ORAL ARGUMENT NOT YET SCHEDULED

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

No. 15-1385 (Consolidated with Nos. 15-1392, 15-1490, 15-1491, & 15-1494)

MURRAY ENERGY CORPORATION,
Petitioner,

v.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
Respondent.

ON PETITION FOR REVIEW OF FINAL AGENCY ACTION OF THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

PAGE PROOF BRIEF FOR RESPONDENT EPA

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RESPONDENTS' CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES

Pursuant to D.C. Circuit Rule 28(a)(1), the undersigned counsel for Respondents United States Environmental Protection Agency and Gina McCarthy, Administrator, United States Environmental Protection Agency, certifies as follows:

A. Parties and Amici.

All parties and intervenors appearing in this Court are accurately identified in the Petitioners' Opening Briefs. The Court has granted the following organizations leave to participate as *amicus curiae*: the American Thoracic Society, the Institute for Policy Integrity, the National Association of Home Builders, and the American Lung Association.

B. Rulings Under Review.

The final agency action under review is EPA's *National Ambient Air Quality Standards for Ozone*, published at 80 FR 65,292 (Oct. 26, 2015).

C. Related Cases.

These consolidated cases were not previously before this Court or any other court.

/s/ Justin D. Heminger
JUSTIN D. HEMINGER

TABLE OF CONTENTS

TABLE OF AUTHORITIES

Cases

* Authorities upon which we chiefly rely are marked with an asterisk.

Statutes

Code of Federal Regulations

Federal Register

Legislative Materials

Other Authorities

GLOSSARY

APA	Administrative Procedure Act
ATS	American Thoracic Society
CAA	Clean Air Act
CASAC	Clean Air Scientific Advisory Committee
EPA	United States Environmental Protection Agency
FR	Federal Register
HREA	Health and Risk Exposure Assessment
ISA	Integrated Science Assessment
JA	Joint Appendix
NAAQS	National Ambient Air Quality Standards
ppb	Parts Per Billion
ppm	Parts Per Million
PA	Policy Assessment
RTC	Response to Comments
SIP	State Implementation Plan

STATEMENT OF JURISDICTION

The Court has jurisdiction under 42 U.S.C. § 7607(b).

STATEMENT OF THE ISSUES

In 1970, Congress created the National Ambient Air Quality Standards (NAAQS) program as the Clean Air Act's principal vehicle for improving the Nation's air quality. Congress directed the United States Environmental Protection Agency (EPA) to set NAAQS that are requisite to protect public health (the primary standard) and public welfare (the secondary standard), and required the Agency to periodically review and revise those standards as appropriate.

In 2015, EPA revised the NAAQS for ozone. First, EPA Administrator McCarthy determined that the old standards, last revised in 2008, were no longer requisite. Then she exercised her judgment—as directed by Section 7409(b) of the Act—to lower the level of the primary and secondary standards for ozone from 75 parts per billion (ppb) to 70 ppb. This case presents five issues:

1. Did the Administrator rationally exercise her judgment in concluding that the 2008 primary standard for ozone was inadequate to protect public health with an adequate margin of safety and in lowering the level of the revised primary standard to 70 ppb?
2. Did the Administrator rationally exercise her judgment in concluding that the 2008 secondary standard for ozone was inadequate to protect public

welfare from any known or anticipated adverse effects and in lowering the level of the revised secondary standard to 70 ppb?

3. Did EPA rationally find that background ozone levels will not prevent states from attaining the revised NAAQS?
4. Does the Clean Air Act unambiguously require EPA to set the NAAQS above the highest background concentration of an air pollutant anywhere, even when that background concentration is atypical and isolated, and when the Act contains particular provisions addressing background ozone?
5. Did EPA reasonably interpret Section 7475 of the Act to allow grandfathering of a narrow category of pending preconstruction permit applications from demonstrating compliance with the new ozone NAAQS?

PERTINENT STATUTES AND REGULATIONS

Pertinent statutes and regulations are reproduced in this brief's addendum.

STATEMENT OF THE CASE

Ozone is a powerful lung irritant and the primary component of smog. It can cause difficulty breathing, heart problems, and even premature death. EPA estimates that 99 million Americans, more than one in every four people in the Nation, live in areas with unhealthy levels of ozone. 80 Fed. Reg. (FR) 65,292, 65,300/1 (Oct. 26, 2015). These high ozone levels are largely caused by domestic, manmade emissions of air pollutants, for example, from cars, trucks, and power plants. *Id.* at 65,300/3.

In 1970, Congress enacted a "drastic remedy" to the "serious and otherwise uncheckable problem" of air pollution: the modern Clean Air Act (CAA or the Act). *Union Elec. Co. v. EPA*, 427 U.S. 246, 256 (1976). Under the Act, EPA sets national ambient air quality standards (NAAQS) for common air pollutants like ozone, which the states then implement. EPA must establish, and periodically review, a primary NAAQS that is "requisite"—that is, neither more nor less stringent than necessary—to protect public health with an adequate margin of safety, and a secondary NAAQS that is requisite to protect public welfare.

Over the past forty years, EPA has issued and revised several ozone NAAQS, in 1971, 1979, 1997, and 2008. Though reducing ozone pollution is difficult, states have risen to meet the challenge. Today, almost all areas meet the 1997 NAAQS, and of the areas that did not meet the 2008 NAAQS when it was established, about forty percent now do. 80 FR 65,438/2.

In 2015, EPA again revised the ozone NAAQS. After considering over one thousand new studies, several rounds of public comments, and input from the Clean Air Scientific Advisory Committee (CASAC), a group created at Congress's direction to provide unbiased scientific advice to EPA, EPA Administrator McCarthy determined that the 2008 standards were inadequate. She then judged that revising the level of the primary and secondary standards from 75 to 70 parts-per-billion (ppb), while retaining the other three elements of the standards, would provide requisite protection for public health and welfare.

As in prior NAAQS cases, Environmental Petitioners argue that EPA set the standards too high, while State and Industry Petitioners argue that EPA set the standards too low. The Petitioners begin their briefs with stories about three children and one town. Though Petitioners focus on different subjects, their perspectives are equally flawed. On the one hand, Environmental Petitioners argue that EPA must require the air everywhere to be so clean that people could exercise outside continuously, 24 hours a day, however unlikely that is. On the other hand, State and Industry Petitioners argue that EPA must allow the air everywhere to be as dirty as the dirtiest air crossing the border from Texas and Mexico into Sunland Park, New Mexico. Both of these arguments fail for the same reason: the NAAQS must be requisite to protect all Americans as they live, where they live.

And the revised NAAQS do protect all Americans, including children and the people of Sunland Park. The Administrator lowered the primary standard level

especially to protect children, people with asthma, and other at-risk groups. 80 FR 65,294/1; *id.* at 65,295 n.1 (primary standard should be set to protect sensitive groups, but not a single person in that group). For example, she relied on an exposure assessment that helped her estimate how often children and asthmatic children would likely encounter potentially harmful ozone levels during their daily lives. In this way, she set a standard that provides increased protection for the millions of children across the Nation, including asthmatic children. But she declined to set a standard that requires clean air in the abstract, even when it may have no benefits for public health or welfare. That would lead to an overprotective standard—one that is more than requisite.

By contrast, State and Industry Petitioners champion an under-protective standard. They contend that EPA cannot set requisite NAAQS for the Nation because they claim that background ozone—ozone formed from sources other than domestic, manmade emissions—poses an insurmountable obstacle to attainment in some areas. But EPA considered numerous studies and applied two scientific models to conclude that background ozone would not preclude attainment in any area. And several provisions in the Act specifically address attainment concerns posed by background ozone, including the sources of background ozone most pertinent to this case—natural events and international emissions. Indeed, Sunland Park can address the impact of international emissions on attainment under a provision that directly addresses that issue, just like its neighbor, El Paso, Texas, has successfully done. 80

FR 65,444/2; *see also* 77 FR 71,145/1 (Nov. 29, 2012) (Sunland Park's air quality has improved over a period of ten years). The Act does not require that EPA abandon its duty to set requisite NAAQS simply to spare states and areas from applying the Act's more specific background ozone provisions. To do so would leave millions of Americans across the Nation, including children, exposed to harmful ozone levels—something the Administrator refused to do.

In sum, the Administrator did consider children, and she did consider background ozone. And although she did not reach the preferred outcomes of Environmental Petitioners or State and Industry Petitioners, her decisions are reasonable and should be upheld.

I. Statutory and regulatory background

A. The National Ambient Air Quality Standards

The Clean Air Act, 42 U.S.C. §§ 7401-7671q, establishes a comprehensive program to protect and enhance the Nation's air quality through a system of shared federal and state responsibility. *Id.* § 7401(b)(1). Central to this program are the NAAQS, which EPA sets to limit the concentration of certain air pollutants in the "ambient," or outside, air to protect against the pollutants' effects on public health and welfare. *Id.* §§ 7408-09. EPA has established NAAQS for six common air pollutants, including ozone. 40 C.F.R. pt. 50.

At the beginning of the NAAQS process, EPA develops "air quality criteria," which must "accurately reflect the latest scientific knowledge." 42 § 7408(a)(2). The

criteria are not themselves guidelines or standards, but the scientific bases for the standards. *Lead Industries Ass'n v. EPA*, 647 F.2d 1130, 1136-37 (D.C. Cir. 1980). To ensure that the NAAQS keep pace with scientific advances, EPA must review the criteria and the NAAQS every five years and revise the NAAQS as "appropriate in accordance with [Sections 7408 and 7409(b)]." 42 U.S.C. § 7409(d)(1).

During the five-year review, an independent scientific review committee, CASAC, must also assess the science and recommend revisions as appropriate to the criteria and the NAAQS. *Id.* § 7409(d)(2). CASAC is a seven-member body currently comprising scientists from universities, research institutes, and a state government organization. Although EPA is not bound by CASAC's recommendations, if EPA's revisions to the NAAQS differ significantly from those recommendations, EPA must explain the reasons for its departure from CASAC's advice. *Id.* §§ 7607(d)(3), (d)(6); *see Mississippi v. EPA*, 744 F.3d 1334, 1355 (D.C. Cir. 2014).

The Act establishes two types of NAAQS. The "primary" NAAQS protect public health, and the "secondary" NAAQS protect public welfare. The EPA Administrator must set both NAAQS at levels that are "requisite" in her judgment, based on the air quality criteria developed by EPA and reviewed by CASAC. 42 U.S.C. § 7409(b). In setting primary NAAQS, EPA must allow an "adequate margin of safety," *id.* § 7409(b)(1), so that the standard will "protect against effects which have not yet been uncovered by research and effects whose medical significance is a matter of disagreement." *Lead Industries*, 647 F.2d at 1154. The secondary NAAQS

provision is phrased differently, requiring protection against "any known or anticipated adverse effects" on "public welfare." 42 U.S.C. § 7409(b)(2). The Act defines "welfare effects" to include effects on soils, water, crops, vegetation, wildlife, and climate. *Id.* § 7602(h).

Each NAAQS has four basic elements: (1) the "indicator," which defines the chemical species or mixture to be measured; (2) the "form," which defines the air quality statistic to be compared to the level of the standard; (3) the "level," which defines the concentration of the indicator pollutant used to determine whether the standard is achieved; and (4) the "averaging time," which sets the time period over which pollution must be measured. *Am. Farm Bureau Fed'n v. EPA*, 559 F.3d 512, 516 (D.C. Cir. 2009) (*Farm Bureau*).

B. Attainment and nonattainment designations

Once EPA promulgates the NAAQS, the Agency must designate areas as being in "attainment" or "nonattainment" of the NAAQS, or "unclassifiable." 42 U.S.C. § 7407(d). For ozone, nonattainment is further split into five classifications, ranging from marginal to extreme nonattainment, each with progressively more time to attain. *Id.* §§ 7511, 7511a. EPA generally makes designation and classification decisions based on data collected from air quality monitors situated throughout the country. *Id.* § 7619.

States may petition EPA to exclude monitoring data directly influenced by "exceptional events" so that those events do not impact designations. 42 U.S.C.

§ 7619(b)(3)(B)(iv). Under Section 7619(b), an "exceptional event" is an event that EPA determines is "not reasonably controllable or preventable" that "affects air quality" and is "caused by human activity that is unlikely to recur at a particular location or a natural event." *Id.* § 7619(b)(1)(A). EPA considers certain wildfires and stratospheric ozone intrusions to be "natural events" under the Act's exceptional events provision. Treatment of Data Influenced by Exceptional Events, 72 FR 13,560, 13,566 (Mar. 22, 2007). Once EPA determines that an event is "exceptional" under Section 7619(b), it will exclude the data directly influenced by that event and base its determination of whether an area meets the NAAQS on the remaining monitoring data.

C. NAAQS implementation

Congress assigned the states the primary responsibility to implement the NAAQS. 42 U.S.C. § 7407(a). Thus, once EPA promulgates the NAAQS, states must develop state implementation plans (SIPs). A state's SIP must contain measures to "implement[], maintain[], and enforce[]" the NAAQS within its jurisdiction, and to curtail "significant contribut[ions] to nonattainment" and "interfere[nce] with maintenance" of the NAAQS in other states. *Id.* §§ 7410(a)(1), (a)(2)(D)(i)(I). After adopting a SIP, a state will submit its SIP to EPA, *id.* § 7410(a), and EPA must approve the SIP if it meets the Act's requirements, *id.* § 7410(k)(3).

The Act does not require states to demonstrate attainment of the NAAQS in all areas. Areas that are significantly affected by emissions outside their control may

receive special consideration. For example, if a state can demonstrate that its attainment plan would be sufficient to attain the NAAQS by the attainment date "but for" international emissions, EPA will approve the state's attainment demonstration. 42 U.S.C. § 7509a(a)(2). Another exception is for "[r]ural transport areas"—nonattainment areas with emission sources that "do not make a significant contribution" to measured ozone concentrations and that are not within or adjacent to a "Metropolitan Statistical Area." *Id.* § 7511a(h). Rural transport areas need not submit a plan demonstrating attainment of the NAAQS. *Id.* § 7511a(h) (rural transport areas must meet "marginal area" requirements); *id.* § 7511a(a) (specifying requirements for marginal areas).

D. Permits under the Prevention of Significant Deterioration program

The CAA also contains a Prevention of Significant Deterioration (PSD) program that prohibits new or modified major sources of emissions from being constructed in any area that attains the NAAQS, or that cannot be classified, without first obtaining a permit. 42 U.S.C. § 7475. To obtain a permit, the applicant must satisfy several requirements, including demonstrating that emissions from the facility to be built will not cause or contribute to an exceedance of any NAAQS. *Id.* § 7475(a)(3)(B). The PSD program requires the permitting authority to grant or deny a completed permit application within one year after filing. 42 U.S.C. § 7475(c).

II. EPA's prior ozone regulations

A. Early regulation of ozone

Ozone is not emitted directly into the air but is formed when volatile organic compounds and nitrogen oxides (precursors) combine in the presence of sunlight. *Am. Petroleum Inst. v. Costle*, 665 F.2d 1176, 1181 (D.C. Cir. 1981) (*API*). EPA first promulgated NAAQS for photochemical oxidants in 1971 using ozone as the indicator, and revised the ozone NAAQS in 1979 and 1997. 36 FR 8186 (Apr. 30, 1971); 44 FR 8202 (Feb. 8, 1979); 62 FR 38,856 (July 18, 1997).

Several parties challenged the 1997 NAAQS, and in *Whitman v. American Trucking Associations*, 531 U.S. 457 (2001), the Supreme Court resolved several issues pertinent to this litigation. The Supreme Court held that Congress established an "intelligible principle" in the Act by requiring EPA to set NAAQS that are "requisite" to protect public health and welfare, meaning "not lower or higher than is necessary." *Id.* at 475-76. The Supreme Court also upheld this Court's longstanding position that the Act "unambiguously bars cost considerations from the NAAQS-setting process." *Id.* at 470. The Supreme Court then remanded the case to this Court, which rejected the petitioners' remaining arguments. *Am. Trucking Ass'ns v. EPA*, 283 F.3d 355, 378-80 (D.C. Cir. 2002) (*ATA III*).

B. ct's preconstruction perm

In 2008, EPA revised the primary and secondary ozone NAAQS by lowering the level of both to 75 ppb. 73 FR 16,436 (Mar. 27, 2008). In setting the primary

standard, EPA relied on clear evidence that ozone causes health effects at and above 80 ppb, as well as on new studies, including two new clinical studies that showed effects at lower levels. *Mississippi*, 744 F.3d at 1340. Though CASAC reviewed the same scientific evidence and recommended a primary standard with a level between 60 and 70 ppb, EPA explained that the scientific data regarding effects at 60 ppb was "too limited" and "inconclusive" to support a level below 75 ppb. *Id.* In *Mississippi*, the Court upheld the primary standard on this basis. *Id.* The Court also held that EPA had not adequately explained its revision of the secondary standard, concluding that EPA had not determined what level of public welfare protection was requisite and remanding for further explanation or reconsideration. *Id.* at 1359, 1360-62.

III. The 2015 ozone rulemaking process

Shortly after issuing the 2008 NAAQS, EPA began another comprehensive review of the standards and underlying science. When the secondary standard was remanded by *Mississippi*, EPA consolidated its review on remand with the ongoing review. 80 FR 65,298. EPA's review proceeded in several steps. Integrated Review Plan at 1-7 (Figure 1.1) (flow chart showing NAAQS review process), JA____.

EPA developed three key "assessment" documents to support its review and revision of the ozone NAAQS. *First*, EPA synthesized all of the science that it collected and received in an exhaustive Integrated Science Assessment (which EPA called the "Criteria Document" in prior NAAQS reviews). Integrated Science Assessment at 1ii, JA___. The final Integrated Science Assessment, published in 2013,

is over 1,000 pages long and discusses the short- and long-term health effects of ozone, health risks for sensitive populations, effects on vegetation, atmospheric chemistry, and many other issues. *Second*, EPA developed health and welfare Risk and Exposure Assessments, which estimate exposures and evaluate risks under different potential NAAQS. 80 FR 65,298. *Third*, EPA staff prepared a Policy Assessment (called the "Staff Paper" in prior NAAQS reviews), which analyzed the policy implications of the previous two sets of documents to inform the Administrator's decision to retain or revise the ozone NAAQS. Policy Assessment Executive Summary 1, JA___; *see also Farm Bureau*, 559 F.3d at 521. In preparing each document, EPA went through multiple drafts, considered public comments, and consulted with CASAC. CASAC Letter 2014c, JA____-____. Further, CASAC independently assessed the science, held public meetings, and wrote letters of advice to EPA. *Id.*

In December 2014, EPA published a proposed revision of the primary and secondary ozone NAAQS, proposing to lower the level for both standards to between 65 and 70 ppb (that is, making the level more stringent), while maintaining the indicator, averaging time, and form. 79 FR 75,234 (Dec. 17, 2014).

Three public hearings and 430,000 written comments later, EPA promulgated revised primary and secondary NAAQS. 80 FR 65,294. For both revised standards, EPA lowered the level from 75 to 70 ppb, while retaining the other three elements: the indicator (ozone), the averaging time (8 hours), and the form (the three-year average of the fourth-highest daily maximum 8-hour concentration). *Id.* at 65,347/1,

65,350/2. Under the form of the standard, at each location, EPA first identifies which days each year have the highest daily levels of ozone,[1] then takes the fourth-highest daily level per year, and finally calculates a 3-year average of those levels.

IV. The final 2015 ozone NAAQS rule

On October 26, 2015, EPA published the final 2015 ozone NAAQS rule. Collectively, the Petitioners challenge four features of the rule: (1) the revised primary standard; (2) the revised secondary standard; (3) the consideration of background ozone and other implementation issues; and (4) the revised PSD permitting program regulations. Each of these four features is discussed below.

A. Revision of the primary standard

First, EPA revised the primary standard. 80 FR 65,301-66. The Administrator made her decision based on an assessment of the entire body of scientific evidence in the record (as reflected in the Integrated Science Assessment (ISA), the Health Risk and Exposure Assessment (HREA), and the Policy Assessment (PA)), public comments, and CASAC's advice. An overview of that evidence and the Administrator's conclusions follows.

1. Evidence of health effects associated with ozone exposure

EPA has amassed an extensive body of scientific evidence about the health effects associated with ozone exposure, including many new studies that provided

[1] Throughout the brief, "daily" levels refer to daily maximum 8-hour averages.

evidence that "substantially strengthens what was known about [ozone]-related health effects in the last review." 80 FR 65,294/1. The evidence shows that exposure to ozone can cause reduced lung function, airway inflammation, heart rate changes, and premature death, among other health effects. *Id.* at 65,302-11.

a. The clinical studies

EPA had the highest level of certainty that short-term ozone exposure is causally related to respiratory effects, such as lung function decrements (a decrease in the amount of air one can expel from the lungs), lung inflammation, and respiratory symptoms (such as wheezing or shortness of breath). 80 FR 65,303.

When assessing these effects, EPA focused heavily on evidence from clinical studies (controlled human exposure studies). In these studies, healthy, young adult volunteers breathe air containing known ozone concentrations while engaging in quasi-continuous moderate physical activity for a defined period (6.6 hours), and scientists then measure the volunteers' lung function and other health effects. *Id.* at 65,303. In the 2008 review, many clinical studies reported statistically significant group mean lung function decrements, with some individuals experiencing moderate decrements of 10% or greater following exposures to 80 ppb. PA 3-10, JA____. Two studies (the 2002 and 2006 Adams studies) reported these decrements at levels lower than 80 ppb. *Id.* In this review, new clinical studies strengthened the conclusion that lung function decrements of 10% or greater occur in some healthy individuals at concentrations down to and including levels of 60 ppb. 80 FR 65,303/2.

