

FOR PUBLICATION

**UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT**

STATE OF ARIZONA, EX REL. HENRY
R. DARWIN, DIRECTOR, ARIZONA
DEPARTMENT OF ENVIRONMENTAL
QUALITY,

Petitioner,

v.

U.S. ENVIRONMENTAL PROTECTION
AGENCY; SCOTT PRUITT,
Administrator, United States
Environmental Protection Agency,

Respondents.

No. 14-73368

CALPORTLAND COMPANY,

Petitioner,

v.

U.S. ENVIRONMENTAL PROTECTION
AGENCY,

Respondent.

No. 14-73384

PHOENIX CEMENT COMPANY, an
enterprise division of the Salt River
Pima-Maricopa Indian Community,
Petitioner,

No. 14-73386

v.

U.S. ENVIRONMENTAL PROTECTION
AGENCY,
Respondent.

ASARCO LLC,

Petitioner,

No. 14-73394

v.

U.S. ENVIRONMENTAL PROTECTION
AGENCY,

Respondent.

OPINION

On Petition for Review of an Order of the
Environmental Protection Agency

Argued and Submitted June 21, 2016
San Francisco, California

Filed April 3, 2017

Before: Marsha S. Berzon, Jay S. Bybee,
and John B. Owens, Circuit Judges.

Opinion by Judge Bybee

SUMMARY*

Environmental Law

The panel dismissed in part and denied in part petitions for review brought by the State of Arizona and several private companies objecting to several sections of the United States Environmental Protection Agency’s most recent Federal Implementation Plan (“FIP”), promulgated under the Clean Air Act, to replace certain rejected portions of Arizona’s State Implementation Plan, concerning how the state intended to improve air quality in federal parks and forests by reducing emissions of various pollutants.

The regulatory scheme codified in Section 169A of the Clean Air Act required each state with emissions impacting protected federal lands to create a State Implementation Plan. If the state submitted either a deficient plan or none at all, the Act required the EPA to promulgate its own plan – called a FIP – to force compliance with Congress’s mandate.

The panel held that several of petitioners’ objections to the FIP were not properly before the court because they were not first presented to the EPA during the notice-and comment period in 42 U.S.C. § 7607(d)(7)(B). Specifically, the panel held that the issues petitioners raised for the first time on appeal were not so “key” that, assuming the D.C. Circuit’s “key assumption” applied, *Nat. Res. Def. Council v. EPA*, 755 F.3d 1010, 1023 (D.C. 2014), they must have been anticipated by the EPA. The panel concluded that petitioners

* This summary constitutes no part of the opinion of the court. It has been prepared by court staff for the convenience of the reader.

were barred from challenging in this appeal the numerical “reasonable progress goals” and the EPA’s decision to jettison the affirmative defense for malfunction. The panel held that it was barred from reviewing those issues in this proceeding, and dismissed that portion of the petitions.

The remaining objections that were ripe for consideration consisted of a series of technical challenges to the emission controls imposed on a cement kiln and copper smelters. According due deference, the panel held that the EPA’s emission-control measures were not arbitrary or capricious and thus constituted valid agency rulemaking.

COUNSEL

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OPINION

BYBEE, Circuit Judge:

In the late 1970s, Congress declared it a “national goal” to improve air visibility in federal parks and forests. 42 U.S.C. § 7491(a)(1); *see also* 40 C.F.R. § 81.400 *et seq.* (listing all national parks, national monuments, and wilderness areas Congress sought to protect). To achieve that goal, Congress sought to reduce emissions of various pollutants through a new regulatory scheme codified in Section 169A of the Clean Air Act (CAA). 42 U.S.C. § 7491(b). That scheme required each state with emissions impacting protected federal lands to create a State Implementation Plan (SIP) describing how the state intended to make reasonable progress toward the national visibility goal. *Id.* §§ 7410(a), 7491(b)(2). If the state submitted either a deficient SIP or none at all, the CAA required the EPA to promulgate its own plan—called a Federal Implementation

Plan (FIP)—to force compliance with Congress’s mandate. *Id.* § 7410(c)(1).

This extensive litigation arose when Arizona—a state containing twelve wilderness areas subject to Section 169A, *see* 40 C.F.R. § 81.403—clashed with the EPA over its SIP submitted in 2011. Although the SIP listed proposals to manage and reduce emissions from various industrial sources operated within the state, the EPA determined that Arizona could do better in improving visibility. The EPA disapproved certain aspects of Arizona’s SIP and issued its own FIP that imposed enhanced emission-control measures.

The EPA’s actions spawned a series of legal challenges from Arizona and several private companies subject to EPA regulation (collectively, Petitioners). We have rejected most of those challenges in two prior decisions, concluding that the EPA acted within its authority when it disapproved portions of Arizona’s SIP that it deemed problematic. *Arizona ex rel. Darwin v. EPA (Arizona I)*, 815 F.3d 519, 524 (9th Cir. 2016); *Phoenix Cement Co. v. EPA*, 647 Fed. App’x 702, 704–05 (9th Cir. Mar. 31, 2016). All that remains before us now are Petitioners’ objections to several sections of the EPA’s most recent FIP—those issued to replace certain rejected portions of Arizona’s SIP—which Petitioners claim constitute invalid agency action.

