002 and 2003-2005 periods. *Id.* § 7511(a)(c)(2)(B); *see* Reclassification, 68 Fed. Reg. at 3414 ("[O]nly an area with an attainment date of 2005 has a legal obligation to provide for post-1999 ROP."). However, the deadline for filing severe area SIP components including post-1999 ROP plans had already passed long before reclassification took place. Indeed, the statutory deadline for such submittals was November 15, 1994. 42 U.S.C. § 7511a(c)(2)(B), (d), (i); Reclassification, 68 Fed. Reg. at 3413; *see* Pet'r's Br. at 44; Resp'ts' Br. at 56.

Section 182(i) of the CAA gives EPA the authority to adjust applicable statutory deadlines, other than attainment dates, when it reclassifies an attainment area:

Each State containing an ozone nonattainment area reclassified under section 7511(b)(2) of this title shall meet

the requirements of subsections (b) through (d) of this section as may be applicable to the area as reclassified, according to the schedules prescribed in connection with such requirements, except that *the Administrator may adjust any applicable deadline (other than attainment dates) to the extent such adjustment is necessary or appropriate to assure consistency among the required submissions.*

42 U.S.C. § 7511a(i) (emphasis added). EPA exercised this authority to extend the States' deadlines for submitting their revised SIPs, based on the following rationale:

[I]n light of the fact that the original submission dates for severe areas have elapsed prior to the time that we issued the proposed reclassification for the Washington area, it is a reasonable exercise of EPA's discretion to adjust the applicable submission deadlines in order to ensure consistency among the new requirements. . . . Because the States must now meet newly imposed requirements such as post-1999 ROP and additional severe area control requirements, EPA must set prospective dates, and has authority under section 182(i) to make these dates consistent.

Reclassification, 68 Fed. Reg. at 3413. Moreover, extending the SIP and ROP deadlines to one year from the date of reclassification (i.e., to March 1, 2004) would "assure consistency among" all of the "required submissions," including the severe area and post-1999 ROP requirements. 42 U.S.C. § 7511a(i). The agency's rationale was reasonable.

Sierra Club contends that EPA should have retained the original submission deadlines, and that its decision not to do so was an unlawful application of § 182(i). As EPA noted, however, to adopt petitioner's suggestion "would give the reclassification retroactive effect by holding the States in default of their submission obligations before the events necessary to trigger that obligation (reclassification) . . . occurred." Reclassification, 68 Fed. Reg. at 3413. That result, EPA concluded, would be both unfair and inconsistent with the agency's past practice. *Id.* at 3413 ("Where a submission

date has passed and is therefore impossible to meet, EPA has concluded that the Administrator may establish a later date. EPA has applied this interpretation in its prior reclassification rulemaking actions.”) (citing reclassification rulemakings for Santa Barbara, Phoenix, and Dallas-Fort Worth).

This circuit, too, has previously rejected Sierra Club’s suggestion. In *Sierra Club v. Browner*, petitioner had similarly urged the district court to require a reclassified area (St. Louis) to comply with the new classification’s statutory deadline for SIP submittals, even though that deadline had passed long before the reclassification, and thus to declare the area in default. *Sierra Club v. Browner*, 130 F. Supp. 2d 78, 87 (D.D.C. 2001). The district court refused that request, *id.* at 92-94, and we affirmed, *Sierra Club v. Whitman*, 285 F.3d 63, 68 (D.C. Cir. 2002). “The relevant provisions of the Clean Air Act,” we said, “contain no language suggesting that Congress intended to give EPA the unusual ability to implement rules retroactively.” *Id.* Sierra Club’s argument in this case is indistinguishable, and we therefore reject it.¹¹

V

For the foregoing reasons, we vacate and remand EPA’s conditional approval action insofar as it granted conditional approval based on the States’ commitment letters. In all other respects, we deny the petition for review of that action, as well as the petition to review the bump-up action.

¹¹ For the same reasons, we deny Sierra Club’s challenge to EPA’s decision to permit the States to meet the already passed November 2002 ROP milestone “as expeditiously as practicable” but “no later than” the attainment deadline of November 15, 2005. Reclassification, 68 Fed. Reg. at 3422. This, too, has been the agency’s policy in past situations in which it has had to establish new ROP deadlines for compliance with already passed ROP milestones. See Approval and Promulgation of Implementation Plans, Final Rule, 65 Fed. Reg. 31,485 (May 18, 2000) (Missouri); Approval and Promulgation of Implementation Plans, Final Rule, 63 Fed. Reg. 28,898 (May 27, 1998) (Phoenix); Approval and Promulgation of Air Quality Implementation Plans, Notice of Final Rulemaking, 62 Fed. Reg. 31,343 (June 8, 1997) (Philadelphia).