New clinical studies also reported statistically significant associations between short-term ozone exposure and other health effects at levels lower than previously observed. The 2011 Kim study reported a statistically significant increase in airway inflammation following exposure to 60 ppb. PA 3-17 to 3-22, JA___-____; 80 FR 65,334/3 & n.96. EPA placed particular emphasis on the 2009 Schelegle study that reported respiratory symptoms occurring in combination with lung function decrements in some individuals. CASAC considered, and the American Thoracic Society (ATS) guidelines treated, this combination of health effects to be adverse. 80 FR 65,330/1-/2. The Schelegle study showed a statistically significant decrease in group mean lung function capacity and a statistically significant increase in respiratory symptoms in healthy, young adults following 6.6-hour exposures to average ozone concentrations of 72 ppb. *Id.* at 65,330/2-/3. Other studies at levels below 72 ppb did not find this combination of statistically significant effects. *Id.* at 65,357/3 (studies conducted at 60 ppb and 63 ppb).

b. The epidemiologic evidence

EPA also evaluated hundreds of epidemiologic studies, which strengthened the evidence of health effects associated with ozone exposure. *Id.* at 65,364/3-65/1. In contrast to clinical studies, epidemiologic studies provide statistically relevant information about a broader population of individuals who are exposed to uncontrolled air pollutants. EPA gave particular weight to one new epidemiologic study, Mar & Koenig, because it showed statistically significant health effects (asthma

emergency department visits) associated with ozone exposure in Seattle, an area that would have been in compliance with the 2008 primary standard, but which would not have met a standard with a level of 70 ppb. *Id.* at 65,344/1, 65,359/2, 65,364/3 & n.151.

c. EPA's exposure and risk assessments

EPA also conducted a new exposure assessment to estimate how many people would be exposed to ozone concentrations of 80, 70, or 60 ppb while working or playing or otherwise experiencing elevated breathing rates while outdoors. 80 FR 65,312/2. This assessment is informative because only people whose breathing is elevated have been shown to be at risk for adverse health effects from exposures to ozone concentrations that could be expected outdoors. *Id.* at 65,312/3. The exposure assessment estimates how often groups of people will be exposed to specific ozone concentrations when experiencing elevated breathing rates, which EPA termed "exposures of concern." *Id.* at 65,312/3 n.48.

To understand when and where people experience elevated breathing levels outside, EPA analyzed daily activity diaries of real people. Adults, children, asthmatics, seniors, and other subgroups recorded the location of all of their activities and their physical exertion levels minute-by-minute. ISA 4-33, JA____. Altogether, EPA collected 41,474 days of detailed activity data. HREA 5-39, JA___. Next, EPA modeled where and when the populations of fifteen cities across the United States, including Atlanta, Denver, Los Angeles, New York, and Washington, D.C., would

experience elevated breathing levels. 80 FR 65,311/2 & n.40. Then EPA combined the activity model with new air quality modeling that CASAC endorsed as "important" and "scientifically more valid." *Id.* at 65,311/2-/3.

Because EPA identified children as an important at-risk population, EPA specifically modeled exposures of concern for all school-age children in the fifteen cities, ranging in age from 5 to 18 years old, and for asthmatic school-age children. *Id.* at 65,312/3, 65,313 & Table 1. That is, for different potential NAAQS levels, EPA estimated the percent and number of children and asthmatic children in the fifteen cities who could be exposed to specified ozone levels while engaged in enough outdoor physical activity to elevate their breathing rates.

In addition to the exposure assessment, EPA developed risk assessments that provided quantitative estimates of ozone-related health risks. 80 FR 65,314/1-17/1. Among the risk assessments, EPA emphasized its estimates of lung function decrements from short-term ozone exposure, which it calculated using a new model. 80 FR 65,314/3, 65,303/3; HREA 6-9, 6-13, JA____, JA____. EPA applied this new model to the same fifteen-city population group from the exposure assessment, again focusing on children, to estimate the number of children (including asthmatic children) expected to experience lung function decrements of 10% or greater. HREA 6-6, JA____; 80 FR 65,314/3 & Table 2. CASAC agreed with EPA that the new model marked a significant technical advance over the risk assessment modeling in the

last review. *Id.* at 65,303/3 (CASAC found the McDonnell-Stewart-Smith model "to be scientifically and biologically defensible" and "of tremendous importance").

2. CASAC's advice

From 2008 through 2014, CASAC advised EPA about the primary standard. 80 FR 65,321/3. Shortly after EPA issued the 2008 primary NAAQS, with a level of 75 ppb, CASAC "strongly questioned" whether the standard was "requisite." *Id.* In this review, CASAC concluded that "there is clear scientific support for the need to revise the standard" and consistently recommended that the level should be set within a range of 60 to 70 ppb, leaving the other elements of the standard (form, averaging time, and indicator) unchanged. *Id.* at 65,322/2.

CASAC based this recommendation on its review of the scientific evidence. In CASAC's view, the clinical studies showed with "scientific certainty" that exposure to ozone concentrations at or above 80 ppb cause "clinically relevant decrements of lung function." *Id.* at 65,322/1. And CASAC highlighted the Schelegle study's finding that exposure to average ozone concentrations of 72 ppb caused a statistically significant decrease in group mean lung function combined with a statistically significant increase in respiratory symptoms. *Id.* at 65,322/2. CASAC concluded that the healthy, young adult volunteers in that study had experienced "adverse health effects," as defined by the American Thoracic Society guidelines, and that asthmatics and other sensitive subgroups might experience adverse health effects at lower concentrations. *Id.* at 65,322/2-3. Finally, CASAC also noted that exposures to 60 ppb resulted in lung

function decrements "that could be adverse in individuals with lung disease." *Id.* at 65,322/3.

CASAC acknowledged that a choice of level within its recommended range of 60 to 70 ppb involved a "policy judgment," but advised that "based on the scientific evidence, a level of 70 ppb provides little margin of safety for the protection of public health, particularly for sensitive subpopulations." CASAC 2014c Letter at ii, JA___. It then offered policy advice to set the level lower than 70 ppb. *Id.* Further, CASAC endorsed the form of the standard (the three-year average of the fourth-highest daily level) because it "provides programmatic stability by allowing for atypical meteorological conditions that can lead to abnormally high ambient ozone concentrations while providing health protection." *Id.*

3. The Administrator's conclusions

EPA Administrator McCarthy decided that in her judgment, the 2008 primary standard for ozone, with a level of 75 ppb, was not "requisite to protect the public health" while "allowing an adequate margin of safety." 80 FR 65,342-47. Further exercising her judgment, the Administrator concluded that the level of the revised primary standard should be lowered to 70 ppb, while the other three elements of the standard—the indicator, averaging time, and form—should stay the same. *Id.* at 65,347-65.

In reaching these conclusions, the Administrator placed particular weight on the clinical studies. 80 FR 65,343/1, 65,363/1. She recognized that the clinical studies

showed that at and above 80 ppb, people experienced the largest respiratory effects, and the broadest range of effects. *Id.* at 65,363/2. She also stressed the Schelegle study's results showing a combination of lung function decrements and respiratory symptoms in healthy, young volunteers who engaged in quasi-continuous moderate exertion after being exposed to 72 ppb ozone for 6.6 hours. *Id.* at 65,353/1, 65,363/1. Consistent with CASAC's advice and the American Thoracic Society guidelines, the Administrator found that this combination of lung function decrements and respiratory symptoms was an adverse health effect that could be experienced at a level allowed by the 2008 primary standard. *Id.*

The Administrator reasoned that a level of 70 ppb was "well below" 80 ppb level and below the 72 ppb level at which the Schelegle study showed a combination of health effects that were adverse. *Id.* at 65,363/2. A 70 ppb level was also consistent with the Mar & Koenig study, the only statistically significant epidemiologic study that showed an association between adverse effects in a city with air quality that would comply with the 2008 standard, but did not meet a standard with a level of 70 ppb. *Id.* at 65,364/3. A 70 ppb standard would also provide "substantial protection against the broader range of [ozone] exposure concentrations that have been shown in [clinical studies] to result in respiratory effects, including exposure concentrations below 70 ppb." *Id.* at 65,363/2. Moreover, the Administrator concluded that "the large majority of days in areas that meet the revised standard" will have 8-hour ozone concentrations

below 70 ppb, with "most days" having 8-hour concentrations "well below this level." *Id.*

The Administrator also relied on EPA's exposure assessment, which estimated how many people with elevated ventilation rates would likely experience exposures of concern. *Id.* Not every exposure of concern results in an adverse effect, but there are plausible explanations for how repeated exposures of concern could cause adverse effects. *Id.* at 65,363/3. The Administrator therefore emphasized repeated exposures of concern, and she focused on estimates of two or more such exposures. *Id.* She concluded that a revised standard with a level of 70 ppb would "eliminate the occurrence of two or more exposures of concern to [ozone] concentrations at or above 80 ppb and virtually eliminate the occurrence of two or more exposures of concern to [ozone] concentrations at or above 70 ppb for all children and children with asthma, even in the worst-case year and location evaluated." *Id.* So too, the revised standard would protect 96% to 99% of children in the fifteen-city study areas from experiencing two or more exposures of concern at or above 60 ppb—a reduction of more than 60% when compared to the 2008 standard. *Id.* at 65,364/1, 65,313 (Table 1).

The Administrator also carefully considered EPA's risk assessment that estimated lung function decrements. First, a level of 70 ppb resulted in significant reductions in the number of people experiencing decrements of 10% and 15% when compared to the 2008 standard. *Id.* at 65,364/2. The Administrator also noted

"important uncertainties in using lung function risk estimates as a basis for considering the occurrence of adverse effects in the population." *Id.* Neither the American Thoracic Society guidelines nor CASAC conclusively determined that decrements of this magnitude are by themselves an adverse health effect. *Id.* And no level within CASAC's recommended range would completely eliminate these effects. *Id.* The Administrator also noted that variability in the lung function risk estimates for different cities created overlaps between the estimates for different potential levels of the standard. *Id.* All of this led her to place limited weight on the lung function risk estimates in judging between alternative levels. *Id.*

Citing uncertainties in the available evidence, the Administrator concluded that a level below 70 ppb would be more than "requisite." *Id.* at 65,365/1-/2. When compared to a level of 70 ppb, she was notably less certain about the extent to which a lower standard could result in further public health improvements. *Id.*

Finally, the Administrator retained the form of the standard, finding that it protects public health while providing a stable target for improving air quality where needed. *Id.* at 65,352 (citing CASAC's advice).

B. Revision of the secondary standard

EPA also revised the secondary standard. 80 FR 65,369-410. In reaching her decision, the Administrator thoroughly considered the extensive body of scientific evidence available in the last review, as well as more than four hundred new studies.

Id. at 65,369. What follows is an overview of the evidence and the Administrator's conclusions.

1. Evidence of welfare effects associated with ozone exposure

EPA's assessment of public welfare impacts focused on vegetation effects associated with ozone exposure. *Id.* at 65,373/3-74/1. Based on the extensive body of scientific evidence, EPA concluded that a causal relationship exists between ozone exposure and vegetation effects, including reduced vegetation growth, reduced yield of agricultural crops, visible leaf injury, reduced productivity in terrestrial ecosystems, and "alteration of below-ground biogeochemical cycles." 80 FR 65,370/1; ISA 2-36 to 2-37, JA____-____. EPA gave primary consideration to three main types of vegetation effects: (1) tree growth impacts; (2) crop yield loss; and (3) visible leaf injury. 80 FR 65,370/3. EPA's assessment of these effects is discussed below in turn.

The first vegetation effect that EPA considered was tree growth (technically, the "relative biomass loss"). 80 FR 65,371/2 & n.159. EPA assessed how ozone exposure affected important tree species growing in the United States, including impacts to the trees' growth, productivity, and carbon storage capacity. 80 FR 65,371/1. EPA found that newly available evidence supported and strengthened its previous conclusions on tree growth impacts. *Id.* at 65,371/2-72/1, 65,383/3. To assess growth effects, EPA looked to a tree growth analysis, initially for twelve tree species that are native to the United States, focusing on the median of the studied species. *Id.* at 65,371-72, 65,380/2. The tree growth analysis drew from a collection of

52 studies of tree seedlings, where the seedlings were exposed to specific, controlled concentrations of ozone, measured using a cumulative, seasonal ozone exposure index, called the "W126 index." *Id.* This index measures the aggregate amount of ozone that a plant or tree is exposed to over a growing season (such as the daylight hours from April through June). *Id.* at 65,373/2 n.164.

The second vegetation effect that EPA considered was crop yield loss. 80 FR 65,372, 65,375-76. Although EPA found that the newly available evidence strengthened its previous conclusions that ozone exposure reduces crop growth and yields, the Agency also recognized challenges in assessing the public welfare significance of such impacts to commodity crops, where humans heavily manage them to obtain a particular output. *Id.* at 65,372/2, 65,379.

The third vegetation effect that EPA considered was "visible foliar injury," a technical term for leaf injury that certain plants and trees experience from ozone exposure. 80 FR 65,370-71, 65,376. This leaf injury occurs when sensitive plants are exposed to elevated ozone concentrations, particularly in moist soil conditions. *Id.* at 65,370/3. The "visible" aspect of leaf injury is the discoloration and marking of the leaves of the plant or tree. ISA 9-38, JA____. But whether leaf injury indicates that a plant is experiencing effects beyond changes in leaf color depends on many factors, such as the total leaf area affected, the age of the plant, and its size. 80 FR 65,370/3. Although numerous studies suggest that higher ozone exposures result in greater leaf injury in sensitive species, studies on the influence of other factors, like soil moisture,

do not yet provide a reliable means of predicting the extent of leaf injury at specific ozone concentrations. *Id.* EPA similarly faced difficulties relating leaf injury to other vegetation effects. *Id.*

2. CASAC's advice

CASAC's recommendations to EPA on vegetation effects had many components. For instance, CASAC agreed with EPA that tree growth loss was an appropriate way to assess "a wide range of damage that is adverse to public welfare." 80 FR 65,393/3. CASAC also endorsed EPA's tree growth analysis as a basis for estimating tree growth effects caused by ozone exposure. *Id.* at 65,380/2, 65,371-72. But as to one of the twelve tree species, the eastern cottonwood, CASAC cautioned EPA against placing too much emphasis on the data because (1) the cottonwood data came from a single study, (2) the study "did not control for ozone and climatic conditions," and (3) the results "show extreme sensitivity to ozone compared to other studies." *Id.* at 65,372/2 n.160.

Further, CASAC urged EPA to revise the secondary standard by adopting the W126 exposure index as the form and averaging time of the standard, and advised EPA that tree growth loss of 6% in the median tree species was "unacceptably high." 80 FR 65,393, 65,392/2. CASAC also recommended that EPA identify a range of alternative standard levels "that include levels that aim for not greater than 2% [tree growth loss] for the median tree species." *Id.* at 65,382/1.

Based on its review of EPA's second draft of the Policy Assessment, CASAC advised the Agency to consider a range of standards corresponding to ozone exposures between 7 and 15 parts-per-million hours (ppm-hrs). *Id.* at 65,393-94 & n.197, n.199. In the second draft Policy Assessment, those exposures corresponded to tree growth loss estimates of less than 2% to 5.2%. *Id.* Yet the tree growth loss estimates in the second draft Policy Assessment included the eastern cottonwood data—data that, as part of its advice, CASAC warned EPA to handle with caution. *Id.*; *id.* at 65,372/2 n.160. When EPA removed the cottonwood data, the tree growth loss estimates and associated ozone exposures changed. *Id.* at 65,396/2. For example, the estimated tree growth loss for an exposure of 17 ppm-hrs became 5.3%, instead of the "unacceptably high" 6% estimate that CASAC had advised EPA to avoid. *Id.*

CASAC also recommended that the secondary standard have an annual W126 form, but recognized that policy reasons may exist for adopting a three-year average, and recommended that if the Administrator chose a three-year average W126 form, then she should select a somewhat lower level. *Id.* at 65,396/3.

3. The Administrator's conclusions

The Administrator revised the secondary standard in three steps. In the first step, she judged that the 2008 secondary standard, with a level of 75 ppb, was inadequate to protect the public welfare from known and anticipated adverse effects. 80 FR 65,389-90.

In the second step, mindful of the Court's remand of the secondary standard in *Mississippi*, the Administrator identified the degree of public welfare protection that was appropriate. *Id.* at 65,403-07. In so doing, she focused on tree growth loss as a surrogate for the broader array of effects associated with ozone exposure that could have public welfare significance, including crop yield loss and leaf injury. *Id.* at 65,369/1, 65,406/1. Taking into consideration CASAC's clear statement that 6% tree growth loss was "unacceptably high," the Administrator decided to adopt a revised standard that would generally limit ozone exposures to those associated with tree growth loss somewhat less than 6%. *Id.* at 65,407/1.

In the third step, the Administrator exercised her judgment to decide what revised secondary standard would provide air quality that would achieve the degree of public welfare protection that she identified. 80 FR 65,407-10. To assess the relationship between ozone exposures and the air quality afforded by a revised secondary standard, she relied on an extensive air quality analysis that EPA conducted in two technical memoranda, the 2014 and 2015 Wells Memos. *Id.* at 65,408/3-09/1. She also considered CASAC's recommendation to revise the form of the standard to an exposure index. *Id.* at 65,408/2. But she concluded, based on the Wells Memos' extensive air quality analysis, that a revised form was unnecessary to provide the appropriate degree of public welfare protection. *Id.*

Finally, the Administrator considered what level for the revised secondary standard would ensure air quality that provided the appropriate degree of public

welfare protection. *Id.* at 65,408-10. The tree growth analysis showed that ozone exposures of 17 and 18 ppm-hrs are associated with tree growth loss below 6%. *Id.* at 65,407/1. And the Wells Memos showed that a revised standard with a level of 70 ppb would limit exposures to at or below 17 ppm-hrs in nearly all instances. *Id.* at 65,409/1. Accordingly, the Administrator judged that a revised secondary standard with a level of 70 ppb would be requisite to protect public welfare. *Id.*

C. EPA's consideration of background ozone

State and Industry Petitioners challenge EPA's treatment of background ozone in the context of the Agency's decision to lower the level of the NAAQS. This section explains how EPA defined, estimated, and considered background ozone in revising the NAAQS.

The type of background ozone most pertinent to this case is what EPA terms "U.S. background ozone." U.S. background ozone is all ozone that does not result from U.S. manmade emissions. 80 FR 65,327/3 n.84. For example, ozone formed by natural events, such as wildfires, and ozone formed by manmade emissions in other countries, are components of U.S. background ozone. EPA does not consider ozone formed by manmade emissions in any state to be background, even when that ozone crosses state lines, because the CAA regulates emissions of air pollutants in all states, including interstate transport of pollutants. *Id.* at 65,436. Industry and State Petitioners are sometimes imprecise in discussing background ozone, but Industry Petitioners' argument focuses on U.S. background ozone, while State Petitioners seem

to consider ozone that does not come from manmade emissions in a given state to be background ozone. Industry Br. 23; State Br. 7. In this brief, the term background ozone refers to U.S. background ozone.

Measuring background ozone's actual contribution to ozone levels across the country is a complex scientific challenge. Background ozone cannot be measured directly by monitoring air quality because it is chemically indistinguishable from other ozone and because ozone pollution can travel great distances. ISA 2-5, JA____; PA 2-13 to 2-14, JA____-____; Response to Comments (RTC) 352, JA____. The air quality in rural Nevada, for example, is influenced by manmade ozone pollution from southern California. RTC 349, JA____. To accurately estimate background ozone levels, EPA utilized two state-of-the-art scientific models, both of which perform at least as well as other models published in the scientific literature. PA 2A-7 to 2A-9, 12-13, JA____-____, JA____-____. EPA also considered other background ozone studies, including studies that State and Industry Petitioners discuss in their briefs. RTC 343-50, JA____-____.

EPA concluded that domestic, manmade emissions, not background ozone, drive nonattainment. 80 FR 65,328. EPA modeled both seasonal mean[2] and daily background ozone levels throughout the country. *Id.* EPA found that seasonal mean background ozone levels range between 25 ppb (in the Eastern United States) and 50

[2] Seasonal means are calculated by averaging daily levels from April to October, when ozone levels are generally highest.

ppb (in the Intermountain West[3]). *Id.* More pertinently, even as total daily ozone levels rise, daily background ozone typically stays around the seasonal mean. *Id.* Thus, on those days when total ozone levels do exceed 70 ppb, U.S. manmade emissions largely tip the scales, accounting for more than 65% of ozone concentrations on average. *Id.*

EPA models predicted that on rare instances in a few locations, daily background ozone levels will exceed 70 ppb, but never so frequently as to violate the NAAQS. *Id.* Modeling daily ozone levels at over a thousand locations spanning the country during an ozone season, one model predicted only 2 modeled location-days, and the other model predicted 22 modeled location-days, on which daily background ozone levels exceeded 70 ppb, out of a total of 276,916 modeled location-days. PA 2A-25, Figures 5c & 5d, JA____-___. PA 2-17, JA____ (April to October modeling period spans 214 days); PA 2A-14 to PA 2A-15, JA____-____ (models cover 1,294 locations).