We hold that several of Petitioners’ objections to the FIP are not properly before us because they were not first presented to the EPA during the notice-and-comment period. *See* 42 U.S.C. § 7607(d)(7)(B) (“Only an objection to a rule or procedure which was raised with reasonable specificity during the period for public comment (including any public hearing) may be raised during judicial review.”). As to the

remaining objections that are ripe for our consideration, we conclude that the EPA's emission-control measures are not arbitrary or capricious and thus constitute valid agency rulemaking. Accordingly, we dismiss in part and deny in part the consolidated petitions for review.¹

I. REGULATORY BACKGROUND

In the twentieth century, our nation experienced a significant degradation of visibility in its most treasured wilderness areas. *See* Regional Haze Regulations, 64 Fed. Reg. 35,714, 35,715 (July 1, 1999). The air pollution, Congress found, was “primarily” due to the emission of “[sulfur dioxide], oxides of nitrogen, and particulate matter” from poorly regulated industrial sources. *Id.* (citing H.R. Rep. No. 95-294, at 204 (1977)). To tackle the problem, Congress adopted Section 169A of the CAA, and the EPA promulgated implementing regulations to require states to improve visibility by adopting certain emission controls. 42 U.S.C. § 7491(b)(2). Two categories of such emission controls are relevant to the issues before us: “best available retrofit technology” (BART) and what the EPA sometimes refers to as “reasonable progress” (RP) controls. 42 U.S.C. § 7491(b)(2)(A)–(B), (g)(1)–(2); 40 C.F.R. § 51.308(f)(3); Promulgation of Air Quality Implementation Plans; Arizona; Regional Haze and Interstate Visibility Transport Federal Implementation Plan, 79 Fed. Reg. 52,420, 52,447, 52,463 (Sep. 3, 2014) [hereinafter Final FIP].

¹ As before, we apologize to the reader for our extensive use of acronyms and initialisms throughout this opinion and direct her to the end of the document for a glossary of terms. *See Arizona I*, 815 F.3d at 525 n.3.

A. *Best Available Retrofit Technology*

BART is a term of art used to describe technology that can be installed on an industrial source to control its emissions or make those emissions cleaner. 42 U.S.C. § 7491(b)(2)(A), (g)(2). Congress directed BART to be implemented on older stationary sources that “emit[] any air pollutant which may reasonably be anticipated to cause or contribute to any impairment of visibility” in protected federal lands. *Id.* § 7491(b)(2)(A); *see also* 40 C.F.R. § 51.301 (defining a “BART-eligible source” as an “existing stationary facility” built between 1962 and 1977 that “has the potential to emit 250 tons per year or more of any air pollutant”). If there are such sources within a regulated state, the state must not only “submit an implementation plan containing emission limitations representing BART,” 40 C.F.R. § 51.308(e), but do so for each pollutant those sources emit, *id.* § 51.301.

In determining the appropriate BART to install, states must engage in a cost-benefit analysis by balancing five factors: “[1] the costs of compliance, [2] the energy and nonair quality environmental impacts of compliance, [3] any existing pollution control technology in use at the source, [4] the remaining useful life of the source, and [5] the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology.” 42 U.S.C. § 7491(g)(2). Because the balancing is source specific, it could lead a state to adopt stringent BART regulations, none at all, or something in between. *See* Final FIP, 79 Fed. Reg. at 52,447 (recognizing that cost-benefit analyses could reasonably lead to various degrees of BART regulations). If the EPA is dissatisfied with a state’s BART determination, it can issue a FIP containing its own cost-

benefit analysis in accordance with Section 169A. 42 U.S.C. § 7410(c)(1).

B. *Reasonable Progress Controls*

Similar to BART, RP controls serve to limit emissions of harmful pollutants that degrade visibility in protected wilderness areas. Although RP controls, as such, are not mentioned in Section 169A, they are an outgrowth of Congress’s mandate to make “reasonable progress toward meeting the national [visibility] goal.” 42 U.S.C. § 7491(b)(2). The EPA has construed that mandate as requiring each regulated state to establish reasonable progress goals (RPGs) that depend on how much of that state’s current haze would have to be eliminated each year to achieve natural, pristine conditions by the year 2064. 40 C.F.R. § 51.308(d)(1)(i)(B). If a state believes that it is unable to conform with the year-to-year reduction rate—or the “glidepath,” as it is known in regulatory nomenclature—its SIP must explain why achieving the rate is not reasonable, while its proposed RPGs are. *Id.* § 51.308(d)(1)(ii).²

² All RPGs must be expressed in “deciviews,” which quantify the visibility impairment of a particular region. 40 C.F.R. § 51.308(d)(1). A “one deciview change in haziness is a small but noticeable change,” though “visibility changes of less than one deciview are likely to be perceptible in some cases.” Regional Haze Regulations, 64 Fed. Reg. 35,714, 35,725–26 (July 1, 1999), *partially vacated by Am. Corn Growers Ass’n v. EPA*, 291 F.3d 1, 6 (D.C. Cir. 2002). The EPA classifies a 1.0 deciview change from an individual source as “causing” the impairment of visibility, while a 0.5 deciview change as “contribut[ing]” to the impairment. Regional Haze Regulations and Guidelines for Best Available Retrofit Technology (BART) Determinations, 70 Fed. Reg. 39,104, 39,121 (July 6, 2005) [hereinafter Guidelines].

After a state calculates its RPGs, it must determine whether to implement RP controls to reach those RPGs. *See id.* § 51.308(d). In making that determination, the state may take into account existing control measures—including BART—as well as the visibility impact of controls established through other programs under the CAA. *See id.* § 51.308(d)(1). If the existing control measures do not cut it, the state must consider four factors to determine whether additional measures are warranted: “[1] the costs of compliance, [2] the time necessary for compliance, and [3] the energy and non-air quality environmental impacts of compliance, and [4] the remaining useful life of any existing source subject to such requirements.” 42 U.S.C. § 7491(g)(1); *see also* 40 C.F.R. § 51.308(d)(1)(i)(A). Should a state fail to conduct an accurate balancing, the EPA can correct the state’s errors in a FIP. 40 C.F.R. § 51.308(d)(1)(v); *see also* 42 U.S.C. § 7410(c)(1).

One characteristic of RP controls is worth emphasizing: they apply not just to some but to all pollutant-emitting stationary sources that impede reasonable progress. Take, for instance, a cement kiln emitting sulfur dioxide built in 1983. Although the kiln would not be subject to BART regulation because it was not in existence as of 1977, *see* 42 U.S.C. § 7491(b)(2)(A), it might nonetheless be required to adopt additional measures because limiting its pollution would help its home state achieve RPGs. In essence, then, RP controls fill a regulatory gap that would have existed if the EPA were not able to regulate BART-ineligible cement kilns, smelters, and other emission sources threatening to deteriorate visibility.