Because the form of the NAAQS is based on the fourth-highest daily level, averaged across three years, the standards allow daily ozone levels to occasionally exceed 70 ppb without violating the NAAQS. Given that form, EPA models predict that background ozone levels will never exceed 70 ppb so frequently that they would prevent attainment. 80 FR 65,328/1.

[3] The Intermountain West region includes Colorado, Nevada, Utah, Wyoming, northern Arizona, eastern California, and parts of New Mexico. PA 2A-15, JA____.

The high background ozone outliers predicted by the EPA models are typically associated with wildfires or stratospheric ozone intrusions. 80 FR 65,436/2; PA 2-21, JA____. A stratospheric ozone intrusion is an influx of stratospheric ozone down to ground level. ISA 3-32 to 3-33, 3-43, JA____-____, JA____. These intrusions generally occur at high altitudes in the Intermountain West, following cold fronts in the late winter and early spring. 80 FR 65,436/2; PA 2-10, 2-17, JA____, JA____. Correspondingly, the EPA models estimate that the highest daily background ozone levels occur in the spring, even though the highest total ozone levels occur in the summer. PA 2-31, JA____.

EPA scientists determined that their models returned results consistent with other published models, including those cited in State and Industry Petitioners' briefs. Industry Br. 24; State Br. 9. For example, both the Zhang and Emery models showed that background ozone levels tend to stay near the seasonal mean even when total ozone levels rise above 55 to 60 ppb. RTC 345, JA____. Other studies corroborated EPA's findings that while background ozone levels may infrequently approach or exceed 70 ppb on a given day, "locations that are most strongly influenced by background [ozone] are relatively limited in scope, i.e., rural areas in the [Intermountain West]." *Id.* at 347, JA____. EPA concluded that some studies, specifically those that claimed to directly measure background ozone levels, were flawed because background ozone levels cannot be measured so easily. *Id.* at 348-49, JA____-____ (addressing the Langford study cited in Industry Br. 24).

After considering the models, the scientific literature, CASAC's advice, and public comments, EPA concluded that while background ozone may cause exceedances of 70 ppb on few days in certain areas, background ozone would not preclude attainment in any area. 80 FR 65,328/1.

EPA further noted that the CAA did not require it to set a NAAQS above a level that would provide appropriate protection for public health and welfare for the entire Nation solely because a few rural areas in the Intermountain West may infrequently experience background levels above 70 ppb. RTC 342, JA____. EPA emphasized that in 1981, this Court rejected the City of Houston's argument that the NAAQS had to be set above natural concentrations of ozone in its area. *Id.* (citing *API*, 665 F.2d at 1184-86). This Court held in *API* that "attainability" was "not [a] relevant consideration in the promulgation of the NAAQS," and observed that Congress had anticipated and addressed difficulties in meeting the NAAQS through various mechanisms in the Act. *API*, 665 F.2d at 1185; RTC 342, JA____; 80 FR 65,328/1, 65,296/2.

EPA specifically discussed three provisions in the Act that allow states and areas flexibility to accommodate background ozone. *Id.* at 65,436/3. The Exceptional Events, International Transport, and Rural Transport provisions address attainment concerns posed by background ozone, including "natural events" such as stratospheric intrusions and wildfires, and international emissions. *Id.*

In light of the limited number of incidents in which background ozone may exceed 70 ppb, governing case law, and the statutory mechanisms for addressing background ozone, EPA decided that background ozone did not prevent it from setting the NAAQS at the health- and welfare- protective level of 70 ppb. *Id.* at 65,328.

D. Ozone monitoring seasons

As part of the NAAQS program, EPA requires all states to operate air quality monitors that record ozone levels during an annual ozone monitoring season. EPA sets the length of the monitoring season to cover the months when there is a reasonable possibility that ozone levels may exceed the NAAQS. 80 FR 65,416/2. In this NAAQS rule, EPA lengthened the ozone monitoring seasons in 32 states and the District of Columbia using past occurrences of concentrations of 60 ppb, a level 15% lower than that of the NAAQS, as a primary guideline for determining the appropriate months of the monitoring season. *Id.* EPA determined that 60 ppb was the appropriate threshold on which to base monitoring requirements because "seasonal [ozone] patterns vary year-to-year due primarily to highly variable meteorological conditions," and "it is important that [ozone] monitors operate during all periods when there is a reasonable possibility of ambient levels approaching the level of the NAAQS." *Id.* at 65,416/2-/3.

E. The PSD program grandfathering provision

In the final NAAQS rule, EPA also revised the regulations for the Prevention of Significant Deterioration (PSD) permitting program. 80 FR 65,431-34. EPA added provisions grandfathering pending permit applications that met one of two permitting milestones from the requirement to demonstrate that the proposed project's emissions would not cause or contribute to a violation of the new ozone NAAQS. *Id.* Instead, those permit applications could make that demonstration for the ozone NAAQS in effect when the application met the permitting milestone. *Id.*

V. The challenges to the rule

Twenty-two parties filed five petitions for review challenging the 2015 ozone NAAQS rule. In this brief, we refer to the petitioners in three groups: State Petitioners, Industry Petitioners, and Environmental Petitioners.

SUMMARY OF ARGUMENT

As in *Mississippi*, EPA once again "finds itself in a situation reminiscent of *Goldilocks and the Three Bears*." 744 F.3d at 1348. On the one hand, State and Industry Petitioners argue that EPA went too far by concluding that the 2008 standards were inadequate. And they seek to derail the health and welfare goals of the NAAQS by arguing that EPA should have set the standards above every background ozone level anywhere in the Nation, however rare and isolated. On the other hand, Environmental Petitioners argue that the Administrator did not go far enough to protect the public's health and welfare when she revised the standards by lowering the level from 75 to 70 ppb (making them more stringent). And, as in *Mississippi*, neither side is right.

Argument Point I. The Administrator rationally concluded that the 2008 primary standard was insufficient to protect public health with an adequate margin of safety. Industry and State Petitioners challenge this conclusion, but they rely on a flawed legal standard and an incomplete account of the record evidence. The Administrator also rationally revised the primary standard. Environmental Petitioners challenge her decision to retain the form of the standard, but their argument assumes that the NAAQS should protect air quality in the abstract, without considering whether real people will actually be exposed to harmful ozone levels. Although Environmental Petitioners argue that the Administrator should have selected a revised level even lower than 70 ppb, likely 60 ppb, the Administrator properly considered

CASAC's advice and the scientific evidence in concluding that a level of 70 ppb is neither more nor less stringent than necessary.

Argument Point II. The Administrator rationally exercised her judgment to conclude that the 2008 secondary standard was insufficient to protect the public welfare from known or anticipated adverse effects. Industry Petitioners challenge this conclusion, but they repeat the same legal and factual errors that infect their challenge to the revised primary standard. The Administrator also rationally identified the appropriate degree of public welfare protection that the secondary standard should provide. Although Environmental Petitioners seek to employ CASAC's advice to attack her conclusion, the Administrator fully considered CASAC's science- and policy-based recommendations. Further, the Administrator rationally revised the secondary standard. Environmental Petitioners challenge her decision to retain the form of the standard, but she reasonably concluded that the form, when combined with a lower level, would provide requisite public welfare protection. Although Environmental Petitioners challenge the Administrator's decision to lower the level of the revised secondary standard to 70 ppb, they do not dispute the extensive air quality analysis in the Wells Memos that supported her conclusion.

Argument Point III. EPA need not reduce national protection for public health and welfare to accommodate State and Industry Petitioners' overstated implementation concerns. Background ozone will not prevent states from attaining the NAAQS and does not justify subjecting millions of Americans to unhealthy levels of ozone. Though stratospheric intrusions and wildfires may cause background ozone levels to spike infrequently in a few locations, EPA reasonably decided to address those events through the form of the NAAQS, which allows three exceedances a year without causing any violations, and through implementation provisions that directly govern background pollution, instead of making the standards less stringent nationwide. The Agency's task in setting the NAAQS is to provide "requisite" protection, not to minimize implementation burdens or costs, and while that task is challenging, there is no doubt that it is also constitutional.

Argument Point IV. Environmental Petitioners' *Chevron* step one challenge to EPA's new grandfathering regulation in the PSD program fails because the CAA contains an ambiguity, and EPA permissibly interpreted the Act to allow it to establish a narrow grandfathering regulation for a limited set of PSD permit applications.

STANDARD OF REVIEW

The Court may reverse EPA's action only if it is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 42 U.S.C. § 7607(d)(9)(A). This standard "is narrow and a court is not to substitute its judgment for that of the agency." *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983). An agency acts arbitrarily if it "entirely failed to consider an important aspect of the problem" or "offered an explanation for its decision that runs counter to the evidence before the agency." *Am. Petroleum Inst. v. EPA*, 684 F.3d 1342, 1350 (D.C. Cir. 2012) (citations and quotations omitted). Where EPA has considered the relevant factors and articulated a rational connection between the facts found and the choices made, its decisions should be upheld. *State Farm*, 463 U.S. at 43. When EPA interprets scientific evidence within its expertise, the Court gives the Agency extreme deference. *Ctr. for Biological Diversity v. EPA*, 749 F.3d 1079, 1087-88 (D.C. Cir. 2014) (sampling circuit law).

In reviewing EPA's interpretation of the CAA, the Court must apply the statute's plain language where it reflects "the unambiguously expressed intent of Congress." *Chevron, U.S.A., Inc. v. NRDC, Inc.*, 467 U.S. 837, 842-43 (1984). But where the Act is "silent or ambiguous with respect to the specific issue," the Court defers to EPA's interpretation if it is "based on a permissible construction" of the Act. *Id.* at 843.

ARGUMENT

I. EPA set a revised primary standard for ozone that is neither more nor less health-protective than necessary.

In revising the primary standard for ozone, the Administrator reasonably exercised her judgment based on substantial scientific evidence in the record. As in *Mississippi*, the Court should uphold her decision.

In Argument Point I.A., we explain how the Administrator rationally exercised her judgment to conclude that the 2008 primary standard was insufficient to protect public health with an adequate margin of safety. Industry and State Petitioners' challenge to that conclusion rests on incorrect legal principles and an incomplete picture of the evidence that the Administrator considered. In Argument Point I.B., we explain how the Administrator rationally exercised her judgment to set a revised primary standard that is neither more nor less stringent than is necessary to protect public health with an adequate margin of safety. Environmental Petitioners challenge that decision by inviting the Court to make independent scientific conclusions and policy judgments. This Court should once again decline that invitation.

A. The Administrator made a rational judgment that the 2008 primary standard failed to protect public health with an adequate margin of safety.

The Administrator concluded that the 2008 primary standard, with a level of 75 ppb, was insufficient to protect public health with an adequate margin of safety. 80 FR 65,342-47. She did so in reliance on a broad array of scientific evidence showing

adverse health effects from ozone, most particularly, clinical and epidemiologic evidence showing that large numbers of people experience or can experience adverse effects when exposed to air quality allowed by the 2008 standard. And she relied on EPA staff's recommendations in the Policy Assessment, and CASAC's repeated advice that the 2008 standard was not health-protective.

Because State and Industry Petitioners focus their briefs on the issue of background ozone, they devote comparatively few words to challenging the Administrator's conclusion that the 2008 standard should be revised. Industry Br. 36-41; State Br. 50-53. Their skeletal arguments should be rejected because (1) they rely on an incorrect legal standard for reviewing the Administrator's decision, and (2) they paint an incomplete and inaccurate picture of the record evidence and the Administrator's reasoning.

1. The Administrator properly fulfilled her statutory role to judge whether the 2008 standard was requisite.

The starting point for judicial review of EPA's NAAQS is the CAA itself, which "gives EPA significant discretion to decide whether to revise NAAQS." *Nat'l Envtl. Dev. Ass'n's Clean Air Project v. EPA*, 686 F.3d 803, 813 (D.C. Cir. 2012); *see* 42 U.S.C. § 7409(d)(1) (directing the Administrator to review and revise the NAAQS "as may be appropriate"). In reviewing EPA's NAAQS decisions, the Court does not "determine the convincing force of evidence, nor the conclusion it should support, but only whether the conclusion reached by EPA is supported by substantial evidence

when considered on the record as a whole." *Mississippi*, 744 F.3d at 1349 (quotations and citation omitted). The Court's role is "merely to determin[e] if [EPA] made a rational judgment, not to weigh the evidence anew and make technical judgments." *Id.* (quotations and citation omitted).

Ignoring these fundamental principles, Industry Petitioners urge the Court to review the 2015 NAAQS by comparing it to the 2008 NAAQS. Industry Br. 36-41. They argue that the newly available evidence in this review does not "alter in any fundamental way the information on which EPA relied in 2008." *Id.* at 37. And they contend that, absent a "fundamental change" in the science, the "main change" between 2008 and 2015 is EPA's conclusions from the evidence—conclusions that EPA purportedly failed to explain. *Id.* at 40.

This is all wrong. Industry Petitioners' fundamental change standard is untethered from the text of Section 7409(d). And this Court has repeatedly rebuffed similar arguments. *See Mississippi*, 744 F.3d at 1343 ("[T]hat does not mean the initial assessment is sacrosanct . . . until every aspect of it is undermined."); *Nat'l Ass'n of Mfrs. v. EPA*, 750 F.3d 921, 925 (D.C. Cir. 2014) ("[W]e do not assign presumptive validity to the prior NAAQS; the question is whether EPA reasonably explains the current standards.") (citation and quotations omitted). Indeed, the fundamental change standard advanced by Industry Petitioners is just another flavor of the mistaken argument that the Court rejected in *Mississippi*.

There, Mississippi argued that the "2008 science added nothing new to the 1997 NAAQS conversation" and that EPA "misrepresented the science on which it relied." 744 F.3d at 1344. The Court rejected these arguments because they depended on the "conceptual error" that EPA is "somehow bound by the 1997 NAAQS" and on the "legal error" that it is the Court's "job to weigh the evidence anew." *Id.* (citation and quotations omitted). To the contrary, when EPA reviews a NAAQS, "it (presumably) does so against contemporary policy judgments and the existing corpus of scientific knowledge." *Id.* at 1343. Thus, when the Court reviews the Administrator's decision, the "statutory framework requires" it to ask "only whether EPA's proposed NAAQS is 'requisite,'" and the Court "need not ask why the prior NAAQS once was 'requisite' but is no longer up to the task." *Id.* The Court will defer to EPA's decision "as long as [the Agency] reasonably explains its actions." *Id.*

Here, the Administrator reasonably explained why the 2008 standard was inadequate. 80 FR 65,317-42 (EPA's proposed decision that the primary standard should be revised); *id.* at 65,342-47 (Administrator's conclusions on the need for revision); *id.* at 65,294/1 (describing EPA's "integrative assessment of an extensive body of new scientific evidence, which substantially strengthens what was known about [ozone]-related health effects in the last review"); *see Mississippi*, 744 F.3d at 1343 (concluding that "EPA reasonably explained how the scientific evidence had in fact changed since the 1997 review").

2. The Administrator relied on substantial evidence and CASAC's advice to conclude that the 2008 standard was inadequate.

Industry and State Petitioners briefly argue that the scientific evidence does not support the Administrator's decision to revise the primary standard, Industry Br. 37-41, State Br. 50-53, but their account of the evidence is incomplete.

Here, as in *Mississippi*, the Administrator "considered the entire body of scientific evidence available," 744 F.3d at 1349, through an integrated synthesis, or "weight of evidence" approach, *id.* at 1344. 80 FR 65,329/2 (discussing the "weight of evidence" approach); *id.* at 65,342/3. While Industry Petitioners focus their criticism on a "handful" of new clinical studies, Industry Br. 37, they ignore the larger body of evidence. Ultimately, the Administrator identified four categories of information most relevant to her consideration of the 2008 standard: (1) clinical studies; (2) epidemiologic studies; (3) human exposure and health risk assessments; and (4) CASAC's advice. *Id.* at 65,342-47. This information fully supports her conclusion that the 2008 standard allows ozone levels that are harmful to millions of people, including children and asthmatics.

a. The Administrator relied on clinical studies showing health effects below 75 ppb.

The Administrator followed CASAC's advice by placing the most weight on the clinical studies (the controlled human exposure studies). *Id.* at 65,343/1. In the last review, EPA concluded that two clinical studies, the Adams studies, provided

evidence of adverse health effects at and below a level of 80 ppb but that the studies' results at 60 ppb were inconclusive. *Mississippi*, 744 F.3d at 1350. This Court held that EPA's interpretation of the studies was rational. *Id.* at 1349-50. At the same time, the Court noted that "[p]erhaps more studies like the Adams studies will yet reveal that the [60 ppb] level produces significant adverse decrements that simply cannot be attributed to normal variation in lung function." *Id.* at 1350.

In this review, EPA considered two new clinical studies, Schelegle and Kim, that filled some of the evidentiary gap between 80 ppb and 60 ppb. 80 FR 65,343/2 (new studies show a "variety of respiratory effects in healthy adults following exposures to [ozone] concentrations of 60, 63, 72, or 80 ppb, and higher."). The Schelegle study showed statistically significant decreases in lung function and statistically significant increases in respiratory symptoms in healthy, young adults under clinical conditions, exposed to an average of 72 ppb ozone—less than the 2008 standard allowed. *Id.* at 65,303, 65,352-53. This is especially probative because both the American Thoracic Society guidelines and CASAC concurred that the combination of lung function decrements and respiratory symptoms is an adverse health effect. *Id.* at 65,322/2-/3. The Kim study showed statistically significant decreases in lung function and statistically significant increases in airway inflammation effects at exposures as low as 60 ppb. *Id.* at 65,343/2; PA 3-58 (Table 3-1), JA____. Although the Administrator was less confident that those respiratory effects were adverse, she found that the 2008 standard did not provide an adequate margin of

safety to protect against repeated occurrences of potentially adverse effects associated with ozone levels of 60 ppb. 80 FR 65,344/3, 65,346/1.

Industry Petitioners seek to minimize the importance of the new clinical studies. Industry Br. 37-39. They claim that the studies merely confirm that a range of respiratory effects occur at ozone levels between 80 and 60 ppb. Again, this argument hinges on their erroneous "fundamental change" standard.

Moreover, the record refutes their position. The new clinical studies provided statistically sound scientific evidence of respiratory effects *below* 75 ppb—information that EPA staff and CASAC agreed was significant in evaluating whether the 2008 standard was requisite. 80 FR 65,317-18 (EPA staff views); *id.* at 65,321-22 (CASAC advice). This new evidence gave the Administrator enough certainty to conclude that the 2008 standard was inadequate. *Id.* at 65,323-24. Indeed, in the 2008 review, it was the *un*certainty that EPA found in the Adams studies regarding the size and severity of the respiratory effects within the 80 to 60 ppb range that led the Administrator to revise the standard downward only to a level of 75 ppb, despite CASAC's recommendation to select an even lower standard within a range of 60 to 70 ppb. *Mississippi*, 744 F.3d at 1345, 1349-52.

Reaching even further than Industry Petitioners, State Petitioners argue that the Schelegle study does not support the Administrator's decision. State Br. 50-53. This argument fails for multiple reasons.

First, State Petitioners are focusing on a single study in the dense forest of evidence supporting the Administrator's decision. Among the evidence they ignore are clinical studies showing effects at 60 ppb and the epidemiologic evidence in its entirety. True, the Administrator singled out the Schelegle study as a particularly helpful new clinical study in this review. But in explaining her decision, she gave substantial weight to the clinical studies as a group. 80 FR 65,343/1. This approach echoes EPA's approach in the 2011 carbon monoxide NAAQS. *See Cmtys. for a Better Env't v. EPA*, 748 F.3d 333, 337 (D.C. Cir. 2014). In dismissing a challenge to that rule, the Court held that EPA had reasonably explained why it relied heavily on the findings from one particular clinical study, the "Allred study," where subsequent studies had "reinforced" those findings. *Id.* So here. The Administrator reasonably explained the significant weight she placed on the Schelegle study and on the other clinical studies. 80 FR 65,343/1-/2.

Second, State Petitioners appear to argue that EPA could not interpret the results of the Schelegle study to satisfy the American Thoracic Society (ATS) guidelines' definition of adversity. State Br. 51-52. Of course, EPA is "not bound" to the ATS guidelines. *Nat'l Envtl. Dev. Ass'n's*, 686 F.3d at 810. The guidelines "merely provide[] one reference point to help EPA and the public understand what should be considered an adverse effect" of ozone on human health. *Id.* Against that legal backdrop, State Petitioners' argument raises two distinct questions: (1) did EPA

rationally consider the guidelines in determining what health effects are adverse; and (2) did EPA rationally apply the guidelines to interpret the Schelegle study?

Yes and yes. EPA reasonably interpreted the ATS guidelines as useful information in judging what respiratory effects should be viewed as adverse. The ATS guidelines state that in distinguishing between adverse and non-adverse reversible respiratory effects, "reversible loss of lung function in combination with the presence of symptoms should be considered as adverse." 80 FR 65,309/2 n.33 (quoting ATS guidelines). Here, EPA rationally found that ATS's recommendation "is not restricted to effects of a particular magnitude nor a requirement that individual responses be correlated." *Id.* at 65,330/3.

EPA also rationally applied the guidelines to interpret the Schelegle study. *Id.* at 65,330-31. And CASAC agreed, stating that "the combination of [lung function decrements] together with the statistically significant alterations in symptoms in human subjects exposed to 72 ppb ozone meets the American Thoracic Society's definition of an adverse health effect." CASAC 2014c Letter at 5, JA____.

Third, When State Petitioners criticize allegedly "uncorrelated individual results" in the Schelegle study, State Br. 52, they apparently are relying on a public commenter's submission of an independent analysis of the individual-level data in the study. RTC 11-13, JA___-___. That analysis showed that the *magnitude* of the lung function decrements and respiratory symptoms—that is, the severity of the health effects—is not statistically correlated at 72 ppb. 80 FR 65,300/3. EPA considered this

point, but reasonably concluded that it did not alter its interpretation of the Schelegle study as showing adverse effects at 72 ppb. *Id.*; RTC 12, JA___.

Finally, State Petitioners' magnitude point is distinct from the question of whether a particular individual in the Schelegle study experienced both a lung function decrement and a respiratory symptom. On that point, the same analysis relied on by State Petitioners shows that two-thirds of the study participants experienced both lung function decrements and increased respiratory symptoms after 6.6-hour exposures to 72 ppb ozone. *Id.* at 65,300/3, 65/331 & n.90. Thus, consistent with EPA's interpretation of the ATS guidelines and CASAC's advice, EPA concluded that the majority of individuals in the Schelegle study, but not all, experienced an adverse health effect at 72 ppb average exposure—a combination of lung function decrements and respiratory symptoms. *Id.* at 65,331/2; RTC 12-13, 24-25, JA___-____, JA____-____.

b. The Administrator considered the epidemiologic evidence.

The Administrator also considered the epidemiologic evidence. 80 FR 65,343/3-44/3. While placing less weight on this evidence than on the clinical studies, she found that recent epidemiologic studies offered some evidence of adverse health effects in locations that met the 2008 standard. *Id.* at 65,344. The Administrator particularly emphasized the Mar & Koenig study, which reported a statistically significant association between ozone exposure and emergency room visits for

children and adults in Seattle, a city with air quality that would have met the 2008 standard of 75 ppb over the entire study period. *Id.* at 65,344/1, 65,335/3; RTC 59, JA____. Other multi-city studies showing associations between air quality potentially meeting the 2008 standard and morbidity and mortality further reinforced her decision. 80 FR 65,344/3.

Industry Petitioners stress the uncertainties in the epidemiologic evidence. Industry Br. 39. To be sure, those uncertainties led the Administrator that evidence less weight. 80 FR 65,343/3-44/2. Still, the epidemiologic evidence was strong enough for CASAC to conclude that it justified revision of the 2008 standard, even without considering the clinical studies. CASAC 2014c Letter at 5, JA____.

c. The Administrator considered EPA's exposure and risk assessments.

The Administrator also considered EPA's exposure and risk assessments. 80 FR 65,344-46. Following CASAC's advice, she focused on exposure and risk estimates for children. *Id.* at 65,344/3-45/1. Based on the exposure assessment, she found that the 2008 standard resulted in hundreds of thousands of children in fifteen cities across the country, including asthmatic children, experiencing multiple exposures of concern to ozone levels that she found had potential public health significance (60, 70, and 80 ppb). *Id.* at 65,345. And based on the risk assessment, she found that the 2008 standard resulted in hundreds of thousands of children, including asthmatic children, experiencing two or more instances of lung function decrements of 10% or greater

caused by ozone exposure. *Id.* at 65,346. This evidence, which Industry and State Petitioners ignore, further supported the Administrator's conclusion that the 2008 standard was inadequate.

d. The Administrator also followed CASAC's advice.

Finally, the Administrator noted CASAC's repeated and unequivocal recommendation, in this review and the 2008 review, to revise the level lower than 75 ppb. 80 FR 65,346/2. In this review, CASAC once again found that the 2008 standard "is not protective of human health." CASAC 2014c Letter at 5, JA____. CASAC therefore "unanimously recommend[ed] that the Administrator revise the current primary ozone standard to protect public health." *Id.*

The Administrator gave substantial weight to CASAC's advice. 80 FR 65,329/1. The Act allows her to do so. *See* 42 U.S.C. §§ 7607(d)(3), (6). This Court voiced that exact sentiment when EPA last revised the primary ozone NAAQS: "[S]urely [EPA] may rely on an explicit recommendation by the unanimous CASAC panel." *Mississippi*, 744 F.3d at 1345.

3. The Administrator made a rational judgment to revise the 2008 standard.

To sum up, the Administrator concluded from the available evidence—clinical studies, epidemiologic studies, and exposure and risk assessments—that people exposed to air quality that would meet the 2008 standard can experience adverse health effects caused by ozone. *See Nat'l Envtl. Dev. Ass'n's*, 686 F.3d at 811 ("It could

not then exceed EPA's authority to choose a level below that which produced adverse effects in clinical studies in order to set a standard that allows an adequate margin of safety."); *ATA III*, 283 F.3d at 370 (EPA appropriately chose to revise the NAAQS for particulate matter when health effect associations were apparent in epidemiologic studies at levels permitted by the current NAAQS).

In *Mississippi*, the Court predicted that "additional certainty about what was merely a thesis" at the time—that ozone is harmful at levels below 75 ppb—"might very well support a determination that the line marked by the term 'requisite' has shifted." 744 F.3d at 1344. That prediction has come true. The newly available evidence and CASAC's advice gave the Administrator certainty that the 2008 standard fails to adequately protect public health. Given the available scientific evidence and CASAC's advice to revise, Industry and State Petitioners "cannot seriously expect" the Court to "second-guess" her conclusion about "the inadequacy of the old [2008] standard." *ATA III*, 283 F.3d at 378-79; *see Mississippi*, 744 F.3d at 1342-45 (affirming EPA's conclusion that the 1997 ozone NAAQS standard was inadequate).

B. The Administrator set a revised primary standard that is requisite to protect public health with an adequate margin of safety.

After concluding that the 2008 primary standard was inadequate, the Administrator had to set a revised standard that, in her judgment, was sufficient, but not more than necessary, to protect public health with an adequate margin of safety. Based on the scientific evidence, CASAC's advice, and public comments, she set a

revised standard that lowered the level from 75 to 70 ppb, while retaining the other three elements of the standard.

Environmental Petitioners challenge this decision. They advance two principal arguments why the revised primary standard is not sufficiently health-protective. Environmental Br. 19-40. *First*, they argue that the form of the revised standard is not sufficiently health-protective because it allows ozone levels that on some days will exceed the 70 ppb level that the Administrator judged was requisite. *Id.* at 19-30. *Second*, they argue that ozone exposures of 70 ppb always cause adverse health effects, at least in sensitive populations like asthmatics, and they seem to believe that the evidence should have compelled the Administrator to pick a level of 60 ppb. *Id.* at 30-40.

At both turns, Environmental Petitioners are wrong. As we explain below, the Administrator's decision to retain the form of the standard was informed by her sound scientific judgment about how many people are likely to be exposed to unhealthy levels of ozone. And her decision to lower the level from 75 to 70 ppb is properly grounded in CASAC's advice and her sound judgment about what health effects are adverse.

In contrast to Environmental Petitioners' brief, Industry and State Petitioners barely mention the revised primary standard. Industry Petitioners' argument appears to boil down to a single-sentence footnote claiming that the Administrator could not rationally choose between levels of 70, 71, and 72 ppb. Industry Br. 39 n.19. That

argument is waived. *United States v. Whren*, 111 F.3d 956, 958 (D.C. Cir. 1997) (observing that a footnote is ordinarily inadequate to preserve an argument). If it is not waived, then it is easily dispatched by this Court's cases holding that the Administrator properly may choose a standard that is "just below" the range where EPA found a statistically significant association between an air pollutant and adverse health effects. *See ATA III*, 283 F.3d at 372; *Farm Bureau*, 559 F.3d at 526-27. And if State Petitioners' brief can be read to challenge the revised standard at all, their argument is just that EPA misinterpreted the Schelegle study, which is incorrect. *See* Argument Point I.A.2.a.

1. The Administrator rationally chose to retain the form of the revised standard.

Environmental Petitioners' leading argument is that the Administrator's decision to retain the same form used in the 1997 and 2008 primary standards makes the revised primary standard under-protective of public health. Environmental Br. 19-30. They contend that because the form is calculated as the three-year average of the fourth-highest daily level, the revised primary standard will allow multiple days each year with ozone levels above 70 ppb. *Id.* at 20. They also criticize the Administrator's decision to rely on EPA's exposure assessment in deciding to retain the form of the revised standard. *Id.* at 25-30. These arguments stem from a misunderstanding of the science and the law.

a. The Administrator properly considered how many people will likely experience unhealthy ozone exposures.

To decide what standard is requisite, the Administrator had to understand how many people would actually be exposed to ozone levels with potential public health implications—here, 80, 70, and 60 ppb, when combined with elevated breathing rates. As the Administrator explained, "the degree of protection" the ozone NAAQS provides depends in part "on the extent to which people experience health-relevant [ozone] exposures in locations meeting the NAAQS." 80 FR 65,363/2. This leads to two key points, one scientific and one legal.

The key scientific point is that adverse responses to ozone exposure are critically dependent on ventilation (breathing) rates. *Id.* The Administrator thus stressed that "it is important to consider activity patterns in the exposed population." *Id.* The key legal point is that Section 7409(b)(1) mandates a standard that is "requisite" to protect public health. In the Administrator's words, "[n]ot considering activity patterns, and corresponding ventilation rates, can result in a standard that provides more protection than is requisite." 80 FR 65,363/2.

Environmental Petitioners deny both points. Environmental Br. 19-26. They insist that the Administrator must set the primary standard so low that the outside air is always and everywhere free from ozone levels that could cause a health effect that could potentially be adverse, without considering whether anyone will actually breathe

that air while engaging in physical activity. *Id.* at 25-26. This argument ignores the science and the law.

On the science, human behavior patterns—where and when people sit, walk, and run—are "critical" in assessing whether ambient concentrations of ozone may pose a public health risk. 80 FR 65,356/1. Breathing air contaminated with ozone concentrations typically found outdoors has "only been shown to result in potentially adverse effects if the ventilation rates of people in the exposed populations are raised to a sufficient degree," meaning "through physical exertion." *Id.* at 65,356/1-/2, 65,312/3.

Cast in concrete scientific terms, when healthy, young adults are exposed to ozone concentrations for two hours while at rest, the *lowest* level at which a statistically significant group mean lung function decrement has been reported is 500 ppb—over *seven* times the 70 ppb level of the revised standard. *Id.* at 65,356/2 n.133; RTC 198-99, JA___-___. In other words, the science shows that being exposed to low ozone concentrations in the outdoor air is only potentially harmful if one is physically active. This is why the clinical studies require participants to engage in physical activity.

Because the Environmental Petitioners ignore the science, they advocate for a standard that would be *over*protective—more than requisite to protect public health. 80 FR 65,365/1-/2. The purpose of Section 7409(b)(1) is not, as Environmental Petitioners contend, to protect air quality in the abstract. Its purpose is to protect the

public. *Whitman*, 531 U.S. at 465-66 (interpreting "public health" in Section 7409(b)(1) to mean "the health of the public").

The cases cited by Environmental Petitioners are in agreement that this is the goal of the primary NAAQS. Environmental Br. 24 (quoting *Lead Industries* and citing *American Lung*); *see Lead Industries*, 647 F.2d at 1123 ("[T]he goal of the air quality standards must be to ensure that *the public* is protected from 'adverse health effects.'" (quoting S. Rep. No. 91-1196, at 10) (emphasis added)); *Am. Lung Ass'n v. EPA*, 134 F.3d 388, 389 (D.C. Cir. 1998) (same). Environmental Petitioners reach back to the '70s to quote a lonely sentence in the 1979 ozone NAAQS. Environmental Br. 25 (quoting 44 FR 8202, 8210/1 (1979)). Yet in context, the Agency's statement supports its position today. 44 FR 8210/1 (The CAA's legislative history "makes quite clear Congress's intention to protect sensitive persons . . . who *in the normal course of daily activity* are exposed to the ambient environment." (emphasis added)).

The Administrator's congressionally assigned task is to determine what standard will protect the public from potentially harmful exposures to ozone, fully taking into account the science behind such exposures. "Ignoring whether [] elevated ventilation rates are actually occurring," as Environmental Petitioners say the Administrator must, "would not provide an accurate assessment of whether the public health is at risk." 80 FR 65,356/2. Stated differently, setting a standard "without regard to behavior of the public would likely lead to a standard which is more stringent than necessary to protect the public health." *Id.*

With science and law on her side, the Administrator reasonably relied on EPA's exposure assessment. 80 FR 65,363/2-64/1. The exposure assessment estimated how often children and asthmatic children in fifteen cities across the country would experience an "exposure of concern" at ozone levels of 80, 70, and 60 ppb. *Id.* at 65,312-14 & Table 1. The exposure assessment estimated exposures of concern for a primary standard set at four potential levels (75, 70, 65, and 60 ppb). *Id.* at 65,352/1; RTC 193, JA____. The Administrator then rationally used these estimates to consider how a revised standard set at the four different levels would protect children and asthmatic children from ozone levels shown to result in health effects that are potentially adverse. *Id.* at 65,363/3.

Because the form of the standard is calculated as the three-year average of the fourth-highest daily level, a given three-year period that meets the revised standard can include multiple days with a highest daily level above 70 ppb. Seizing on this, Environmental Petitioners highlight cities where a revised standard of 70 ppb will allow multiple days with a highest daily level above 72 ppb. Environmental Br. 22-23. But EPA's exposure assessment incorporates the form of the standard and evaluates worst-case years in the fifteen cities, all of which the Administrator considered in determining the requisite standard. 80 FR 65,352/1.

b. The Administrator rationally interpreted EPA's exposure assessment.

Shifting tactics, Environmental Petitioners challenge the Administrator's interpretation of EPA's exposure assessment, Environmental Br. 26-29, but her interpretation is rational.

The Administrator correctly recognized that EPA's exposure assessment only measures how many people with an elevated ventilation rate will be *exposed* to a specific ozone level. 80 FR 65,313. In other words, the assessment does not (and cannot) predict how many of those people will experience a health effect that EPA considers adverse, or even any health effect at all. *Id.*; *id.* at 65,363/3 ("[N]ot every occurrence of an exposure of concern will result in an adverse effect."). The Administrator therefore focused on estimates of two or more exposures of concern as a health-protective approach to assessing the potential for adverse effects, emphasizing exposures of concern at and above 70 and 80 ppb. *Id.*; *id.* at 65,310, 65,331/1, 65,346; RTC 10, 13, JA____, JA____.

Based on these considerations, the Administrator concluded that a revised standard with a level of 70 ppb was estimated to eliminate two or more exposures of concern at ozone concentrations at and above 80 ppb and to virtually eliminate two or more exposures of concern at 70 ppb for all children and asthmatic children, even in the worst-case year and location evaluated. 80 FR 65,363/3. The Administrator also carefully examined exposures of concern at lower levels, even though evidence of

adverse effects at these lower levels is equivocal. A standard with a level of 70 ppb (with the same form and averaging time) "is estimated to protect the vast majority of children in urban study areas (i.e., about 96% to more than 99% of children in individual areas) from experiencing two or more exposures of concern at or above 60 ppb." *Id.* at 65,364/1; *id.* at 65,313 (Table 1) (as few as 0.5% of children and asthmatic children could experience two or more exposures of concern at 60 ppb).

Environmental Petitioners cite an estimate of 18,000 children who would experience multiple exposures of concern at or above 70 ppb during the worst year and location. Environmental Br. 26. Yet in a study area of about 19 million children, the figure they cite leaves more than 99% of those children free from such exposures. *Id.* at 26-27. Indeed, in a year and area that are not "worst case," the exposure assessment estimates that 99.9% of children will not be exposed. 80 FR 65,360/2 & n.142; *id.* at 65,313 & Table 1 (estimated range includes zero). The Administrator's conclusion that a revised standard with a level of 70 ppb will virtually eliminate this category of exposures of concern is supported by the evidence. And again, the Administrator recognized that at least some exposures of concern would not result in an adverse health effect (indeed, any health effect). *Id.* at 65,363/3. Her decision is thus distinguishable from *American Lung Association*, 134 F.3d at 392, where EPA failed to explain its determinations. *Cf.* Environmental Br. 27.

Next, Environmental Petitioners criticize purported gaps in the exposure assessment, pointing to children and adults who attend or work at summer camps.

Environmental Br. 28-29; Environmental Amici Br. 25-26. Yet they concede that EPA accounted for this specific issue by performing a sensitivity analysis on the exposure assessment, which showed the issue was likely to have only a low to moderate impact on the magnitude of the estimates. 80 FR 65,360/2. And EPA concluded that the sensitivity analysis was conservatively biased towards estimating higher exposures due to assumptions about daily activities—for instance, understating the time spent engaged in indoor camp activities and assuming that no children had summer jobs. RTC 111-13, JA____-____. Accordingly, EPA cautioned that the results of the sensitivity analysis likely applied only to a very small number of people and were not comparable to the overall results. *Id.* at 113, JA____.

EPA likewise carefully considered the issue of averting behavior, where people may change their normal behavior patterns to avoid pollution on days with poor air quality. *Cf.* Environmental Br. 24 n.66. EPA recognized that "setting a standard based on the assumption that people will adjust their activities to avoid exposures on high-pollution days would likely result in a standard that is under-protective." 80 FR 65,356/2. But the Agency concluded that the impact on the exposure assessment would be low to moderate and, after accounting for other factors that might lead to overestimates, it was unlikely that the exposure assessment would underestimate exposures of concern. RTC 108-09, JA____-____.

Environmental Petitioners cite EPA's statement in the 2008 NAAQS review that the exposure analysis there did not provide a basis for setting a revised level.

Environmental Br. 26. But EPA developed a new exposure model for this NAAQS review that provided a more robust scientific basis for making reliable estimates. 80 FR 65,311 (EPA's improved air quality modeling was endorsed by CASAC); *id.* at 65,312-13 & Table 1; ISA 4-33, JA____ (EPA analyzed daily activity journals of real people, including adults, children, asthmatics, and seniors); HREA 5-39, JA___ (EPA collected 41,474 days of detailed activity data).

Tellingly, despite their extended criticism of EPA's exposure assessment, Environmental Petitioners overlook CASAC's endorsement of EPA's approach. CASAC 2014a Letter at 1, 5-6, JA____, JA____ -____. CASAC even used EPA's exposure estimates in its recommendations on the primary standard. CASAC 2014c Letter at 8, JA____; 80 FR 65,360/2.

In the end, the exposure assessment supports the Administrator's conclusion that, by eliminating almost all multiple exposures of concern in the 60 to 80 ppb range, and almost all single exposures of concern at or above 70 and 80 ppb, a revised standard with a level of 70 ppb provides requisite protection for public health. *See Lead Industries*, 647 F.2d at 1144, 1160-61 (holding that EPA properly set the primary NAAQS to keep exposures well below the level at which the most serious effects occur and at a level designed to keep 99.5% of children below the "maximum safe individual blood lead level").

c. The Administrator properly retained the form of the primary standard in combination with a revised level.

While State and Industry Petitioners criticize the Administrator for not providing a revised standard with a form that provides more leeway for possible spikes of ozone due to natural events, Environmental Petitioners criticize the Administrator's decision to retain the form of the standard, which allows an average of three exceedances of the standard per year. Environmental Br. 29-30.

The Administrator's foremost consideration was to ensure the adequacy of the health protection provided by the combination of all four elements of the standard, including the form. 80 FR 65,352/2. This is because "[t]he degree of protection provided by any NAAQS is due to the combination of all of the elements of the standard (*i.e.*, indicator, averaging time, form, level)." *Id.* at 65,363/2. When combined with a level of 70 ppb, the Administrator concluded that the form (the three-year average of the fourth-highest daily level) was requisite. *Id.* at 65,352/1-/2. More pointedly, she concluded that using this form for the revised standard with a level of 70 ppb meant that "the large majority of days in areas that meet the revised standard will have 8-hour [ozone] concentrations *below 70 ppb*, with most days having 8-hour [ozone] concentrations *well below* this level." *Id.* at 65,363/2 (emphasis added).

Environmental Petitioners argue that the form necessarily fails to account for individual ozone days above 70 ppb. Environmental Br. 20-23; Environmental Amici at 24. That is incorrect. The Administrator chose the form in part based on EPA's

exposure assessment, which properly incorporated the form of the standard. 80 FR 65,351/3-52/1; HREA 3-15, JA____; RTC 219, JA____. Put differently, when the Administrator chose to retain the form of the revised standard, she fully accounted for days when ozone levels may exceed 70 ppb.

Furthermore, Environmental Petitioners contend that the Administrator failed to provide a health justification for her observation that the form would provide some stability when implementing the standard. Environmental Br. 29-30. Yet the Administrator viewed stability as a means to protect public health because, "to the extent areas engaged in implementing the [ozone] NAAQS frequently shift from meeting the standard to violating the standard, it is possible that ongoing implementation plans and associated control programs could be disrupted, thereby reducing public health protection." 79 FR at 75,294/3.

EPA has long recognized that areas can experience ozone spikes from unusual meteorological events. And EPA has concluded that public health would be harmed if areas shifted in and out of attainment due to such atypical events. *Id.*; PA 4-7 to 4-8, JA____-____. Providing nonattainment areas with a stable target for attainment planning thus makes it more likely that the CAA's public health goals will be met. *Id.*; *see ATA III*, 283 F.3d at 374-75 (less stable implementation programs may be less effective, and EPA therefore can consider programmatic stability in determining the form of a NAAQS).