II. PROCEDURAL BACKGROUND

In 2011, Arizona submitted a SIP to the EPA outlining its RPGs and describing the steps it intended to take to limit air pollution within its state. *See Arizona I*, 815 F.3d at 528. The EPA deemed several portions of Arizona’s SIP inadequate and issued a FIP to correct what it perceived to be Arizona’s noncompliance with Section 169A and related regulations. *Id.* at 529; *Phoenix Cement*, 647 Fed. App’x. at 705–06. Because the validity of that FIP is the primary issue in this action, we first outline the steps the EPA took in preparing that document.

A. *The Proposed FIP*

The portions of Arizona’s SIP that the EPA rejected consisted of “BART control analyses and determinations” for multiple stationary sources, RPG “analyses and determinations,” and long-term strategies for “making reasonable progress.” *See* Promulgation of Air Quality Implementation Plans; Arizona; Regional Haze and Interstate Visibility Transport Federal Implementation Plan; Proposed Rules, 79 Fed. Reg. 9318, 9320 (Feb. 18, 2014) [hereinafter Proposed FIP]. Here is what the EPA proposed, in relevant part, to replace those rejected sections:

1. Reasonable Progress Goals

In a short, narrative section, the EPA proposed a set of RPGs “consistent with a combination of control measures that include those in the approved [portions of Arizona’s] SIP as well as [the Proposed] FIP.” *Id.* at 9321. The EPA did not express those RPGs numerically, explaining that although it “would prefer to quantify these proposed RPGs,” it lacked

“sufficient time and resources” to do so. *Id.* at 9363. Instead, the EPA simply noted that “[i]n total, these final and proposed controls to meet the BART and RP requirements will result in higher emissions reductions and commensurate visibility improvements beyond what was in [Arizona]’s plan.” *Id.*

2. CalPortland’s Cement Kiln

The EPA next considered whether CalPortland’s cement kiln should be subject to additional RP controls. *Id.* at 9351. Although Arizona had identified that kiln as a source that might contribute to visibility impairment, it failed to conduct the requisite four-factor analysis in its SIP. *See* Approval and Disapproval of Air Quality State Implementation Plans; Arizona; Regional Haze and Interstate Transport Requirements, 78 Fed. Reg. 46,142, 46,168–69, 46,171 (July 30, 2013). The EPA therefore balanced the four factors itself and proposed that CalPortland install an emissions-control technology called “selective non-catalytic reduction” (SNCR) with a “50 percent SNCR control-efficiency.” Proposed FIP, 79 Fed. Reg. at 9354–56. The EPA sought comment, however, on “whether a different SNCR control efficiency is appropriate.” *Id.* at 9355.

3. Copper Smelters

The EPA also discussed limiting emissions from Petitioner Asarco’s and non-party Freeport-McMoran, Inc.’s copper smelters. *Id.* at 9318, 9320. Because both smelters are subject to BART controls, the EPA considered whether to impose BART to reduce emissions of nitrogen oxides (an issue applicable to both smelters on this appeal) as well as particulate matter and sulfur dioxide (an issue applicable only

to Asarco's smelter). *Id.* at 9320–21. Since the EPA had rejected Arizona's BART analysis, it engaged in its own balancing of the five factors listed in Section 169A. *Id.*

Here is what the EPA proposed. As to nitrogen oxides emissions, the EPA determined that the estimated level of visibility improvement from additional BART controls was not worth the cost. *Id.* The EPA therefore proposed only an annual emission limit of 40 tons per year (tpy) which it found to be "consistent with current emissions" of nitrogen oxides from the smelters. *Id.* at 9320. Such measures were presumably necessary to ensure that the copper smelters would not drastically increase their emissions beyond 40 tpy after the FIP were finalized.

As to particulate matter emissions, the EPA proposed a similar scheme to regulate Asarco's smelter. *Id.* Because Asarco had been already implementing BART to control those emissions in accordance with another program under the CAA, the EPA determined that it made most sense to set an emission limit consistent with that program. *Id.* The EPA therefore proposed to "incorporate emission limitations and associated compliance requirements from the National Emission Standard for Hazardous Air Pollutants (NESHAP) for Primary Copper Smelting at 40 CFR Part 63, Subpart QQQ [hereinafter Subpart QQQ]." *Id.*

Finally, the EPA addressed sulfur dioxide emissions from Asarco's smelter. The EPA conducted the required five-factor analysis, considered available options, and proposed a technology—a "double contact acid plant"—that Asarco had been already using. *Id.* at 9343–44. To determine what emission limit to impose, the EPA relied on Asarco's written representation that its technology could capture 99.8 percent

of the sulfur dioxide vented to it. *Id.* at 9344. The EPA thus proposed “a control efficiency of about 99.8 percent on a 30-day rolling average.” *Id.* at 9343.

4. Affirmative Defense for Malfunctions

Finally, the EPA included an “affirmative defense for malfunctions” in the proposed regulations appended to the narrative section of the Proposed FIP. *See id.* at 9367, 9373 (proposing 40 C.F.R. § 52.145(k)(11), a regulation titled “Affirmative defense for malfunctions” that incorporated certain provisions of Arizona’s Administrative Code excusing excess emissions due to malfunctions at CalPortland’s kiln); *id.* at 9367, 9375 (proposing 40 C.F.R. § 52.145(l)(14), a similar regulation excusing excess emissions due to malfunctions at Asarco’s smelter). Nowhere in its Proposed FIP did the EPA mention that it was considering deleting this affirmative defense in the Final FIP.

B. *The EPA’s Final FIP*

After notice and comment, the EPA promulgated its Final FIP that differed from the earlier proposal in several important respects.

1. Reasonable Progress Goals

In response to several comments criticizing the EPA’s decision to express RPGs qualitatively rather than quantitatively, the EPA reversed its course and promulgated a set of numerical goals. Final FIP, 79 Fed. Reg. at 52,468–71. Those new RPGs were then compared to the RPGs outlined in Arizona’s rejected SIP to devise something called a “FIP effect,” or the increase in visibility between the

effects of controls mandated by Arizona’s SIP and those promulgated by EPA’s Final FIP. *Id.* at 52,469–70. The FIP effects at the various protected areas in Arizona generally came in at about 0.10 deciviews. *Id.*

2. CalPortland’s Cement Kiln

During the notice-and-comment period, CalPortland objected to the Proposed FIP’s imposition of a 50 percent control efficiency using SNCR and asserted that only “35 percent control efficiency may be achievable.” *Id.* at 52,462. The EPA accepted CalPortland’s argument and agreed that “35 percent reflects an appropriate estimate of the degree of control achievable with SNCR at [CalPortland’s kiln].” *Id.* at 52,463. It therefore revised its proposed regulation and imposed a 35 percent control efficiency.

3. Copper Smelters

With a few tweaks, the Final FIP largely repeated the BART measures set forth in the Proposed FIP. As to nitrogen oxides emissions, the EPA rejected Arizona’s contention that facilities emitting fewer than 40 tpy—like Asarco’s and Freeport-McMoran’s copper smelters—should be excluded from mandatory BART regulations under 40 C.F.R. § 51.308(e)(1)(ii)(C). *See id.* at 52,445. The EPA explained that even though the smelters were not *currently* emitting more than 40 tpy, there were no “federally enforceable physical or operational limitations that would” cap its ability to emit more than 40 tpy in the *future*. *Id.* at 52,445–46. If the rule were otherwise, the EPA pointed out, “emissions could increase to a level where additional controls would be warranted for BART, but no mechanism would exist to require such controls.” *Id.* at 52,446.

As to particulate matter emissions, the EPA finalized its proposal to import limitations from Subpart QQQ. *Id.* at 52,447–48. Although Asarco asserted that its particulate matter controls were not based on the requirements of Subpart QQQ, the EPA quoted Asarco’s direct statements to the contrary. *Id.* “Given that [Asarco] relied on the Subpart QQQ requirements,” the EPA reasoned, inclusion of “these requirements in the FIP” was appropriate. *Id.* at 52,448.

The EPA was equally unpersuaded by Asarco and Arizona’s arguments against the proposed sulfur dioxide limitations. The concerns “over the technical feasibility” of the proposed double contact acid plant were unsubstantiated, the EPA determined, because such a plant “[was] already in use at [Asarco’s] Smelter” and was therefore “presumed to be an applicable technology.” *Id.* at 52,441. The EPA did, however, revise the time period over which the control efficiency rate would be calculated, crediting Asarco’s assertion that the 99.8% figure it had provided to the EPA could be achieved using only a 365-day rolling average rather than the 30-day average promulgated in the Proposed FIP. *Id.* at 52,443. Switching to the 365-day rolling average, the EPA continued, would also alleviate Asarco’s worry that the 99.8% control efficiency figure would not allow sufficient breathing room for “startup, shutdown, and malfunction,” or SSM, occurrences. *Id.* at 52,440, 52,443.

4. Affirmative Defense for Malfunctions

The Final FIP eliminated the affirmative defense for “excess emissions due to malfunctions” that the EPA had inserted into the Proposed FIP. *Id.* at 52,427. The EPA recognized that it did “not receive any comments” about the inclusion of an affirmative defense, but explained that a

recent D.C. Circuit opinion in *Natural Resources Defense Council v. EPA*, 749 F.3d 1055 (D.C. Cir. 2014), “ma[de] it clear that the CAA does not authorize promulgation of [an affirmative defense provision] by EPA.” *Id.* The EPA noted that the “court did not address whether such an affirmative defense provision could be properly included in a SIP,” but nonetheless maintained that the “logic of the court’s decision” foreclosed the EPA’s inclusion of the defense in its Final FIP. *Id.*

After the EPA promulgated the Final FIP, Arizona, Phoenix Cement Company, CalPortland, and Asarco filed this consolidated appeal.

III. STANDARD OF REVIEW

We may invalidate the Final FIP if it is “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.” 42 U.S.C. § 7607(d)(9). This familiar standard is, of course, highly deferential. A regulation should be deemed arbitrary and capricious in only limited circumstances, such as when:

[T]he agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.

Motor Vehicle Mfrs. Ass’n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 43 (1983). Courts must be

particularly careful in reviewing questions involving “a high level of technical expertise” because such matters are normally best left to the experience and judgment of the agency. *Nat’l Parks Conservation Ass’n v. EPA*, 788 F.3d 1134, 1141 (9th Cir. 2015) (citation omitted); *see also Baltimore Gas & Elec. Co. v. Nat. Res. Def. Council, Inc.*, 462 U.S. 87, 103 (1983) (“When examining [an agency’s] scientific determination, as opposed to simple findings of fact, a reviewing court must generally be at its most deferential.”).

When the challenge to a regulation is based on an alleged procedural error, our standard of review under the CAA is even stricter. Not only must the petitioners in such circumstances demonstrate that the rule was arbitrary or capricious, but also that the alleged procedural errors “were so serious and related to matters of such central relevance that there is a substantial likelihood that the rule would have been significantly changed if such errors had not been made.” 42 U.S.C. § 7607(d)(8).

IV. DISCUSSION

Petitioners³ make a wide variety of contentions that challenge four aspects of the Final FIP: (1) the promulgation of numerical RPGs; (2) the imposition of SNCR to control CalPortland’s cement kiln; (3) the emission limits regulating Asarco’s and Freeport-McMoran’s copper smelters; and (4) the decision to eliminate the affirmative defense for

³ Although we recognize that not all Petitioners make the same contentions, we refer to “Petitioners” throughout this section indiscriminately for simplicity’s sake. We identify individual petitioners as necessary.

malfunctions.⁴ As we discuss below, all arguments falling into the first and last of those categories are not properly before us because they have not been presented to the EPA. And as to the remaining contentions, nothing about the EPA’s regulations of the cement kilns and copper smelters was arbitrary or capricious.