Here, the Administrator chose a form based on the three-year average of the fourth-highest daily level to strike "an appropriate balance between public health protection and a stable target for implementing programs to improve air quality." 80 FR 65,352/2. Moreover, CASAC advised the Administrator to retain this form. CASAC 2014c Letter at 6, JA___ ("Regarding the form of the standard, the CASAC concurs that the ozone standard should be based on the fourth highest, daily maximum 8-hour average value . . . ."). And the Administrator and CASAC agreed that the form "provides health protection while allowing for atypical meteorological conditions that can lead to abnormally high ambient ozone concentrations which, in turn, provides programmatic stability." *Id.*; 80 FR 65,352/2.

2. The Administrator rationally exercised her judgment to set a revised level of 70 ppb that is no more nor less protective than necessary.

Environmental Petitioners' second principal challenge to the revised primary standard is that the Administrator's decision to lower the level from 75 to 70 ppb is an unexplained departure from CASAC's advice and from EPA's prior position regarding the adversity of certain lung function decrements. Environmental Br. 30-40. But the Administrator fully considered CASAC's advice and reached a rational decision consistent with the evidence and the Agency's prior positions.

a. The Administrator followed CASAC's advice to set a level within a range of 60 to 70 ppb.

Environmental Petitioners argue that EPA departed without adequate explanation from CASAC's scientific finding that a level of 70 ppb causes adverse health effects. Environmental Br. 31-34. Three flaws undo this argument.

First, Environmental Petitioners fail to distinguish between CASAC's scientific and policy advice. *See Mississippi*, 744 F.3d at 1354-58 (discussing the CAA's sharp distinction between CASAC's scientific and policy advice). Based on the scientific evidence, CASAC expressly stated its scientific conclusion that "there is adequate scientific evidence to recommend a range of levels for a revised primary ozone standard from 70 ppb to 60 ppb." CASAC 2014c Letter at 8, JA____.

After providing its scientific advice, CASAC shared its policy advice with EPA. *Id.* CASAC "acknowledge[d] that the choice of a level within the range recommended based on scientific evidence"—that is, 60 to 70 ppb—"is a policy judgment under the statutory mandate of the Clean Air Act." *Id.* Then CASAC noted its view that "based on the scientific evidence, at a level of 70 ppb, there is little margin of safety for the protection of public health, particularly for sensitive subpopulations." *Id.* CASAC concluded by explicitly stating "our *policy* advice is to set the level of the standard lower than 70 ppb within a range down to 60 ppb, taking into account your judgment regarding the desired margin of safety to protect public health." *Id.* (emphasis added).

Environmental Petitioners latch onto a single sentence within CASAC's discussion of policy advice. Environmental Br. 31 (quoting CASAC 2014c Letter at 8, JA___ ("At 70 ppb, there is substantial scientific certainty of a variety of adverse effects, including decrease in lung function, increase in respiratory symptoms, and increase in airway inflammation.")). But that sentence cannot mean what they want it to say, because CASAC unambiguously gave EPA its scientific advice regarding a range that included 70 ppb. Read in context, the sentence reflects CASAC's efforts to offer the Administrator policy advice. Indeed, when CASAC recommended a level below 70 ppb, it explicitly labeled the recommendation as policy advice. CASAC 2014c Letter at 8, JA___.

Second, Environmental Petitioners are wrong that the Administrator departed from CASAC's scientific advice. Environmental Br. 32-33. In revising the primary standard, the Administrator chose a level of 70 ppb, within CASAC's scientifically recommended range. Granted, the Administrator departed from CASAC's policy advice, but she explained why she did so. Moreover, "where EPA operates within the realm of uncertain science, its decisions about the appropriate NAAQS level must 'necessarily . . . rest largely on policy judgments.'" *Mississippi*, 744 F.3d at 1357 (quoting *Lead Industries*, 647 F.2d at 1147). In the realm of policy judgments, the Court defers to EPA, not to CASAC. *Id.* at 1358.

Third, Environmental Petitioners misinterpret the Administrator's statement that her "final decision is consistent with CASAC's advice, based on the scientific

evidence." 80 FR 65,362/1; Environmental Br. 32-33. That is partly because they cut off the statement midstream. The Administrator went on to note that her decision is consistent "with CASAC's focus on setting a revised standard to further limit the occurrence of the respiratory effects observed in [clinical] studies, including effects observed following exposures to 60 ppb [ozone]." 80 FR 65,362/1-/2.

The Administrator's full statement is supported by the record. The Administrator found that, when the form of the standard is combined with a level of 70 ppb, "the large majority of days in areas that meet the revised standard will have 8-hour [ozone] concentrations below 70 ppb, with most days having 8-hour [ozone] concentrations well below this level." 80 FR 65,363/2. Such a revised standard "can provide substantial protection against the broader range of [ozone] exposure concentrations . . . below 70 ppb." *Id.* In other words, the Administrator reasonably concluded that a revised standard with a level of 70 ppb and the selected form would protect against ozone exposures about which CASAC expressed concern.

b. The Administrator reasonably judged what ozone exposures could cause adverse health effects.

Environmental Petitioners also argue that the Administrator should have concluded that the clinical studies established adverse health effects at ozone levels of 60 ppb because some individuals in those studies experienced a moderate, transient lung function decrement of 10%. Environmental Br. 35-40. That argument is

incorrect because the Administrator reasonably judged whether a standard of 60 ppb was necessary to provide further protection against adverse health effects.

Although the clinical studies gave the Administrator a high degree of confidence about health effects from ozone exposures between 60 and 80 ppb, 80 FR 65,363/1, she still had to judge which health effects are adverse. *See Mississippi*, 744 F.3d 1357 n.6. She noted that "there are no universally accepted criteria by which to judge the adversity of the observed effects." *Id.* at 65,363/1; *id.* at 65,357/1. In making that judgment, she properly considered the American Thoracic Society (ATS) guidelines and CASAC's advice. 80 FR 65,357-58.

The ATS guidelines indicated that "reversible loss of lung function in combination with the presence of symptoms should be considered adverse." 80 FR 65,357/2 (quoting ATS guidelines). The Administrator noted that the Schelegle study reported this combination of effects at 72 ppb, so she concluded that they satisfied the ATS guidelines on adversity, as did CASAC. *Id.* Thus, the Administrator judged, and CASAC agreed, that ozone exposures at 72 ppb, when combined with elevated ventilation rates, caused adverse health effects. *Id.*

But the ATS guidelines and CASAC's advice became more equivocal when addressing the potential adversity of less serious health effects. For example, some clinical studies reported that transient lung function decrements (such as 10%) occurred in some individuals at lower ozone concentrations, including 60 and 63 ppb, although never in combination with respiratory symptoms. 80 FR 65,357/3. The ATS

guidelines indicated that "a small, transient loss of lung function, by itself, should not automatically be designated as adverse." *Id.* (quoting ATS guidelines). CASAC couched its advice in similarly qualified language. CASAC advised EPA that lung function decrements of 10% or greater observed in some individuals after exposure to 60 ppb ozone "*could* be adverse in individuals with lung disease," and they provided a "surrogate for adverse health outcomes for people with asthma and lung disease." CASAC 2014c Letter at 3, 7, JA____, JA____ (emphasis added).

The Administrator rationally accounted for the conditional nature of this advice. 80 FR 65,364/2. As she noted, CASAC "did not advise considering a standard that would be estimated to eliminate [ozone]-induced lung function decrements $\geq$ 10 or 15%." *Id.* (citing CASAC 2014c Letter). In the end, the Administrator placed some importance on reducing the population-level risk of lung function decrements of 10% and 15%, but she rationally placed less weight on the risk assessment (which estimated the number of children and asthmatic children who would experience lung function decrements) than on the exposure assessment (which estimated the number of children and asthmatic children who would experience one or more exposures of concern). *Id.* at 65,364; *id.* at 65,364/2 & n.150 (explaining the basis for placing limited weight on risk assessment).

Environmental Petitioners claim that the Administrator adopted a new test for adversity that departs from a test that EPA purportedly applied in the 2008 ozone NAAQS. Environmental Br. 36. In 2008, EPA did not adopt a rigid, bright-line test

for adversity of lung function decrements. Rather, EPA's general approach has been a careful balancing of the evidence, informed by guidance from CASAC and ATS.

Environmental Petitioners seize on EPA's statement in the 2008 ozone NAAQS rule that a lung function decrement of 10% or greater "should be considered adverse" for asthmatics. Environmental Br. 36 (citing 73 FR 16,436, 16,454-55). Yet just a few pages earlier, EPA noted that "[l]arge lung function decrements," which it defined as *20% or greater* would be "considered to be adverse to asthmatic individuals under the ATS definition" and "also would be cause for medical concern for some individuals." 73 FR 16,451/3. And although Environmental Petitioners contend that EPA conclusively established in the 2008 ozone NAAQS that a decrement of *10%* or greater is always adverse, they point as support to the 2010 sulfur dioxide NAAQS, where EPA stated that a different decrement of *15%* or greater "*could* result in clinical outcomes" that "would also be considered adverse effects of air pollution under ATS guidelines." EPA-HQ-OAR-2007-0352-1450 at 16, JA___ (emphasis added); RTC 17 n.12, JA___.

In any event, EPA is not bound by a judgment about adversity in a prior NAAQS review, provided that it gives a rational explanation from the available scientific evidence in the current NAAQS review. *Mississippi*, 744 F.3d at 1343-44, 1349. Here, the Administrator reasonably pointed to CASAC's equivocal advice in this review, along with the ATS guidelines' conditional definition of adversity. 80 FR 65,357-58. Thus, she provided substantial protection against exposures of concern at

60 ppb, while at the same time reasoning that if CASAC had intended for the standard to fully protect against lung function decrements of 10%, it would not have recommended a range of 60 to 70 ppb. *Id.* at 65,358/1, 65,364/2 & n.150. Her consideration of the adversity of health effects is sound.

c. The Administrator reasonably exercised her judgment to set a revised standard that is neither higher nor lower than necessary.

Deciding what is "requisite" is no simple question with an easy answer. The CAA directs the Administrator to exercise her policy judgment to set a standard that is "not lower or higher than is necessary." *Whitman*, 531 U.S. at 476. Here, her judgment is sound.

By lowering the level of the revised standard from 75 to 70 ppb, while retaining the other three elements, the Administrator established increased health protection for millions of people across the Nation, including people in at-risk groups such as children and asthmatics. The Administrator made this decision after carefully weighing the available scientific evidence, evaluating EPA's exposure and risk assessments, and considering advice from CASAC and public commenters. 80 FR 65,362-65. Although Environmental Petitioners criticize specific aspects of the Administrator's decision, they never grapple with the significant discretion that Congress conferred on her to make that decision.

This silence is noteworthy. In *Mississippi*, this Court repeated its holding from one of the very first NAAQS cases: "'That the evidence in the record may support

other conclusions, even those that are inconsistent with [EPA's], does not prevent [the Court] from concluding that [EPA's] decisions were rational . . . .'" 744 F.3d at 1348 (quoting *Lead Industries*, 647 F.2d at 1160); *ATA III*, 283 F.3d at 370. The final level set by the Administrator need not "spring from a bounty of definitive research as the clear and sole appropriate standard." *NRDC v. EPA*, 902 F.2d 962, 972 (D.C. Cir. 1990), *vacated in part*, 921 F.2d 326 (D.C. Cir. 1991).

Based on her assessment of the strengths and limitations in the evidence, and CASAC's advice, the Administrator concluded that a 70 ppb level is requisite to protect public health with an adequate margin of safety. 80 FR 65,365/1. She also concluded that a level below 70 ppb would be more than requisite because she would have to place significant weight on the potential public health importance of various aspects of the clinical and epidemiologic evidence that she found not to be appropriate. *Id.* at 65,365/2. And she rationally concluded that, when compared to a level of 70 ppb, the extent to which lower levels could result in further public health improvements was notably less certain. *Id.* Her judgment should be sustained.

II. The EPA Administrator set a revised secondary standard for ozone that is neither more nor less welfare-protective than necessary.

As with the revised primary standard, EPA faces challenges to the revised secondary standard from Petitioners on both sides. Industry Petitioners claim that the revised secondary standard is too strict, while Environmental Petitioners claim that it is not strict enough. And once again, both groups are wrong.

The Administrator revised the secondary standard in three steps. In the first step (Argument Point II.A.), the Administrator rationally determined that the 2008 secondary standard was inadequate to protect public welfare. In the second step (Argument Point II.B.), the Administrator followed this Court's instructions in *Mississippi* and rationally identified the degree of public welfare protection that should be provided by the revised standard. In the third step (Argument Point II.C.), the Administrator set a revised secondary standard that provides the requisite protection. At each step, she reasonably exercised her judgment based on careful consideration of the scientific evidence, CASAC's advice, and public comments. Her judgment should be upheld.

A. The Administrator rationally concluded that the 2008 secondary standard was inadequate to protect the public welfare.

The Administrator's first step in revising the secondary standard was to decide whether the 2008 secondary standard was requisite to protect public welfare from "any known or anticipated adverse effects" of ozone, including effects on vegetation. 42 U.S.C. §§ 7409(b)(2), 7602(h). She found it was not. 80 FR 65,369-90.

Industry Petitioners devote only a few sparse paragraphs to contesting the Administrator's conclusion. Industry Br. 40-41. As in their challenge to the primary standard, they argue that the newly available evidence in this review of the secondary standard did not reflect a "fundamental change" in the scientific understanding of ozone. *Id.* at 40. As we explained in Argument Point I.A.1., this argument is legally flawed. The argument is also factually incorrect because the Administrator did have substantial new evidence and analyses that supported her decision.

All told, EPA analyzed more than *four hundred* new studies—scientific evidence that collectively strengthened EPA's understanding and confidence regarding the public welfare implications of ozone exposure. 80 FR 65,369/2. And EPA developed new analyses that, when combined with the weight of the scientific evidence, led the Administrator to rationally conclude that the 2008 secondary standard was inadequate. Three points stand out.

First, the Administrator focused on EPA's tree growth analysis as a surrogate for a broader range of ozone effects that could be adverse to public welfare. *Id.* at 65,389. That analysis, in Table 4 of the final rule, *id.* at 65,391, provided estimates of the median growth loss across eleven tree species for a range of ozone exposures. Although Industry Petitioners correctly note that the tree growth analysis relies on studies that EPA considered in the 2008 NAAQS review, Industry Br. 40, they overlook how EPA strengthened the analysis since then. In the current NAAQS review, EPA demonstrated that the tree growth analysis provided accurate estimates

of growth effects in the natural environment for seedlings and older trees. ISA §§ 9.6.3, 9.6.4., JA____-____; PA 5-15 to 5-16, JA____-____; 80 FR 65,381/2, 65,384/3. Industry Petitioners say nothing about this new analysis.

Second, the Administrator relied on a new air quality analysis of protected public lands—national parks, national forests, and wilderness areas that Congress specifically set aside to benefit public welfare. *Id.* at 65,385/1 ("Amongst the newly available information in this review is a new analysis" of air quality for public lands known as "Class I" areas.). This analysis, in Table 3 of the final rule, *id.*, showed the magnitude of ozone exposures on protected public lands with air quality that met the 2008 secondary standard. Again, Industry Petitioners overlook this analysis, even though the Administrator gave it significant weight in reaching her conclusion that the 2008 secondary standard needed to be revised. *Id.* at 65,389/2.

Third, the Administrator considered CASAC's advice, of which Industry Petitioners breathe not a word. *Id.* at 65,389/1-90/1. CASAC supported the EPA staff's conclusion that the 2008 secondary standard was inadequate and advised that 6% tree growth loss was "unacceptably high." 80 FR 65,381-82/1 (CASAC 2014c Letter at iii, 13-14, JA___, JA____-____).

In deciding that the 2008 secondary standard was inadequate, the Administrator emphasized CASAC's warning that 6% tree growth loss was unacceptably high. 80 FR 65,389/3; *see Mississippi*, 744 F.3d at 1345 (EPA may rely on CASAC's recommendations). She then combined the tree growth analysis with the

new analysis of air quality on public lands to conclude that air quality meeting the 2008 secondary standard allowed ozone exposures associated with 6% or greater tree growth loss in a number of national parks and wilderness areas. 80 FR 65,389/2. So she rationally concluded that the 2008 secondary standard was not requisite. *Id.* at 65,389-90; *see ATA III*, 283 F.3d at 378-79 (refusing to "second-guess" EPA's conclusion that the old primary standard for ozone was inadequate).

B. The Administrator reasonably exercised her judgment to identify the appropriate degree of public welfare protection.

The Administrator's second step in revising the secondary standard was to identify the appropriate degree of public welfare protection that the standard should provide. 80 FR 65,403-08. In so doing, the Administrator heeded this Court's instruction in *Mississippi* to "expressly 'determine what level of . . . protection is requisite to protect the public welfare,' and explain why this is so." 744 F.3d at 1360-61 (quoting *Farm Bureau*, 559 F.3d at 530).

Here again, the Administrator relied heavily on EPA's tree growth analysis to help her make broader judgments about the appropriate degree of protection. 80 FR 65,369/1, 65,406/1. She did so because tree growth is associated with broader impacts on public welfare, such as effects on forest ecosystems, and because the tree growth analysis is a useful quantitative tool for making judgments about public welfare protection. *Id.* Consistent with CASAC's warning, the Administrator concluded that it was appropriate to protect against tree growth loss somewhat less

than 6%. 80 FR 65,405-07. In the tree growth analysis, growth loss of 5.7% is associated with exposures of 18 parts-per-million hours (ppm-hrs), and growth loss of 5.3% is associated with exposures of 17 ppm-hrs. *Id.* at 65,407/1. Exercising her judgment, the Administrator concluded that a revised secondary standard that restricted three-year average exposures to 17 ppm-hrs or lower in nearly all instances would provide the appropriate degree of public welfare protection. *Id.* at 65,406/3-07/1.

Environmental Petitioners challenge this conclusion in two ways. *First*, they argue that, despite the Administrator's careful attention to CASAC's advice, she departed from four select pieces of that advice without adequate explanation. Environmental Br. 41-47. *Second*, they argue that the Administrator should have separately determined the appropriate degree of public welfare protection against leaf injury. *Id.* at 52-56. Both arguments are incorrect.

1. The Administrator properly addressed CASAC's advice in selecting the appropriate degree of public welfare protection.

Environmental Petitioners contend that the Administrator failed to adequately consider CASAC's advice when determining the appropriate degree of public welfare protection. Environmental Br. 41-47. They point to four specific pieces of advice from CASAC, discussed below in turn. Overall, however, their argument suffers from two principal flaws.

First, in several instances, Environmental Petitioners misinterpret CASAC's advice or mischaracterize the Administrator's response. Yet the Administrator reasonably interpreted and responded to CASAC's scientific- and policy-oriented recommendations.

Second, Environmental Petitioners' argument assumes that the Administrator must thoughtlessly conform to CASAC's advice. That premise is incorrect because the Administrator, not CASAC, has responsibility to make a judgment under Section 7409(b)(2). To give a reasoned basis for that judgment, she must rationally explain how she evaluated the evidence. *See Mississippi*, 744 F.3d at 1351. When CASAC gives advice, the Administrator must *consider* it. 42 U.S.C. § 7607(d)(3). But the Act does not require that she suspend her judgment and follow every particular of CASAC's advice in lockstep. The Act only requires that if the Administrator "departs from CASAC's recommendations," she must "explain [her] reasons for doing so." *Mississippi*, 744 F.3d at 1355.

Here, the Administrator thoroughly weighed CASAC's advice. Where she disagreed, she explained her reasons for doing so. In some places, the Administrator explained why she disagreed with CASAC's view of the scientific evidence; in others, she "accept[ed] CASAC's scientific analysis yet explain[ed] the policy considerations that led [her] to select a different [result] than that recommended by CASAC." *Id.* In all cases, the Administrator properly considered and responded to CASAC's input. The Act requires no more.

a. The Administrator followed CASAC's advice about 2% and 6% tree growth loss.

Environmental Petitioners object to the Administrator's focus on CASAC's view that annual tree growth loss of 6% was "unacceptably high," Environmental Br. 43, and they contend that she failed to rebut CASAC's view that 2% growth loss is an appropriate benchmark. *Id.* at 42-44. They misinterpret CASAC's advice and mischaracterize EPA's response.

What CASAC actually recommended is that the Administrator consider a *range* of standards that *included* those aiming for tree growth loss of 2% or below. 80 FR 65,394/3. As EPA correctly noted, CASAC never said that the revised secondary standard had to prevent 2% growth loss, nor did CASAC recommend considering only standards associated with growth loss at or below 2%. *Id.* Indeed, of the nine ozone exposure values in CASAC's recommended range, seven were associated with growth loss figures higher than 2%. *Id.*

Not only did the Administrator properly interpret CASAC's advice, but she also followed it. When assessing the appropriate degree of public welfare protection, she considered a range of ozone exposures that included those associated with 2% or lower tree growth loss. *Id.* at 65,406/2. In considering this advice, she found the scientific basis for focusing on 2% tree growth loss to be unclear, and the two pieces of evidence that CASAC cited failed to clarify its rationale. *Id.* at 65,393/3-95/1; *compare* CASAC 2014c Letter at 14, JA____ (citing Wittig study and Heck & Cowling

report) *with* 80 FR 65,394/3, 65,395 n.200 (Wittig study cited growth loss figures above 20%, not 2%, and Heck & Cowling report offered no clear rationale for 1% and 2% growth loss figures nor any identification of tree species that should meet those figures). Thus, after considering CASAC's advice about 2% growth loss, the Administrator declined to give weight to that figure as a public welfare protection objective. *Id.* at 65,406/2.