A. *Judicial Challenges to a FIP Must be First Exhausted Before the EPA*

Using perhaps the most unambiguous language possible, Congress has limited judicial review of EPA rules by requiring all potential petitioners to present their challenges first to the EPA itself. 42 U.S.C. § 7607(d)(7)(B). “Only an objection to a rule or procedure which was raised with reasonable specificity during the period for public comment,” Congress provided, “may be raised during judicial review.” *Id.* “[I]f the grounds for such an objection arose after the period for public comment (but within the time specified for judicial review), and if such objection is of central relevance to the outcome of the rule, [the EPA] shall convene a proceeding for reconsideration of the rule.” *Id.* And if the EPA declines to do so, the potential petitioner may “seek review of such refusal in the United States court of appeals for the appropriate circuit.” *Id.*

⁴ Petitioners addressed a fifth issue, demonstration requirements that the EPA imposed in an effort to find the optimal SNCR efficiency rate for regulating the cement kilns. *See, e.g.*, Final SIP, 79 Fed. Reg. at 52,464. As all parties now recognize, these “demonstration project claims” are now moot because the EPA has revised the Final FIP to replace the demonstration requirements with certain record-keeping and reporting obligations. *See* Joint Status Report at 3, *Arizona v. EPA*, No. 14-73368 (Nov. 7, 2016), Dkt. No. 105; Citation of Supplemental Authorities at 1–2, *Arizona v. EPA*, No. 14-73368 (Dec. 14, 2016), Dkt. No. 106.

This congressional framework promotes regulatory efficiency by ensuring that the EPA—as the entity with greatest expertise in environmental matters—takes the first shot at resolving all issues with its regulations. The potential efficiency gains are not merely theoretical, and one need not look further than this case to see why. One of the original issues the parties briefed and argued before us concerned certain “demonstration requirements” the EPA imposed on Phoenix Cement and CalPortland. *See supra* note 4. Although the issue was both difficult and technical, Petitioners had not raised it to the EPA during the notice-and-comment period because the demonstration requirements were not mentioned anywhere in the Proposed FIP. Fortunately, Petitioners requested the EPA to reconsider the rule, *see* 42 U.S.C. § 7607(d)(7)(B), and the EPA agreed to replace it with mutually acceptable regulations. *See supra*, note 4. By following the exhaustion rules and presenting their grievances to the entity most capable of resolving them, Petitioners avoided wasting both our resources and their own.

But the same cannot be said of two other claims Petitioners make on this appeal. For the first of those claims, Petitioners argue that the EPA’s RPGs are arbitrary and capricious because Arizona residents will directly or indirectly have to pay hundreds of millions of dollars to improve air visibility by 0.10 deciviews, an amount of improvement Petitioners dub trivial. In their second claim, they assert that the EPA’s decision to eliminate the affirmative defense for malfunctions was both procedurally and substantively invalid. We may not consider either of those claims under § 7607(d)(7)(B). Nothing in the record indicates that Petitioners have raised their arguments before the EPA at all, let alone with the requisite “reasonable specificity.” *See* 42 U.S.C. § 7607(d)(7)(B).

Petitioners concede as much with respect to their claim seeking to reinstate the affirmative defense for malfunctions. Indeed, Petitioners must concede that they could not have protested in their comments on the Proposed FIP the EPA’s decision to eliminate the affirmative defense provision from its proposal, because the EPA removed it spontaneously. The EPA had, in the Proposed FIP, proposed *including* the affirmative defense, not *removing* it, so it is no wonder that Petitioners did not file comments objecting to its removal. Nevertheless, the CAA is clear: the Petitioners’ remedy is to explain to the EPA “that it was impracticable to raise such an objection” and ask the EPA to “convene a proceeding for reconsideration of the rule.” 42 U.S.C. § 7607(d)(7)(B).

With respect to Petitioners’ new-found objections to the RPGs, Petitioners claim that certain statements during the notice-and-comment period put the EPA on notice of their arguments. We find that assertion not only wrong but close to frivolous. It was simply not possible to point out any disparities between the costs and benefits of the Final FIP’s numerical RPGs during the notice-and-comment period because no numerical RPGs were in existence at that time. Commentators never made any cost/benefit argument but instead urged the EPA to issue numerical RPGs in the first place. *See* Final FIP, 79 Fed. Reg. at 52,468–71. That commentary—on which Petitioners now rely to avoid the exhaustion requirement—could not have possibly appraised the EPA of the claim Petitioners now make.

Faced with this reality, Petitioners make two arguments—one doctrinal, the other policy-based—in an attempt to save their unexhausted claims from dismissal. Neither of the arguments, however, has merit. First, Petitioners rely on a line of cases from the D.C. Circuit

finding an exception to § 7607(d)(7)(B) when a new argument challenges “key assumptions” underlying an EPA rule. This exception is usually stated as follows:

[E]ven if a party may be deemed not to have raised a particular argument before the agency, “EPA ‘retains a duty to examine key assumptions as part of its affirmative burden of promulgating and explaining a nonarbitrary, non-capricious rule’” and therefore “‘EPA must justify that assumption even if no one objects to it during the comment period.’”

Nat. Res. Def. Council v. EPA, 755 F.3d 1010, 1023 (D.C. Cir. 2014) (citation omitted). The asserted duty to examine “key assumptions” has no textual origin. It appears to be based on a statement by the D.C. Circuit in a case that does not mention § 7607(d)(7)(B). See *Nat’l Lime Ass’n v. EPA*, 627 F.2d 416, 433 (D.C. Cir. 1980) (“[W]e think an initial burden of promulgating and explaining a non-arbitrary, non-capricious rule rests with the Agency”); see also *Small Refiner Lead Phase-Down Task Force v. EPA*, 705 F.2d 506, 534 (D.C. Cir. 1983) (establishing for what appears to be the first time the exception to § 7607(d)(7)(B) based on the language in *National Lime*).⁵

⁵ Although we have not expressly adopted the D.C. Circuit’s exception to § 7607(d)(7)(B), we have, in construing the National Environmental Policy Act of 1969, 42 U.S.C. § 4321 *et seq.*, cited the Supreme Court’s observation that “[a regulation’s] flaws might be so obvious that there is no need for a commentator to point them out specifically in order to preserve its ability to challenge a proposed action.” *Or. Nat. Desert Ass’n v. Jewell*, 840 F.3d 562, 573 (9th Cir.

We need not decide today whether to adopt the D.C. Circuit’s exception to § 7607(d)(7)(B) exhaustion requirement. For even if the exception were available, we would hold that striking a particular balance between costs and benefits of numerical RPGs cannot be a “key assumption” underlying the Final FIP. As the D.C. Circuit has explained, the primary purpose of § 7607(d)(7)(B) is to ensure that the EPA has an opportunity to consider a challenge to its regulations without being “sandbag[ged]” by litigants who wait until litigation before a court of appeals to make their arguments. *Okla. Dep’t of Env’tl. Quality v. EPA*, 740 F.3d 185, 192 (D.C. Cir. 2014). Whether a particular cost/benefit analysis results in an appropriate RPG concerns not a “key assumption” but a contest to the EPA’s specific application of statutory precepts to a concrete situation. We hold that the issues Petitioners have raised for the first time on this appeal are not so “key” that, assuming the D.C. Circuit’s “key assumption” exception applies, they must have been anticipated by the EPA.

Petitioners next argue that it would be “absurd” if their claims, which are partially based on the EPA’s failure to provide notice of the numerical RPGs, were barred under § 7607(d)(7)(B). If that were so, Petitioners continue, the EPA could promulgate a FIP without the requisite notice-and-comment period and then regulate unsuspecting parties while they scramble to file a request for reconsideration with the EPA. *See* 42 U.S.C. § 7607(d)(7)(B) (“[R]econsideration shall not postpone the effectiveness of the rule.”). And although the “effectiveness of the rule may be stayed [for three months] during such reconsideration,” *id.*, Petitioners

2016) (quoting *Dep’t of Transp. v. Pub. Citizen*, 541 U.S. 752, 765 (2004)).

claim that it could be years until the EPA acts on a reconsideration request.

Petitioners' pleas have some appeal. However, we cannot ignore the unambiguous language of § 7607(d)(7)(B) simply because it might sometimes lead to what we regard as sub-optimal results. Indeed, it is far from clear that Congress intended to carve out a special exception for claims asserting a deficiency in the notice-and-comment process. Congress could have just as easily determined that the benefits from the exhaustion requirement, combined with the right to ask a court for a three-month stay during the administrative reconsideration period, would outweigh the harm Petitioners identify. Such a conclusion would make sense, as the notice-and-comment process itself can lead to changes from the proposed FIP as to which there was no opportunity to comment. The EPA is not limited to specific changes suggested by commenters, and one commenter does not necessarily have the opportunity (or the resources) to comment on every other commenter's proposals. Were the EPA required to put out for notice-and-comment every significant change from the proposed FIP to the final FIP, the notice-and-comment process could go on forever.

The words of § 7607(d)(7)(B) must be therefore read literally, as our sister circuits have concluded. *See EME Homer City Generation, L.P. v. EPA*, 795 F.3d 118, 137 (D.C. Cir. 2015) (“Because [petitioners’] argument is an objection to the notice and comment process itself, petitioners obviously did not and could not have raised it during the period for public comment. Under Subsection 7607(d)(7)(B), however, the only appropriate path for petitioners to raise this issue is through an initial petition for reconsideration to EPA.”); *North Dakota v. EPA*, 730 F.3d 750, 770 (8th Cir.

2013) (same); *Oklahoma v. EPA*, 723 F.3d 1201, 1214 (10th Cir. 2013) (same).

In sum, we conclude that Petitioners are barred from challenging in this appeal the numerical RPGs and the EPA's decision to jettison the affirmative defense for malfunction. To overcome this procedural bar, Petitioners must first request the EPA to reconsider its regulations under § 7607(d)(7)(B). We are barred from reviewing these issues in this proceeding and dismiss that portion of the petition.

B. EPA Regulation of the Cement Kiln and Copper Smelters Is Valid

Petitioners' remaining contentions are a series of technical challenges to the emission controls imposed on the cement kiln and copper smelters involved in this action. According due deference to the EPA, we see nothing arbitrary or capricious in its final regulations.

1. CalPortland's Cement Kiln

Petitioners claim that the EPA overstepped its authority in imposing the SNCR controls on CalPortland's cement kiln. The EPA's primary error, Petitioners assert, was to "deemphasize" potential improvement in visibility when considering whether to implement an RP control using the four-factor balancing test of Section 169A. *See* 42 U.S.C. § 7491(g)(1). If the EPA had not committed that alleged error, Petitioners continue, it would have realized that adopting SNCR technology would only marginally advance RPGs. Petitioners therefore urge us to deem the EPA's actions arbitrary or capricious.