In contrast to CASAC's advice about 2% growth loss, the Administrator concluded that CASAC had plainly expressed its view that 6% tree growth loss was "unacceptably high." 80 FR 65,406/2. And CASAC treated 6% differently from 2% because its recommended range of ozone exposures were all associated with growth loss *below* 6% (but not 2%). *Id.* Thus, the Administrator appropriately placed greater weight on this recommendation by deciding to generally protect against tree growth loss of 6%. *Id.* at 65,406-07.

b. The Administrator followed CASAC's advice about the cottonwood data.

Environmental Petitioners contend that EPA's decision to remove the cottonwood data from the tree growth analysis is inconsistent with CASAC's advice that the data received "too much emphasis." Environmental Br. 43-44. Yet as they concede, *id.*, at 44 n.6, CASAC's advice referenced a chart in EPA's second draft Policy Assessment that showed all twelve tree species in the tree growth analysis, including cottonwood, and CASAC explained that the cottonwood data was "not as

strong as [data] from other experiments" that EPA used in the tree growth analysis and showed "extreme sensitivity to ozone compared to other studies." CASAC 2014c Letter at 10, JA____ (citing Figure 5-1 in the Second Draft Policy Assessment); Second Draft Policy Assessment 5-14 fig. 5-1, JA____.

EPA agreed with CASAC's scientific critique of the cottonwood data: it was based on a single study that did not control for ozone and climatic conditions, unlike the 51 studies in the tree growth analysis for the other eleven tree species. 80 FR 65,372 & n.160. Thus, EPA logically addressed these concerns by excluding cottonwood from the tree growth analysis. *Id.*

c. The Administrator considered CASAC's advice about a range of ozone exposures.

Next, Environmental Petitioners argue that the Administrator failed to adequately consider CASAC's advice to select a revised secondary standard corresponding to ozone exposures within a range of 7 to 15 ppm-hrs. Environmental Br. 41-44, 50-51. To the contrary, the Administrator did consider CASAC's recommended range when exercising her judgment to identify the proper public welfare objective. 80 FR 65,392-95, 65,406-07.

Although the Administrator considered CASAC's recommended range of ozone exposures, CASAC had relied on the old version of the tree growth analysis. *Id.* at 65,384/2. The outdated analysis included cottonwood, based on the single available study about which CASAC expressed reservations. *Id.* When EPA removed the

cottonwood data in the final Policy Assessment and proposed and final rules, the updated tree growth analysis showed that tree growth loss figures similar to those that CASAC had considered were now associated with *higher* ozone exposures. *Id.* at 65,396/2, 65,391 (Table 4); PA 6-11 (Table 6-1), JA____. Thus, the Administrator had to consider CASAC's advice in light of the updated analysis.

To do so, the Administrator placed more weight on the growth loss estimates associated with CASAC's advice than on the exposures that CASAC identified based on the outdated analysis. She noted that in the second draft Policy Assessment, growth loss estimates ranged from less than 2% (for 7 ppm-hrs) to 5.2% (for 15 ppm-hrs), and she emphasized CASAC's warning that 6% tree growth loss was "unacceptably high." 80 FR 65,396/2; *id.* at 65,406/2-07/1 & n.212 (noting that growth loss associated with 17 ppm-hrs in the updated analysis was nearly identical to growth loss associated with 15 ppm-hrs in the outdated analysis). The Administrator therefore focused on identifying ozone exposures associated with tree growth loss somewhat below 6%, including 18 ppm-hrs (associated with 5.7% growth loss) and 17 ppm-hrs (associated with 5.3% growth loss). *Id.* at 65,407/1.

d. The Administrator considered CASAC's advice to base the standard on annual ozone exposures rather than a three-year average.

Finally, Environmental Petitioners argue that the Administrator arbitrarily rejected CASAC's advice to base the standard on a single year of ozone exposures, rather than a three-year average. Environmental Br. 45-47. Environmental Petitioners

cast this as a purely scientific issue, but CASAC recognized that the Administrator could choose a three-year average as a policy matter. CASAC 2014c Letter at iii, JA____.

The Administrator's decision to select a three-year average rested on both science and policy judgments. She gave several reasons for choosing the three-year average over the annual figure favored by CASAC. 80 FR 65,404. For example, she recognized uncertainties in judging the public welfare significance of a single year of vegetation effects. *Id.* And she found that multiple years of high ozone exposures could have effects on vegetation that are of greater public welfare significance than effects from a single year of high exposures, where that year is surrounded by years with lower exposures. *Id.* She also pointed to uncertainties in using an annual measure to assess the potential for longer-term public welfare impacts because ozone effects vary year to year and are influenced not only by variations in ozone levels but also by other environmental factors, such as rainfall. *Id.* at 65,404/3. Further, she noted that use of a three-year average could address the potential for adverse public welfare effects from shorter exposure periods, such as a single year. *Id.* at 65,404/2-3; PA 6-33, JA____. The Administrator therefore rationally selected a three-year average because it gave her greater confidence in judging the adversity of public welfare impacts. *Id.*

Trying another tack, Environmental Petitioners point to CASAC's advice that if the Administrator chose a three-year average, she should pick a value so that each

year was within CASAC's recommended range of 7 to 15 ppm-hrs. Environmental Br. 46-47. Here as well, the Administrator properly considered CASAC's advice and explained where she differed. She acknowledged CASAC's recommendation that if she chose a three-year average, she should consider a lower level. 80 FR 65,404/2. Because the Administrator's principal reference point was CASAC's clear warning that 6% growth loss was too high, she gave effect to the recommendation to consider a lower level by considering exposures associated with growth loss somewhat *below* 6%. 80 FR 65,407/1. Thus, she considered 18 ppm-hrs, associated with tree growth loss of 5.7%, and 17 ppm-hrs, associated with tree growth loss of 5.3%. *Id.*

In yet another misguided attack on the Administrator's decision, Environmental Petitioners cite air quality monitoring data for eight park and wilderness areas, which they claim shows that a three-year average of 17 ppm-hrs allows single-year exposures to exceed 19 ppm-hrs. Environmental Br. 46-47. No one appears to have used this data in this manner in a public comment, and therefore Environmental Petitioners may not rely on it here. *See* 42 U.S.C. § 7607(d)(7)(B). Regardless, the argument misses the mark because the Administrator set a revised standard of 70 ppb, not 17 ppm-hrs, and Environmental Petitioners fail to show that these areas would meet the revised standard. *Cf.* EPA-HQ-OAR-2008-0699-4249 at 1-4, JA____-____ (several areas cited by Environmental Petitioners have design values above 70 ppb, based on 2008 data handling conventions). Moreover, their examples illustrate the significant variability in annual exposures, which the

Administrator found *supported* her decision to choose a three-year average. 80 FR 65404/3. For example, they highlight a single-year level of 24 ppm-hrs in Superstition Wilderness, Environmental Br. 47, but the other two years in that three-year period (2004-2006) were 10 and 12 ppm-hrs. EPA-HQ-OAR-2008-0699-4249 at 2, JA____. In sum, the Administrator reasonably judged that effects associated with multiple-year exposures were of greater significance than those from single-year exposures. 80 FR 65,404/3.

2. The Administrator reasonably used tree growth loss as a surrogate for assessing the broader array of vegetation-related effects.

Environmental Petitioners contend that the Administrator is required by Section 7409(b)(2) to identify a specific level of air quality to protect against leaf injury (technically, visible foliar injury), Environmental Br. 52-56, but the Administrator gave a reasoned explanation for her decision to rely instead on tree growth loss to assess the appropriate degree of public welfare protection.

In this NAAQS review, EPA identified a multitude of vegetation effects associated with ozone exposure. 80 FR 65,380/3 (identifying effects on "an array of ecosystem services provided by forests, including timber production, carbon storage and air pollution removal"). But the Administrator also needed to judge the adversity of such effects to public welfare. 79 FR 75,313 (noting complexity of public welfare judgments). Consistent with CASAC's advice, the Administrator recognized tree growth loss as a surrogate for a broad array of growth-related effects. 80 FR 65,369/1.

She judged it appropriate to focus on tree growth loss in revising the secondary standard to provide the requisite public welfare protection. *Id.* at 65,406/1. Although she also gave detailed consideration to two other vegetation effects, leaf injury and crop yield loss, she found too many uncertainties for those effects to provide independent bases for the standard. *Id.* at 65,407/1-08/1.

To be sure, the Administrator recognized that the scientific evidence showed a causal relationship between ozone exposure and leaf injury. *Id.* at 65,383/3. And she acknowledged that leaf injury "has the *potential* to be adverse to the public welfare." 80 FR 65,388/3. But she faced three significant challenges in judging those public welfare impacts. *Id.* at 65,370/3, 65,382/2, 65,388/3, 65,390/1; 65,407/3. *First*, she lacked criteria by which to judge the potential public welfare impacts of leaf injury and to decide what amount of leaf injury was adverse. *Id.* at 65,407/3. *Second*, she lacked evidence that would allow her to measure the relationship between leaf injury and other vegetation effects that she might find adverse. *Id. Third*, she lacked a reliable technical analysis that would allow her to predict the severity and extent of leaf injury under various air quality and environmental conditions. *Id.*

In contrast, tree growth loss was linked to a range of effects, including for individual sensitive tree species and extending to ecosystem-level effects, particularly for multi-year exposures. *Id.* at 65,406-07. Further, CASAC had provided clear advice on the amount of tree growth loss that was unacceptable. *Id.* And the tree growth analysis provided a solid technical basis for the Administrator to assess the

quantitative relationship between ozone exposures and tree growth loss when identifying the appropriate degree of public welfare protection. *Id.* Thus, the Administrator rationally focused on tree growth loss as a surrogate to assess the broader universe of adverse effects on vegetation, recognizing that this approach would provide increased protection against leaf injury. *Id.* at 65,407/3-08/1.

Her conclusion is reasonable. Section 7409(b)(2) provides that the secondary standard should be set "based on such criteria," which as the *Mississippi* court explained "simply provide the scientific basis for promulgation of air quality standards." 744 F.3d at 1346 (citation and quotations omitted). Here, the Administrator fully considered the criteria—the available scientific information—on leaf injury and reasonably explained why it did not lead her to identify a separate public welfare protection objective for leaf injury. 80 FR 65,407/3. And she disagreed that Section 7409(b)(2) required her to identify a precise, quantified level of public welfare protection for every potentially adverse public welfare impact that she considered in revising the standard. *Id.* at 65,402-03; *cf. ATA III*, 283 F.3d at 370 (EPA need not "definitively identify pollutant levels below which risks to public health are negligible"). Consistent with the judgments that she reached using tree growth loss as a surrogate for a broad array of vegetation effects, she further determined that the degree of protection she identified would provide additional protection against leaf injury. *Id.* at 65,407-08. The Court does not "look through the microscope to scrutinize EPA's use of the criteria" because "EPA's translation of the

criteria into a NAAQS decision is not frictionless." *Mississippi*, 744 F.3d at 1346. Here, the Administrator made a rational judgment about the strengths and weaknesses of the available evidence, and the Court should not "reweigh the evidence or second-guess [her] technical judgment[]." *Id.*

Seeking to undermine the scientific basis for the Administrator's conclusion, Environmental Petitioners invoke CASAC's advice that "[an ozone] level below 10 ppm-hrs is required to reduce [leaf] injury." Environmental Br. 55-56 (quoting CASAC 2014c Letter at iii, JA___). Yet CASAC characterized this as policy advice, and the Administrator properly rejected the statement as inconsistent with the scientific evidence. 80 FR 65,407/3, 65,395/2-96/1. In fact, EPA prepared a separate technical memorandum to specifically consider and address CASAC's statement. *Id.* at 65,396/1 (discussing the 2015 Smith & Murphy memorandum). Contrary to CASAC's statement, EPA's analysis showed decreases in leaf injury with decreasing ozone exposures across a range of values well above 10 ppm-hrs. *Id.* at 65,396/1, 65,407/3. Thus, the Administrator fully explained why she was not relying on CASAC's statement. Moreover, CASAC recommended to EPA a range of exposures that included values above 10 ppm-hrs, which shows that CASAC itself did not view 10 ppm-hrs as a bright-line threshold for setting the secondary standard and that CASAC did not prioritize leaf injury over other vegetation effects.

Environmental Petitioners direct the Court to *Mississippi* and *Farm Bureau*, Environmental Br. 54-55, but unlike the situation here, those cases held that EPA had

failed to identify the public welfare objective for the revised secondary standard and to explain its basis. *Mississippi*, 744 F.3d at 1360-61; *Farm Bureau*, 559 F.3d at 529-31. Here, the Administrator expressly identified the public welfare protection that, in her judgment, the revised secondary standard needed to provide and fully explained her rationale. 80 FR 65,407/1. Noting key uncertainties and limitations in the evidence base for leaf injury and crop yield loss that made them ill-suited for this determination, she reasonably focused on the extensive and reliable evidence of tree growth loss as the primary scientific basis for her decision. *Id.* at 65,406-07. At bottom, Environmental Petitioners are challenging the Administrator's evaluation of the scientific evidence about adverse vegetation effects. That is a battle they cannot win. *See Ctr. for Biological Diversity*, 749 F.3d at 1087 (concluding that "[d]ecades of decisions in this court stand in the way of [petitioners'] arguments" challenging EPA's interpretation of the science).

C. The Administrator reasonably chose a revised secondary standard that provides neither more nor less public welfare protection than necessary.

After determining the appropriate degree of public welfare protection, the Administrator proceeded to the third and final step in revising the secondary standard: choosing a combination of elements for the revised standard to provide that protection. 80 FR 65,408-10. Although Environmental Petitioners challenge the Administrator's decision on the form and the level of the revised standard, she rationally explained her decision on both elements.

1. The Administrator rationally chose to retain the form of the standard.

Environmental Petitioners assert that EPA failed to properly follow CASAC's advice to revise the standard's form (the three-year average of the fourth-highest daily level) by adopting a cumulative, seasonal exposure index (technically, the "W126 index"). Environmental Br. 48-49. Although the Administrator agreed with CASAC's advice that the exposure index provided an appropriate way to consider vegetation effects caused by ozone exposure, she rationally explained her disagreement with CASAC's recommendation that the exposure index should also be the form of the standard. 80 FR 65,398-400, 65,408.

As the Administrator explained, Section 7409 does not require that the NAAQS be revised to match an exposure metric used in the NAAQS review. 80 FR 65,408/2. In NAAQS reviews, EPA frequently uses exposure metrics to determine the likelihood and significance of impacts under different exposures to a pollutant. *Id.* at 65,399/3. In contrast, the elements of the standard are designed to control air quality. *Id.* at 65,399. While it is possible for a standard to match the exposure metric used in a NAAQS review, EPA commonly uses exposure metrics in NAAQS reviews that differ from the elements of the standards. *Id.* In fact, EPA sometimes uses multiple exposure metrics in a NAAQS review to assess risks from a single pollutant. *Id.* But EPA's use of these exposure metrics does not dictate the form of the standard.

For example, EPA used the lead concentration in young children's blood as an exposure metric for the lead NAAQS, 80 FR 65,399/2, yet no one would suggest that the level of lead in children's blood should be the form of the NAAQS. Likewise, in this NAAQS review, no one suggested that the form of the primary ozone NAAQS should be "exposures of concern." Here, the Administrator found that the W126 exposure index was an appropriate exposure metric to judge vegetation effects. *Id.* at 65,403/3. But that did not require her to revise the form of the secondary standard.

Environmental Petitioners fault the Administrator for not demonstrating that the form that she chose is *more* protective of welfare than their preferred form. Environmental Br. 51. That misstates the Administrator's obligation under Section 7409(b)(2), which is to design a standard that, as a whole, is requisite. In that standard-setting process, Section 7409(b)(2) grants the Administrator considerable discretion to decide whether a particular form is appropriate, when combined with the other elements of the standard, and to decide whether to revise the form of an existing standard. 80 FR 65,400/1, 65,408.

Here, the Administrator properly noted that her decision on the level and form of the revised secondary standard focused on the public welfare objectives that she identified. *Id.* at 65,408/1. She concluded that "in combination with a revised level, the current form and averaging time for a revised secondary standard can be expected to provide the desired level of public welfare protection." *Id.* at 65,408/2. Where, as here, the Administrator has engaged in reasoned decisionmaking and explained how

the requisite protection can be achieved by revising only the level of the standard, the Act does not require her to also revise the other elements of the standard.

2. The Administrator rationally lowered the level of the standard to 70 ppb.

After deciding to retain the form for the revised secondary standard, the Administrator properly concluded that a level of 70 ppb would provide requisite public welfare protection. 80 FR 65,409/1. Environmental Petitioners challenge this conclusion, claiming it was made for convenience rather than to protect public welfare, Environmental Br. 49-51, but they overlook the reasoned decisionmaking that led the Administrator to her decision.

In revising the level of the standard, the Administrator focused on her goal of providing protection against tree growth loss somewhat lower than 6% and used the tree growth analysis to identify ozone exposures that achieve that goal. 80 FR 65,407/1 (noting 18 ppm-hrs is associated with 5.7%, which rounds to 6%, and 17 ppm-hrs is associated with 5.3%, which rounds to 5%). She then sought to identify a standard level that would restrict ozone exposures to 17 ppm-hrs or lower in nearly all instances. *Id.* at 65,407–09. In the Wells Memos, EPA developed a complex air quality analysis to assess the relationship between three-year average exposures that the Administrator wanted to avoid and the level of the revised secondary standard that would give her protection against those exposures. *Id.* at 65,408/3-09/2.

Overall, the Wells Memos showed that a revised secondary standard with a level of 70 ppb would protect against ozone exposures of 17 ppm-hrs and higher, in virtually all instances. *Id.* For example, in the 2015 Wells Memo, data from the eleven most recent three-year periods included nearly 4,000 occurrences of air quality that met a potential revised standard of 70 ppb. *Id.* at 65,409. For all these air quality values, three-year average exposures were above 17 ppm-hrs only four times, with only one just above 19 ppm-hrs, at 19.1 ppm-hrs. *Id.* Focusing on the air quality analysis for the most recent three-year period (from 2011 to 2013), she found more than 500 occurrences of air quality that met a potential revised secondary standard of 70 ppb. *Id.* Among those air quality values, spread across all nine climatic regions in the country and 46 of the 50 states, there were no three-year average exposures above 17 ppm-hrs and less than a handful equal to 17 ppm-hrs. *Id.* Noting the isolated, rare exposures at and above 17 ppm-hrs, the Administrator explained that she did not judge the tree growth loss estimates associated with these marginally-higher exposures to indicate effects that would be adverse to the public welfare. *Id.* at 65,407/1, 65,409/1, 65,400-01. She based this judgment on her assessment of the variability in environmental factors influencing ozone effects and uncertainties associated with estimates of such effects in the natural environment. *Id.*

Environmental Petitioners contend that the air quality analysis in the Wells Memos does not show "equivalent protection" between ozone exposures of 17 ppm-hrs and the revised secondary standard. Environmental Br. 49. But the Administrator

never claimed equivalency. Instead, she judged that a revised secondary standard with a level of 70 ppb would control cumulative, seasonal exposures sufficiently to provide the requisite protection for public welfare. 80 FR 65,408-09. This is precisely what Section 7409(b)(2) instructs her to do.

Notably, Environmental Petitioners do not directly challenge the Administrator's conclusions drawn from EPA's analysis of thirteen years' worth of air quality data in the Wells Memos. Instead they challenge her decision to revise the level of the secondary standard to 70 ppb by pointing to a different set of air quality data covering several national parks and wilderness areas—the same data in the public lands air quality analysis that the Administrator relied on to conclude that the 2008 secondary standard was inadequate. Environmental Br. 49-51 (citing "Dkt-4249," JA___-___, which is the air quality dataset for Class I areas supporting Table 3 in the final rule, 80 FR 65,385-86). This point does not appear to have been raised with EPA during the notice and comment period and is therefore waived. *See* 42 U.S.C. § 7607(d)(7)(B).

In any event, Environmental Petitioners misuse the data. The air quality data values they cite are derived and validated using data handling requirements associated with the 2008 secondary standard with a level of 75 ppb (Appendix P to 40 C.F.R. Part 50), rather than the new data handling requirements in Appendix U, which EPA included in the 2015 final rule. 80 FR 65,410-12 (Appendix U); *id.* at 65,386 (Table 3 note states that design values "are derived in accordance with Appendix P to 40 CFR

Part 50."). Differences between these data handling requirements lead to differences in the calculated air quality values and related differences in identifying sites that would meet a level of 70 ppb. Thus, for purposes of considering ozone exposures associated with sites that meet the revised secondary standard of 70 ppb, the appropriate air quality data to consider come from the Wells Memos. Environmental Petitioners' failure to rely on the proper air quality data renders their analysis and conclusions unsound.

III. EPA rationally addressed concerns about implementation of the NAAQS.

EPA lowered the level of the NAAQS to 70 ppb to protect people across the Nation from health problems up to and including premature death, and to safeguard the environment. State and Industry Petitioners argue that EPA cannot provide this protection because intermittent spikes in background ozone and cost concerns will make it too difficult to attain the NAAQS, and that these concerns also render the NAAQS unconstitutional. But EPA's modeling predicts that these spikes will not prevent states from attaining the NAAQS, and, in any case, "attainability" is "not [a] relevant consideration[]" when setting the NAAQS. *API*, 665 F.2d at 1185. The Clean Air Act explicitly directs EPA to establish NAAQS "requisite" to protect "public health" and "welfare." 42 U.S.C. § 7409(b). Only after setting protective NAAQS may EPA address attainment concerns posed by background ozone and solicit advice on costs. *See, e.g., id.* 42 U.S.C. §§ 7619(b), 7409(d)(2)(C)(iv). The Supreme Court has held that the Act divides the process of setting the NAAQS from the process of implementing the NAAQS, and that this statutory framework is constitutional. *Whitman*, 531 U.S. at 470, 75-76. State and Industry Petitioners cannot undercut the protection of the NAAQS with their exaggerated implementation concerns.

A. EPA reasonably followed the statutory mandate to set a requisite NAAQS.

EPA's statutory duty in setting the NAAQS is to provide requisite protection for public health and welfare nationwide. 42 U.S.C. § 7409(b). Industry and State Petitioners argue that EPA cannot fulfill this duty because background ozone will prevent attainment. They are wrong on the facts and the law. Domestic, manmade emissions, not background ozone, drive nonattainment. In almost all areas, background ozone will never exceed 70 ppb. The remaining few areas—generally sparsely-populated, high-altitude locations in the Intermountain West—may experience rare spikes in background ozone. But because the NAAQS is based on the fourth-highest daily level, EPA does not expect that those infrequent events will prevent attainment. And if necessary, EPA can address background ozone through the specific provisions in the Clean Air Act that govern natural events and international transport. Given its statutory authority to address the attainment concerns posed by background ozone during implementation of the NAAQS, EPA need not set the NAAQS so high that the standards will never be exceeded by background ozone at any time in any part of the Nation.

Petitioners use the term "background ozone" loosely, but as relevant to this case, background ozone is any ozone not formed from U.S. manmade emissions. 80 FR 65,327/3 n.84. It includes natural and international emissions, but does not include ozone formed by manmade emissions within the United States, even when

those emissions cross state lines. Interstate emissions are regulated under the Good Neighbor Provision of the Act, which prevents upwind states from causing significant deterioration of air quality in downwind states. Thus, while interstate emissions may appear "uncontrollable" in a downwind state, these emissions are, in fact, controlled by the Act, and ozone formed by emissions in any state is not properly considered background ozone. *See* 80 FR 65,443/2; *EPA v. EME Homer City Generation, L.P.*, 134 S. Ct. 1584, 1591 (2014) (citing 42 U.S.C. § 7410(a)(2)(D)(i)).

The sources of background ozone most concerning to State and Industry Petitioners, natural and international emissions, are explicitly addressed by the Act, not in the provision under which EPA sets the NAAQS, but in other provisions regarding exceptional events, as well as implementation of the NAAQS. EPA has successfully used those provisions to address background ozone in the past, and it reasonably concluded that it could do so in the future.

1. Background ozone will not preclude attainment.

EPA carefully studied the influence of background ozone throughout the Nation. The Agency reviewed a vast body of scientific evidence, ran its own detailed models, and considered CASAC's advice and public comments. This evaluation of scientific data was "within [EPA's] technical expertise," and is entitled to an "extreme degree of deference." *City of Waukesha v. EPA*, 320 F.3d 228, 247 (D.C. Cir. 2003). "This level of deference is especially appropriate in review of EPA's administration of

the complicated provisions of the Clean Air Act." *ATK Launch Systems, Inc. v. EPA*, 669 F.3d 330, 336 (D.C. Cir. 2012) (internal quotation marks and citations omitted).

EPA's primary technical conclusion was that manmade emissions, not background ozone, drive nonattainment. 80 FR 65,328/3. In the vast majority of the country, background ozone will never rise above 70 ppb. 80 FR 65,328/1. On days with high total ozone levels, manmade concentrations of ozone increase while background levels of ozone typically remain around the season average, between 25 ppb and 50 ppb. 80 FR 65,328/2; PA 2A-42, JA___. On days when total ozone levels exceed 70 ppb, U.S.-manmade emissions account for more than 65% of total ozone on average. 80 FR 65,328/3. These high ozone days present the greatest health risk, and this health risk is attributable to ozone formed by domestic, manmade emissions, controllable under the CAA. 80 FR 65,341/3.

To be sure, EPA also found that in a few high-altitude, rural locations in the Intermountain West, background ozone levels may rise above 70 ppb on rare occasions, but EPA does not expect that these infrequent exceedances will preclude attainment. 80 FR 65,328/1-2; RTC 342, JA____. EPA employed two scientific models to analyze background ozone in 1,294 locations throughout the country over the 214-day ozone season, for a total of 276,916 modeled location-days. PA 2A 12 & 15, JA____, JA____. These two models estimated that background ozone would exceed 70 ppb on only 2 and 22 location-days. PA 2A-25, Figs. 5c & 5d, JA____. Stratospheric intrusions and wildfires were the suspected sources of these modeled

exceedances, which were experienced in scattered locations in the Intermountain West. PA 2A-14, JA____; 80 FR 65,436/2.

EPA further predicted that these infrequent days of background ozone levels greater than 70 ppb would not prevent attainment of the NAAQS in any location. 80 FR 65,328/1; RTC 342, JA____. The form of the NAAQS is based on the fourth-highest daily level, which allows daily ozone levels in any area to exceed 70 ppb three times in one year without violating the NAAQS. 80 FR 65,351/3. CASAC endorsed EPA's selection of a form based on the fourth highest daily level, averaged across three years, specifically because it allows for "atypical meteorological conditions that can lead to abnormally high ambient ozone concentrations," like the infrequent stratospheric intrusions that can cause ozone levels to spike, while still providing requisite public health and welfare protection. 80 FR 65,352/2. Thus, EPA predicted that no locations would experience background ozone levels over 70 ppb frequently enough to preclude attainment. 80 FR 65,328/1.

Industry and State Petitioners ask this Court to second-guess EPA's technical conclusions, claiming various deficiencies in EPA's models and pointing to studies that purportedly show that background ozone concentrations will cause exceedances of the NAAQS in numerous areas of the country. But EPA's expert evaluation of "complex scientific and technical" evidence is well-supported by the record and should be upheld. *See Lead Indus.*, 647 F.2d at 1145-46. The Agency's modeling is

sound and complete, and the studies Petitioners identify actually corroborate EPA's conclusions.

State Petitioners lob many criticisms at EPA's modeling, but none hit the mark. Their claim that EPA did not consider the effect of background ozone levels on peak total ozone days, but only seasonal averages, is plainly contradicted by the record. State Br. 21. As noted above, EPA acknowledged that peak days were more relevant to the NAAQS, and concluded that on peak days when total ozone levels exceed 70 ppb, U.S.-manmade emissions are the main factor driving daily ozone levels above 70 ppb. RTC 345, JA____. EPA detailed the few exceptions, explaining that stratospheric intrusions and wildfires may cause exceedances on rare days in limited areas in the Intermountain West. 80 FR 65,328/1-2.

State Petitioners also question whether EPA's models were configured appropriately to capture days when background ozone exceeded 70 ppb. State Br. 25. Because State Petitioners did not raise these technical issues in their comments, these arguments have been waived. 42 U.S.C. § 7607(d)(7)(B). In any event, State Petitioners make the unsupported claim that EPA did not model stratospheric intrusions, even though EPA specifically identified stratospheric intrusions as a cause of modeled exceedances. 80 FR 65,300/3; PA 2A-14, JA____. EPA also modeled wildfire, lightning, and international emissions. PA 2A-7 to 2A-8, JA____-____. These models faithfully apply the definition of U.S. background ozone, which includes only ozone that would not exist without U.S.-manmade emissions, and not ozone formed by the

combination of U.S.-manmade emissions and natural emissions. PA 2A-5 n.1, JA____. Additionally, when EPA compared its model results to actual data, the Agency found that its models performed as well or better than other models and that model bias and error rates were relatively small. PA 2A-9, JA____; RTC 344-45, JA____. State Petitioners mischaracterize a graph of EPA's modeling results by discussing exceedances of 60 ppb, whereas the NAAQS is set at 70 ppb. State Br. 24 (citing Figure 5c). Tellingly, neither State nor Industry Petitioners actually specify a number of expected exceedances of 70 ppb, much less a number that is different from EPA's.

Industry Petitioners, joined by State Petitioners, do cite different scientific models that they claim cast doubt on EPA's conclusions. But EPA's choice of model cannot be rejected unless "the model bears no rational relationship" to the data. *Appalachian Power Co. v. EPA*, 135 F.3d 791, 802 (D.C. Cir. 1998). Because EPA's models incorporated extensive data on background ozone and manmade ozone and produced reliable and relevant results, they must be upheld. *Id.*

Further, most of the models Petitioners cite actually corroborate EPA's finding that in limited locations in the Intermountain West, background ozone may at most infrequently cause exceedances of 70 ppb, but will not prevent attainment of the standard itself. RTC 345-49, JA____-____; Lefohn and Oltmans, JA____ (concluding that "exceptional events in the Intermountain West" may cause infrequent spikes in background ozone levels); Zhang, JA____ (concluding that North American

background ozone would never rise above 70 ppb, and the highest daily background ozone values would be in the Intermountain West); Emery, JA____ (concluding that North American background ozone would remain below 65 ppb except in isolated regions downwind of specific, large wildfires); Lin 2012a, JA____ (concluding that North American background exceeded 70 ppb only infrequently, and highlighting the correlation between those events and stratospheric intrusions); Electric Power Research Institute, JA____ (industry comment incorporating a non-peer-reviewed model, which predicted that in the future, if international transport increases, the fourth-highest daily ozone background levels may be as high as 65 ppb in Denver); Sonoma Technologies, JA____ (industry comment estimating that background ozone levels could at times rise to a range between 47 ppb to 68 ppb).

The only cited studies that do not corroborate EPA's findings also do not undermine them. Cooper, JA____ (suggesting that internationally-transported tropospheric ozone has increased); Lin 2012b, JA____ (estimating ozone attributable to international transport from Asia); *see also* RTC 343-44, JA____-____ (noting that studies indicate that the trend in tropospheric ozone has slowed over time). Because the cited studies did not purport to estimate total background ozone levels, they provide no basis for concluding that background ozone levels are substantially higher than EPA's estimate.

Industry Petitioners cite one additional study that they claim proves background levels can rise above 70 ppb. Industry Br. 24. That study reports that

monitored ozone values in Clark County, Nevada are sometimes greater than 70 ppb. RTC 346-347, JA____-____ (discussing Langford). But as EPA explained, these monitored ozone levels cannot "be used as a proxy for background [ozone]" particularly when two million people live in the bustling county, home to Las Vegas, with many local sources of air pollution. *Id.* The authors of the study themselves acknowledge that the high monitored ozone levels have multiple causes, including locally-generated pollution, interstate pollution, and also stratospheric intrusions, wildfires and international transport from Asia.[4] *Id.*; 80 FR 65,328/1 (monitored ozone levels cannot be used as a proxy for background levels).

In sum, EPA drew logical conclusions from complex technical evidence. The stratospheric intrusions and wildfires that lift background ozone levels are uncommon and scattered, and in light of the form of the standard, those events will not prevent attainment of the NAAQS.

2. EPA can address attainment concerns posed by background ozone after setting the NAAQS.

Even assuming that background ozone would prevent attainment in certain atypical, isolated situations if left unaddressed, EPA reasonably decided that it could

[4] State Petitioners also cite EPA documents from a separate rulemaking, the Tools Fact Sheet and Workshop Slides, which are not appropriately before the Court because they postdate the administrative record. 42 U.S.C. § 7607(d)(7)(A). In any event, the scientific observations in those documents are consistent with others in the record. *Compare* the explanation of stratospheric intrusions in Tools Fact Sheet at 4 *with* PA 2-10, JA____; and *compare* the report of an increasing, but uncertain, trend in midtropospheric ozone in Workshop Slides at 21 *with* RTC 343-44, JA____-____.

address this issue through particular provisions in the Act that govern background levels of air pollution, instead of raising the NAAQS. The Exceptional Events, International Transport, and Rural Transport provisions specifically address the effects of different types of background emissions on attainment. EPA reasoned that states and areas have successfully used these targeted provisions to prevent the very same sources of background ozone at issue in this case from precluding attainment or prompting sanctions in the past, and they may do so in the future. 80 FR 65,436/3, 65,438/3, 65,444/2.

EPA pinpointed stratospheric intrusions and wildfires as the suspected sources of background ozone that may cause background ozone levels to rise above 70 ppb. 80 FR 65,436/2. These events need not preclude attainment under the Exceptional Events provision. 80 FR 65,439/2 (citing 42 U.S.C. § 7619(b)). Whether areas "attain" the NAAQS is a question that EPA answers after it issues the NAAQS. EPA receives recommendations from states regarding whether areas have attained the NAAQS, usually based on air quality monitoring data. 42 U.S.C. § 7407(d). But under the Exceptional Events provision, states can petition EPA to exclude monitoring data impacted by "exceptional events," which include "natural events" affecting air quality that are not "reasonably controllable or preventable." 42 U.S.C. § 7619(b).

EPA considers stratospheric intrusions and natural wildfires to be "natural events" covered by the Exceptional Events provision, and states have successfully petitioned EPA to exclude data from these events in the past. 80 FR 65,439/2. State

Petitioners wrongly suggest that the Exceptional Events provision is illusory because, under EPA regulations, "routine natural emissions" are not "exceptional." State Br. 35. But EPA has always considered the sources of background ozone at issue in this case (stratospheric intrusions and wildfires) to be more than "routine" fluctuations, eligible for exclusion under the Exceptional Events provision. *See* 80 FR 65439/1 n.239; Treatment of Data Influenced by Exceptional Events, 72 FR 13,560, 13,566/2-3 (Mar. 22, 2007)). Indeed, EPA has granted exceptional events petitions for stratospheric intrusions and wildfires. 80 FR 65,439/2 (EPA recently granted Wyoming's petition regarding stratospheric intrusion and California's petition regarding wildfires).

State Petitioners also assert that their Exceptional Events petitions often go unanswered. State Br. 41. Yet EPA has acted on every Exceptional Events petition that would affect a decision on an attainment or nonattainment designation following the promulgation of a revised NAAQS. 80 FR 65,436/3. The form of the standard, which is based on the fourth-highest daily level, allows ozone to exceed 70 ppb three days each year in each area without the need for any documentation. Thus, petitions to exclude data on multiple days need not always be addressed.

Though the Exceptional Events provision alone should address the two sources of background ozone that caused modeled exceedances of 70 ppb, stratospheric intrusions and wildfires, states and areas may use two other provisions in the Act to address background ozone. 80 FR 65,444/1. Under the International

Transport provision, international emissions need not force sanctions. 42 U.S.C. § 7509a. If a state demonstrates that its state implementation plan (SIP) is sufficient to attain the NAAQS "but for" international emissions, EPA must approve the SIP and cannot impose sanctions for failure to submit an adequate SIP. *Id.*; 80 FR 65,444/1. EPA has approved Section 7509a demonstrations for El Paso, Texas, and Nogales, Arizona to account for international pollution transported from Mexico, and the Agency can do the same to address the impact of international pollution on the attainment of this NAAQS. 80 FR 65,444/2. Finally, under the Rural Transport provision, certain rural areas do not need to demonstrate attainment of the NAAQS, regardless of the types of background pollution that affect them. 42 U.S.C. § 7511a(h); 80 FR 65,438/3.

Granted, no one provision of the Act operates to exclude all sources of background ozone in all areas. But collectively, these provisions address all of the sources that EPA determined might cause background levels to rise above 70 ppb, namely stratospheric intrusions and wildfires, as well as other sources, like international emissions. Because these sources of background ozone fall into the categories addressed by specific provisions in the Act, EPA reasonably concluded that it did not need to refrain from revising a NAAQS that was not requisite to protect public health, simply to address the attainment concerns posed by background ozone. 80 FR 65,328/3. Indeed, doing so would have resulted in standards that are under-protective of public health and welfare for the vast majority of the Nation, solely for

the purpose of assuring that atypical conditions in certain discrete areas never can cause violations. Such a result is both unnecessary and antithetical to the prophylactic purposes of the Act.

Industry and State Petitioners concede, as they must, that these provisions are legally available to address background ozone, and primarily argue that they are practically unworkable. Industry Br. 31 (exceptions are "theoretical[ly] availab[le]"); State Br. 41. But they ignore the fact that these provisions have worked in the past. EPA has granted Exceptional Events petitions for stratospheric intrusions and wildfires, it has approved SIPs under the International Transport provision, and it has designated Rural Transport areas. 80 FR 65,436/3, 65,444/2, 65,438/3. Because these provisions have proven workable, EPA reasonably concluded that they do work.

State Petitioners seek to distinguish the past from the present by suggesting that, while background ozone may have caused infrequent exceedances of previous NAAQS, it will cause far too many exceedances of the 2015 NAAQS. State Br. 33. EPA reasonably judged the number of exceedances at issue in this case to be "infrequent," and, regardless, the Exceptional Events provision does not limit the number of natural events that states can petition to exclude. *See* 42 U.S.C. § 7619(b)(1)(A)(iii) (human activity must be "unlikely to recur at a particular location," but natural events need not). EPA can and has granted Exceptional Events petitions for numerous natural events. *See* EPA Region 9 Letter to Hawaii, JA____ (agreeing to exclude 268 days of data influenced by volcanic emissions).

State Petitioners also claim that EPA's reliance on the three provisions discussed above is unreasonable because the future is unknowable. State Br. 42-43. But their speculative concerns about the future are no reason to overturn EPA's current decision setting the NAAQS. States need not fear that EPA will suddenly stop implementing these background pollution provisions. *See Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 414 (1971) (agencies are presumed to act with regularity). Indeed, EPA is revising its Exceptional Events regulations to further improve the petition process. 80 FR 65,413/2. If these Petitioners are dissatisfied with EPA's future decisions, then they may seek judicial review of those actions at the appropriate time. Idle and unsupported speculation about future events cannot, however, be used to undermine reasonable decisions made by EPA based on known facts today.

Finally, these Petitioners argue that these provisions are not "sufficient" because states and areas must affirmatively take some action to address background ozone, whereas if the NAAQS were higher, they would not. EPA acknowledged that some states and areas will have to work to meet their obligations under these NAAQS if they are significantly affected by background ozone, for example, by submitting an Exceptional Events petition. 80 FR 65,436/3. But this is a requirement imposed by Congress, not EPA. Indeed, there would have been little or no need for Congress to include the Exceptional Events provision if it had intended EPA to set the NAAQS at a level that always accommodated such events in the first place. As discussed in

more detail below, Congress did not structure the Act to allow states to automatically invoke background ozone as a reason to withdraw from the process of reducing air pollution; instead, Congress crafted a deliberate, documented process to allow some reasonable accommodation for exceptional events when they occur. In summary, EPA reasonably concluded that background ozone did not prevent the Agency from meeting its statutory obligation to set fully protective standards for the Nation because no area will be precluded from attaining the standard, and statutory provisions provide further avenues for addressing the isolated exceedances of 70 ppb caused by background ozone.

3. The Clean Air Act does not require EPA to abandon a "requisite" NAAQS to accommodate background ozone.

Industry and State Petitioners argue that despite the specific provisions that address background pollution just discussed, the Clean Air Act requires EPA to set the NAAQS above the highest background levels in any area—a least-common-denominator approach that provides manifestly inadequate public health protection. Their statutory argument collapses under the familiar standard of *Chevron v. NRDC*, 467 U.S. 837 (1984). Even assuming that background ozone may cause violations of the NAAQS, the Act does not unambiguously require EPA to set the NAAQS so high that it would never be violated by background ozone. This interpretation misconstrues the text of Section 7409(b), the principal statutory provision on setting

the NAAQS, and violates the "cardinal rule that a statute is to be read as a whole." *King v. St. Vincent's Hosp.*, 502 U.S. 215, 221 (1991).

Under Section 7409(b), EPA must set a NAAQS that is "requisite" to protect "public health" and "welfare," 42 U.S.C. § 7409(b), and a NAAQS that sacrifices the health and welfare of all people in all areas to accommodate the highest levels of background ozone cannot be "requisite." Controllable domestic, manmade emissions will subject millions of people across the Nation to harm if the NAAQS are not reduced. Congress expected EPA to protect these people by setting a NAAQS that would force down emissions. *Whitman*, 531 U.S. at 491-92 (Breyer, J. concurring). A NAAQS higher than the highest level of background ozone experienced in any area does not remedy a national problem; it fails to protect millions of Americans from the harmful effects of ozone pollution. The EPA reasonably does not interpret the Act to require such a result.

Industry and State Petitioners argue that EPA cannot provide "requisite" public health and welfare protection nationwide if background ozone will make it impossible for any single state or area to "achieve and maintain" the NAAQS. As previously discussed, this fact pattern is not present in this case because EPA does not expect background ozone to preclude attainment of the NAAQS. But even assuming otherwise, under *Chevron* step one, Petitioners must show that the Act unambiguously requires EPA to set the NAAQS above the highest level of background ozone. *Chevron*, 467 U.S. at 842-43.

More problematically, Petitioners fail to consider the statute as a whole. *See King*, 502 U.S. at 221. The Act allows states and areas several alternatives to showing that they have "achieved" the NAAQS when background ozone conflicts with attainment, as discussed in the previous section. This Court has already observed that "Congress addressed the circumstances under which attainment could be waived" through provisions such as the International Transport provision, 42 U.S.C. § 7509a. *See Coalition of Battery Recyclers Ass'n v. EPA*, 604 F.3d 613, 624 (D.C. Cir. 2010).