We decline to do so. As required under Section 169A, the EPA considered all four factors before promulgating the FIP: (1) costs of compliance; (2) time necessary for compliance; (3) energy and non-air quality environmental impacts of compliance; and (4) the remaining useful life of any potentially affected sources. Final FIP, 79 Fed. Reg. at 52,466; *see* 42 U.S.C. § 7491(b)(2). Although “visibility improvement” is not among the four factors, the EPA took it into account anyway but did not weigh it as heavily as it would have in a BART analysis. Final FIP, 79 Fed. Reg. at 52,466. Although Petitioners may not like that the EPA accorded some factors greater weight than others, it is simply not our place to substitute our judgment for that of the EPA. *See Cent. Ariz. Water Conservation Dist. v. EPA*, 990 F.2d 1531, 1543 (9th Cir. 1993) (“Petitioners’ essential argument does not claim that EPA failed to consider the relevant factors, but instead contends that EPA erred in its consideration of those factors. This court is not to substitute Petitioners’ judgment, or its own, for that of EPA, as long as the agency’s interpretation is reasonable.”). That is especially so here, where the CAA calls for a functional balancing of technical and difficult considerations. *See New York v. Reilly*, 969 F.2d 1147, 1150 (D.C. Cir. 1992) (“Because Congress did not assign the specific weight the [EPA] should accord each of these factors, the [EPA] is free to exercise [its] discretion in this area.”).

Equally dubious is Petitioners’ contention that SNCR technology is not necessary to achieve RPGs because it would purportedly improve visibility by only 0.004 deciviews. But that is true only if we also take into account improvements from numerous other sources located in the same geographic area. *See* 79 Fed. Reg. at 52,469. If the impact of the SNCR technology at the CalPortland cement

kiln were measured according to the EPA's model that disregards other polluting sources, the increase in visibility would be far more substantial, measuring at 0.59 deciviews.⁶ *Id.* at 52,465. We do not view the EPA's use of its model to calculate the benefits of SNCR as arbitrary or capricious but instead regard it as a permissible exercise of agency discretion within the proper bounds of the CAA. *See North Dakota*, 730 F.3d at 766 (reaching the same result and crediting the EPA's assertion that the use of the Petitioners' model would "rarely if ever demonstrate that emissions reductions at a single source will have an appreciable effect on incremental visibility improvement in a given area").

Accordingly, we conclude that the EPA acted within its authority in promulgating the SNCR requirement and reject all of Petitioners' contentions to the contrary.

2. Copper Smelters

Petitioners' final series of challenges concerns the EPA's regulation of Asarco's and Freeport-McMoran's copper smelters, which, unlike CalPortland's cement kiln, are subject to BART. Final FIP, 79 Fed. Reg. at 52,423. Although the EPA declined to impose additional control measures on the smelters after conducting the requisite five-factor analysis, *see* 42 U.S.C. § 7491(g)(2), it did promulgate emission limits consistent with the facilities' existing controls as to nitrogen

⁶ An analogy the EPA provides may be useful to understand these concepts. Just as removing one voice from a room containing a few people would reduce noise to a larger degree than if the room were crowded, limiting emissions from the only polluting source in the area would improve visibility to a larger degree than if there were numerous polluting sources around.

oxides, particulate matter, and sulfur dioxides. Petitioners now claim that those emission limits are arbitrary or capricious.

a. Nitrogen Oxides Emissions

The EPA imposed a limit of 40 tpy on the nitrogen oxides emissions from each smelter, which it deemed to be well above what the smelters currently emit. Final FIP, 79 Fed. Reg. at 52,424. Petitioners challenge that limitation on two grounds. They first argue that the 40 tpy limit will not “eliminat[e] or reduc[e] any [visibility] impairment,” 42 U.S.C. § 7491(b)(2)(A), because the smelters are already emitting fewer than 40 tpy. And in any event, Petitioners continue, the smelters should not even be subject to BART controls and limitations because the smelters’ current nitrogen oxides emissions are far below the 0.5 deciview threshold the EPA uses to determine whether BART controls are necessary. *See* Proposed FIP, 79 Fed. Reg. at 9327; Guidelines, 70 Fed. Reg. at 39,161–62. We reject both of these contentions and regard the 40 tpy limitation as a valid exercise of the EPA’s regulatory authority.

Petitioners’ first challenge is also their weakest. While it is true that the smelters currently emit fewer than 40 tpy of nitrogen oxides, nothing prevents them from exceeding that threshold in the future. Given that reality, the EPA acted well within its authority to impose a cap of 40 tpy to ensure that the smelters live up to their representations of keeping their nitrogen oxides emissions low. Not only are such limitations a prudent way to limit visibility impairments in the long run, *see* 42 U.S.C. § 7491(b)(2)(A), they are also required under the EPA’s current rules that are not being challenged here. Those rules require implementation plans to impose

“emission limitations” on all “BART-eligible sources” that have “the potential to emit” over 40 tpy of certain pollutants. 40 C.F.R. § 51.308(e), (e)(1)(ii)(C). Because the smelters here are indisputably BART-eligible sources with “the potential to emit” over 40 tpy of nitrogen oxides, the EPA properly imposed what it deemed to be a reasonable emission limit. We decline to second-guess the EPA’s judgment here.

Petitioners’ second argument—that because the visibility impact of the nitrogen oxides emissions is minuscule, the smelters are not subject to the BART requirements—fares no better. True enough, BART is required for only stationary sources that “cause” (defined as 1.0 deciviews of impact) or “contribute to” (defined as 0.5 deciviews of impact) visibility impairment. 70 Fed. Reg. 39,104, 39,121; *see also* 42 U.S.C. § 7491(b)(2)(A); 40 C.F.R. § 51.308(e). But that determination is made on a *source-by-source*, not on a *pollutant-by-pollutant*, basis. *See* 40 C.F.R. § 51.308(e). If the rule were otherwise, a source causing significant visibility problems (say, over 1.0 deciviews) would nonetheless escape BART regulation as long as each individual pollutant it emits impaired visibility by no more than 0.5 deciviews. To avoid that result, the EPA properly imposed emission limits on each pollutant the smelters emit, even if the harm from those individual pollutants is relatively negligible. With respect to the nitrogen oxides emission, the EPA imposed a 40 tpy limit because nitrogen oxides contribute to the overall visual impairment attributable to the copper smelter, even though nitrogen oxides, considered alone, do not contribute in excess of 0.5 deciviews of visual impairment. The EPA’s actions were neither arbitrary nor capricious, but represented a reasonable interpretation of Section 169A and its implementing regulations.

b. Particulate Matter Emissions

Petitioners next challenge the EPA's limitation on particulate matter emissions from Asarco's copper smelter. Although the EPA determined that no additional controls were warranted to reduce the emission of particulate matter, it did require Asarco's smelter to adhere to the emission limits set forth in Subpart QQQ—a separate program under the CAA not at issue here. Final FIP, 79 Fed. Reg. at 52,447–48; *see* 40 C.F.R. pt. 63, Subpart QQQ. That approach was particularly appropriate, the EPA reasoned, because Asarco itself relied on the Subpart QQQ limits in its BART analysis. *See* Final FIP, 79 Fed. Reg. at 52,447. Petitioners now claim that it was wrong for the EPA to incorporate the unrelated requirements of Subpart QQQ into its Final FIP.

We again disagree that the EPA's approach was anything but reasonable. As already discussed, the EPA has an obligation to set emission limits for each source subject to BART regulation. *See* 40 C.F.R. § 51.308(e). In carrying out that duty, the EPA did not pick an emission limit at random but incorporated the requirements of Subpart QQQ *to match Asarco's own BART analysis*. *See* Final FIP, 79 Fed. Reg. at 52,447–48. Since Asarco itself relied on those requirements, the emission limit the EPA imposed was both feasible and likely to improve visibility. Neither Section 169A nor the implementing regulations require anything more of the EPA. *See* 42 U.S.C. § 7491(b)(2)(A); 40 C.F.R. § 51.308(e).

c. Sulfur Dioxide Emissions

Finally, Petitioners object to the EPA's imposition of a 99.8 percent control efficiency rate on sulfur dioxide emissions from Asarco's smelter. Petitioners claim that the 99.8 percent rate is unsupported by evidence, technically infeasible, and arbitrarily more stringent than that imposed on a competitor's smelter. We are not persuaded.

To begin with, the 99.8 percent figure has ample support in the record: after all, it was based on the information Asarco *itself* provided to the EPA. In a letter responding to the EPA's request for information, Asarco described the implementation of its "new double-contact acid plant" and stated, "[a]ccording to [its] calculations," that the acid plant "recovers 99.81 percent of the SO(2) emissions that are vented to it." Contrary to Asarco's assertion that the 99.8 percent figure was a rough engineering estimate for a proposed retrofit project that used only potential emissions as data points, the letter unequivocally describes an existing double-contact acid plant that *currently* recovers 99.8 percent of sulfur dioxide emissions. It was far from arbitrary and capricious for the EPA to rely on Asarco's own representation in the Final FIP.⁷

Next, Asarco brings a series of highly technical challenges in an attempt to show that it is infeasible to

⁷ Asarco also argues that the EPA should not have relied on the 1984 Review of New Source Performance Standards for Primary Copper Smelters to further support its 99.8 percent limitation. Because the argument was not presented to the EPA, we will not consider it here. *See supra*, Section IV.A. And even if the argument were presented to the EPA, we would still decline to deem the EPA's reliance on Asarco's own representations arbitrary or capricious.

achieve 99.8 percent efficiency on a 365-day rolling average. Asarco argues that the 365-day average would practically amount to a minimum efficiency rate that must be achieved at all times; that it is difficult to demonstrate compliance with the 99.8 percent requirement due to the limitations of sulfur dioxide measuring devices; and that the EPA did not properly take into account the inevitability of startup and shutdown emissions. But all these contentions fail for the same reason: Asarco's own data shows that it is feasible to achieve 99.8 percent efficiency over 365 days; indeed, Asarco had urged the EPA to modify the 99.8 estimate from a 30-day rolling average to a 365-day rolling average, which the EPA did. That unavoidable fact, coupled with the EPA's independent findings that it was both possible to achieve and measure 99.8 percent efficiency despite any emissions during the startup and shutdown periods, Final FIP, 79 Fed. Reg. at 52,424, 52,443, gives us enough reason not to second-guess the EPA. It is precisely in such circumstances, "where the issue in question is highly scientific and the [EPA] has unique expertise," that we "give substantial deference to the [EPA's] judgment." *Nat'l Wildlife Fed. v. U.S. Army Corps of Eng'rs*, 384 F.3d 1163, 1177–78 (9th Cir. 2004).

Finally, Asarco complains that the EPA stuck its smelter with a 99.8 percent rate while imposing a more attainable 99.7 percent rate on Freeport-McMoran, Asarco's corporate rival. But the EPA treated both smelters exactly alike by relying on the data from each source in establishing the emission limits. *See* Proposed FIP, 79 Fed. Reg. at 9348. Because the EPA "articulated a rational connection between the facts found and the conclusions made," *Pac. Coast Fed'n of Fishermen's Ass'ns. v. U.S. Bureau of Reclamation*, 426 F.3d 1082, 1090 (9th Cir. 2005), we defer to the EPA's decision to treat the two sources differently.

In sum, the EPA's actions with regard to Asarco's and Freeport-McMoran's copper smelters were neither arbitrary nor capricious, but reasoned, deliberate, and sensitive to data. We therefore decline to invalidate the emission limitations imposed on those sources.

V. CONCLUSION

Some of the challenges to the FIP are not ripe for our review; others lack merit. Accordingly, we dismiss in part and deny in part the consolidated petitions.⁸

PETITIONS DISMISSED IN PART AND DENIED IN PART.

⁸ Petitioner Phoenix Cement's pending motion to supplement record is denied.

GLOSSARY OF ACRONYMS AND INITIALISMS

CAA—Clean Air Act

BART—Best Available Retrofit Technology

EPA—Environmental Protection Agency

FIP—Federal Implementation Plan

RP—Reasonable Progress

RPGs—Reasonable Progress Goals

SIP—State Implementation Plan

tpy—tons per year