As EPA began lowering the NAAQS, Congress considered and addressed the potential conflict between background ozone and the NAAQS by adding the International Transport and Rural Transport provisions in 1990 and the Exceptional Events provisions in 2005. Pub. L. No. 101-549, §§ 103, 181, 104 Stat. 2399; Pub. L. No. 109-59, § 6013(a), 119 Stat. 1144. These provisions provide EPA the means to address attainment concerns posed by background ozone when making attainment designation decisions and passing on attainment demonstrations, instead of when setting the NAAQS. Though Congress could have written an exception that prevents EPA from setting a NAAQS that ever conflicts with background ozone, Congress chose to address this issue in narrower ways. In setting the revised NAAQS here, EPA reasonably decided that it could utilize these targeted provisions when states claim that background ozone is the source of their nonattainment, instead of reducing public health and welfare protection nationwide.

Grasping for a statutory hook, State and Industry Petitioners point to three statutory phrases that mention both NAAQS and achievement or attainment, and argue that these phrases clearly require EPA to set a NAAQS under Section 7409(b) that all states can attain without resorting to any specific provision on background ozone. This argument is fatally flawed because none of the provisions cited requires the Administrator to select a NAAQS that she knows all areas will attain, and she need not ignore the statutory exceptions governing background ozone at the designation and implementation stages. *See Battery Recyclers*, 604 F.3d at 625. Thus, neither the plain language nor the structure of the Act supports Petitioners' interpretation that the highest background level sets a floor below which the NAAQS cannot fall.

Industry Petitioners mention, but place limited stock in, Section 7409(b), and for good reason. Industry Br. 26. This section requires EPA to set the NAAQS at a level "the attainment and maintenance of which" is "requisite" to protect "public health" and "welfare." 42 U.S.C. § 7409(b). But this phrase does not require states to attain the NAAQS. Section 7409(b) establishes the Administrator's obligation to set a "requisite" NAAQS that, if attained, would protect public health and welfare. This section does not establish any state obligations to attain the NAAQS. And it does not require that the Administrator consider attainability when setting the NAAQS—in fact, just the opposite. This Court has repeatedly held that "attainability" is not a "relevant consideration[]" when setting the NAAQS, specifically citing this section.

API, 665 F.2d at 1185 ("attainability" owing to "natural factors" is not relevant); *Lead Indus.*, 647 F.2d at 1148-1149; 80 FR 65,328/1.

State and Industry Petitioners attempt to dodge this Court's precedent holding that "attainability" is not relevant to setting the NAAQS by reconfiguring their argument as one of "achievement," rather than "attainment" of the NAAQS. They lean heavily on Section 7407(a), though in their briefs, both State and Industry Petitioners noticeably fail to quote the language in italics:

> Each State shall have the primary responsibility for assuring air quality within the entire geographic area comprising such State *by submitting an implementation plan for such State which will specify the manner in which [the NAAQS]* will be achieved and maintained within each air quality control region in such State.

42 U.S.C. § 7407(a). State Br. 19; Industry Br. 25. This section gives states the responsibility of drafting implementation plans that include measures to "achieve[] and maintain[]" the NAAQS. The instruction it gives is unremarkable—state implementation plans (SIPS) should contain measures to implement the NAAQS. Industry Petitioners also cite another provision governing SIPs, Section 7410(a)(2)(C), which requires SIPs to include particular regulations "as necessary to assure that [NAAQS] are achieved." Industry Br. 25. This section more specifically requires that SIPs contain certain implementation measures.

Industry and State Petitioners argue that collectively, these statutory phrases require that all states "achieve" the NAAQS *and* forbid EPA from setting the NAAQS at a level that even one state or area could not achieve without excluding

background ozone. Taking this argument one step further, they assert that EPA cannot set the NAAQS at a level that would be "hard" to attain because it "approaches" background ozone levels. State Br. 20-21; Industry Br 29-30. This more extreme reading is unmoored even from their already-unreasonable statutory interpretation that the Act requires EPA to set the NAAQS at a level all states and areas can "achieve and maintain." A NAAQS that is difficult to achieve is not unachievable. Even their primary argument that EPA cannot set the NAAQS at a level lower than the highest level of background ozone on any day in any area is not supported by the text or structure of the Act. Sections 7407(a) and 7410(a)(2)(C) set requirements for SIPs, but they do not require that states or areas always be able to achieve the NAAQS without exception, or that EPA set the NAAQS accordingly.

EPA's decision to address background ozone through narrower implementation provisions without diluting the public health and welfare protection of the NAAQS is consistent with this Court's approach in *API v. Costle*. RTC 342, JA____; *see also Whitman*, 531 U.S. at 470. In *API*, the city of Houston argued in part that because "natural factors," or natural sources of pollution, would prevent it from attaining the NAAQS, EPA's decision to set a more stringent NAAQS was arbitrary and capricious. *API*, 665 F.2d at 1185-86. The Court rejected this argument because EPA need not "tailor national regulations to fit each region or locale," especially given that Congress was "aware that some regions are having difficulty" meeting the NAAQS and made allowances for this contingency in other statutory provisions,

including those that postpone deadlines for attainment. *Id.*; *see also id.* at 1190; RTC 342, JA____.

As in *API*, EPA decided not to promulgate a NAAQS that was less stringent than needed to protect public health and welfare to accommodate background ozone levels in limited, rural, high-altitude areas in the Intermountain West. Instead, EPA reasonably looked to other statutory provisions that states and areas could use to address background ozone levels without reducing public health and welfare protection nationwide.

Industry and State Petitioners struggle to distinguish their position from Houston's in *API*. Industry Br. 27; State Br. 32-33. The thrust of their argument is that while background ozone in Houston may have been a "region[al] or loc[al]" issue, background ozone here is a more widespread concern. But EPA found that background ozone may exceed 70 ppb on individual days in only a few high-altitude locations in the Intermountain West, and these exceedances were so sporadic that they would not preclude attainment of the NAAQS. RTC 342, JA____. In short, background ozone is not close to a pervasive, national issue here. 80 FR 65,328/3.

State Petitioners further parse *API* to make the semantic legal argument that the Court did not consider EPA's responsibility when background ozone makes it impossible for *states* to achieve the NAAQS, not just regions or cities. State Br. 33. But in *API*, this Court equated "regions," whose background levels cannot dictate the NAAQS, with "states." *API*, 665 F.2d at 1185-86. (noting that Congress addressed

the problems that some "regions" were having in meeting the NAAQS and describing a provision applicable to "states"). Further, primary responsibility for implementing the NAAQS has always rested with the states. *See, e.g.*, 42 U.S.C. § 7410. Congress addressed attainment concerns posed by background ozone in states, as well as smaller areas. *See* 42 U.S.C. § 7509a (addressing attainment demonstrations by states). The distinction that State Petitioners seek to make does not exist. And even if it did, *API* still supports EPA's conclusion that the Act does not unambiguously require EPA to address background ozone when setting the NAAQS, particularly when EPA can implement specific provisions on background ozone afterwards.

4. EPA did not need to address whether background ozone could ever justify a higher NAAQS.

In revising the NAAQS to provide requisite public health and welfare protection, EPA declined to raise the NAAQS to address sources of background ozone that may pose limited conflicts with a level of 70 ppb when other statutory provisions were available. 80 FR 65,328/3. Because the record indicated that background ozone posed a limited challenge to the states achieving the revised NAAQS, EPA was not faced with the question of whether raising the NAAQS to accommodate background ozone could be a *permissible* reading of the Act under *Chevron* step two. The record did not require EPA to reach this question of statutory interpretation, and EPA properly declined to do so. Likewise, the Court does not need to resolve that question in this case.

In the past, EPA has suggested that when choosing among a range of requisite values, some of which are in "proximity" to background ozone nationwide, EPA may consider background ozone when choosing a level within that range—a position this Court has acknowledged. *ATA III*, 283 F.3d at 379; 80 FR 65,327. EPA has also suggested that the NAAQS should not be lowered to levels that cannot be achieved "*throughout the country* without action affirmatively *extracting* chemicals from nature." *Am. Trucking Ass'ns v. EPA*, 175 F.3d 1027, 1036 (D.C. Cir. 1999) (*ATA I*), *aff'd in part and rev'd in part*, *Whitman v. Am. Trucking Ass'ns*, 531 U.S. 457 (2001) (emphasis added); *see also Whitman*, S. Ct. Oral Arg. Tr. at 35 (Nov. 7, 2000). But through the operation of the statutory provisions on background pollution, particularly the Exceptional Events provision added to the Act in 2005, states and areas will not need to extract ozone from nature to fulfill their obligations under the revised NAAQS.

Industry and State Petitioners claim that EPA's current position is inconsistent with its previous positions on background ozone. Industry Br. 30; State Br. 47; *see also Encino Motorcars, LLC v. Navarro*, 136 S. Ct. 2117, 2125-26 (2016). Not so. In this review, EPA had no need to revisit its ability to raise the NAAQS to address background ozone because background ozone will not prevent attainment of a 70 ppb NAAQS, and even if it might, other statutory provisions address the sources of background ozone at issue here.

B. The Clean Air Act prohibits EPA from considering costs, or "economic impacts," in setting the NAAQS.

The Supreme Court held in *Whitman* that EPA's statutory mandate to set the NAAQS at a level requisite to protect public health and welfare "unambiguously bars cost considerations from the NAAQS-setting process," 531 U.S. at 471. Industry and State Petitioners ignore well-established law to argue that EPA must consider "adverse economic, social, and energy impacts" and other costs when revising the NAAQS. Industry Br. 31; State Br. 48. These impacts are just costs by other names. RTC 352, JA____. Many times now, this Court has rejected similar attempts to introduce cost considerations into the NAAQS through the back door. The Supreme Court has emphatically and unanimously endorsed this Court's long-held position that when setting the NAAQS, EPA cannot consider costs, no matter their guise. Indeed, had EPA considered the factors championed by Industry Petitioners, the Agency would have committed reversible error. *Whitman*, 531 U.S. at 471 n.4; RTC 353, JA____.

In *Whitman*, the Supreme Court surveyed five opinions in which this Court held that "economic considerations [may] play no part in the promulgation" of the NAAQS. *Id.* at 464 (citing *Lead Indus.*, 647 F.2d at 1148; *ATA I*, 175 F.3d at 1040-41; *Am. Lung Ass'n*, 134 F.3d at 389; *NRDC*, 902 F.2d at 973; *API*, 665 F.2d at 1185). The Supreme Court agreed that the Act forbids EPA from considering costs when setting the NAAQS. *Whitman*, 531 U.S. at 564. Though other provisions of the Act

specifically require EPA to consider costs, Section 7409(b) requires EPA to set the NAAQS at a level "requisite" to protect "public health" and "welfare" with no mention of costs. *Id.* at 465. The Supreme Court found it "implausible" that Congress silently intended EPA to consider costs in setting the NAAQS when doing so is "so full of potential for canceling the conclusions" of a health- and welfare-based analysis. *Id.* at 468-69.

The Supreme Court rejected industry's attempts to "pad health effects with cost concerns." *Id.* at 468. Industry argued that revising the NAAQS would unleash an economic downturn, which would in turn affect public health, and therefore, EPA needed to consider economic effects. The Court reasoned that Congress was "unquestionably aware" that reducing air pollution might cause some businesses to close, workers to find new jobs, and consumers to change their behavior, but affirmatively held that EPA cannot consider these impacts in setting the NAAQS. *Whitman*, 531 U.S. at 466.

Repeating history, Industry Petitioners try to shade their economic concerns with overtones of health and welfare. They argue that while *Whitman* forbade consideration of "implementation costs," the economic, social, and energy impacts of revising the NAAQS are not classic implementation costs. Industry Br. 33 n.15. This argument misstates *Whitman*'s holding, which forbids EPA from considering costs without qualification. 531 U.S. at 471. The costs that Industry Petitioners would have EPA consider, "reductions in economic growth, job loss, increased energy prices,"

Industry Br. 32, are no different than the costs that the Court held EPA was forbidden to consider in *Whitman*. *See id.* at 466 (EPA cannot consider "the economic cost of implementing a very stringent standard" which "might produce health losses sufficient to offset the health gains achieved in cleaning the air, for example by closing down whole industries and thereby impoverishing the workers and consumers dependent upon those industries"). Industry Petitioners insist that they are not asking EPA to consider implementation costs, but economic and other "impacts." This distinction does not exist. The NAAQS will have no impact on the economy, society or energy unless implemented. And both the Supreme Court and this Court have held that EPA cannot consider implementation concerns, including alleged health risks from unemployment, when setting the NAAQS. *Id.*; *Lead Indus.*, 647 F.2d at 1153; *NRDC*, 902 F.2d at 973.

Industry Petitioners attempt to salvage their argument by pushing costs into a "contextual assessment of acceptable risk." Industry Br. 32. They borrow the term from Justice Breyer's concurrence in *Whitman*, but not the meaning he gave it. *See also Mississippi*, 744 F.3d at 1343 (citing *Whitman*, 531 U.S. at 494-95 (Breyer, J., concurring)). Justice Breyer agreed with the full Court that EPA must decide what level of public health and welfare protection is requisite without regard to the "economic costs of compliance." *Whitman*, 531 U.S. at 490 (Breyer, J., concurring). But he would have allowed EPA to put the health risks from air pollution in context by considering "comparative health risks," the "acceptability of small risks," and "the

severity of a pollutant's potential adverse health effects." *Id.* at 495. All of these "contextual factors" are exclusively health concerns.

State Petitioners more forthrightly argue that EPA cannot "ignore[] all cost considerations." State Br. 48. But the Supreme Court instructed EPA to do exactly that when it held that the Act "unambiguously bars cost considerations from the NAAQS-setting process." *Whitman*, 531 U.S. at 471. Like Industry Petitioners, State Petitioners attempt to cloak costs in the garb of "public health." They unearthed a public health treatise from 1970 that references the need for an adequate "standard of living" to ensure good health, and from that, they argue that EPA must consider costs when setting a health-protective NAAQS. State Br. 48-49. But the Supreme Court has already acknowledged that reducing air pollution may impose economic costs, which may in turn cause health losses, and gave the specific example of reductions in job opportunities and consumer benefits, the very makings of a "standard of living." *See* Oxford English Dictionary 2016 (standard of living ensures "material comfort"). Nonetheless, the Court held that EPA *cannot* consider these costs when setting the NAAQS. 531 U.S. at 466.

Industry Petitioners raise two final statutory points in support of their argument that EPA must consider costs when setting the NAAQS, Industry Br. 33, 36, both already rejected by the Supreme Court. *First*, Industry Petitioners cite Section 7409(d)(2)(C)(iv), which requires CASAC to advise EPA on "adverse public health, welfare, social, economic, or energy effects which may result from various strategies

for attainment and maintenance of [the NAAQS]." 42 U.S.C. § 7409(d)(2)(C)(iv). The Supreme Court has determined, contrary to Industry Petitioners' interpretation, that CASAC's advice on social, economic, and energy impacts should aid EPA and the states in implementing the NAAQS, not in setting the NAAQS. *Whitman*, 531 U.S. at 470 & n.2; *see also id.* at 490 (Breyer, J., concurring). This purpose is clear in context. The preceding subsection requires CASAC to give scientific advice to inform EPA when setting the NAAQS. Specifically, every five years, CASAC must review air quality criteria and recommend revisions to the NAAQS based on those criteria so that EPA may set a "requisite" NAAQS. 42 U.S.C. § 7409(d)(2)(B). In contrast, the subpart that Industry Petitioners cite does not require CASAC to provide this input to EPA during NAAQS review or at any specific time. *Id.* § 7409(d)(2)(C); RTC 352, JA____. Instead, CASAC's advice on economic and other impacts under Section 7409(d)(2)(C)(iv) is "pertinent only to the EPA's duty under [Section 7408] to provide the States with control strategy information."[5] *ATA I*, 175 F.3d at 1041.

Second and finally, Industry Petitioners argue that EPA must consider economic and other impacts when revising the NAAQS because Section 7409 requires NAAQS revisions to be "appropriate." Industry Br. 33 (quoting 42 U.S.C. § 7409(d)(1)). The

[5] Under Section 7409(d)(2)(C)(iv), CASAC must also advise EPA on the potential public health and welfare impacts of implementation. These public health and welfare impacts are arguably relevant to CASAC's duty to advise EPA on public health and welfare effects as part of the NAAQS-setting process. EPA sought and CASAC provided advice on these matters. CASAC Letter 2014a 10-11, JA____-____; 79 FR 75,271, 75,279, 75,285 at nn.102 & 105, 75,287 n.107; RTC 353, JA____.

Supreme Court has rejected this reading of Section 7409. In *Michigan v. EPA*, 135 S. Ct. 2699 (2015), the Court interpreted Section 7412 of the Act, a unique provision that requires EPA to make a threshold "appropriate and necessary" finding before regulating hazardous air pollutant emissions from power plants. 42 U.S.C. § 7412. The Court held that EPA could not decide whether regulations under Section 7412 were "appropriate and necessary" in that context without considering costs. 135 S. Ct. at 2706. But in making this determination, the Court specifically *distinguished* Section 7409(b), which more specifically requires EPA to set the NAAQS at a level "requisite to protect the public health" with an "adequate margin of safety." *Id.* at 2709 (quoting 42 U.S.C. § 7409(b)). The Supreme Court held that Section 7409(b)'s instruction to set the NAAQS at a "requisite" level "does not encompass cost; it encompasses health and safety." *Id.*; *see also Whitman*, 531 U.S. at 470.

To be sure, Section 7409(d) requires that once the NAAQS are set, they must be revised as "appropriate," but only as "appropriate in accordance with . . . subsection (b)." 42 U.S.C. § 7409(d)(1). As this Court explained in rejecting this same argument nearly two decades ago, Petitioners cannot sneak costs into a NAAQS review under Section 7409(d)'s requirement that NAAQS revisions be "appropriate" because that "argument ignores the clause immediately following 'appropriate,' which incorporates [Section 7409(b)] and thereby affirmatively precludes consideration of costs in revising NAAQS." *ATA I*, 175 F.3d at 1040. Subsection (b) does not permit

EPA to consider costs in setting the NAAQS originally, and subsection (d) does not permit EPA to consider costs in revising the NAAQS.

C. State Petitioners failed to exhaust their intelligible principle argument, which in any event is meritless.

Congress instructed EPA to set the NAAQS at a level "requisite" to protect public health and welfare, and the Supreme Court held in *Whitman* that this instruction is an "intelligible principle" that meets constitutional requirements. 531 U.S. at 474-76. State Petitioners did not raise their argument that EPA failed to give effect to that intelligible principle in their comments to EPA, and since they did not exhaust their administrative remedies, this argument is not properly before the Court. *See* 42 U.S.C. § 7607(d)(7)(B); *Lead Indus.*, 647 F.2d at 1173 (holding that under 42 U.S.C. § 7607(d)(7)(B), all challenges to the NAAQS, including constitutional challenges, must first be presented to EPA).

In any event, the argument is meritless. State Petitioners acknowledge that the Supreme Court held that the Act's delegation of authority to EPA is constitutional. State Br. 45; *see Whitman*, 531 U.S. at 475-76. While the Act does not contain a "determinate criterion" by which to set the NAAQS, the Supreme Court decided that the scope of discretion allowed EPA is permissible. *Id.* Many statutes instruct agencies to act to further the public interest, and the Clean Air Act more specifically requires EPA to provide "requisite" protection, meaning "not lower or higher than is necessary." *Id.*

State Petitioners nonetheless contend that "EPA's construction of the Act" erases that intelligible principle by failing to give effect to the term "requisite." State Br. 44. But an agency's interpretation of a statute is irrelevant to the question whether the statute lacks an intelligible principle. An agency cannot "cure an unlawful delegation of legislative power by adopting in its discretion a limiting construction of the statute." *Whitman*, 531 U.S. at 472. Nor can agencies unlawfully delegate legislative power to themselves by misconstruing their authority under the statute.

At most, State Petitioners' argument amounts to a challenge to EPA's interpretation of the statute under *Chevron*, or to the reasonableness of EPA's decisionmaking. State Petitioners suggest three ways in which EPA failed to "conform" to the statutory mandate that the NAAQS be set at a level "requisite" to protect public health and welfare: (1) EPA set the NAAQS at an unachievable level; (2) EPA failed to explain departures from prior NAAQS; and (3) EPA failed to consider how the cost of implementing the NAAQS will affect public health. State Br. 46.

As to the first argument, we explained in Argument Point III.A. that background ozone will not preclude attainment and, in any event, statutory provisions on background ozone are available so that states and areas can meet their statutory obligations. As to the second argument, we described in Argument Point I.A. why the prior NAAQS was not "requisite" to protect public health. And as to the third

argument, we explained in Argument Point III.B. why EPA cannot consider the costs of implementation.

All three of State Petitioners' arguments suffer from the same misunderstanding of the "intelligible principle" set forth in *Whitman*. Though the Act requires EPA to set the NAAQS at a level that is "requisite"—meaning no lower or higher than necessary to protect public health and welfare, the Administrator must still exercise her judgment to make that determination. *Whitman*, 531 U.S. at 475-76; *see also Mississippi* 744 F.3d at 1348 ("unlike Goldilocks," EPA's decision need not be "just right," and even though "evidence in the record may also support other conclusions," this Court must uphold EPA's decision if it meets statutory standards). There is no "determinate criterion" that absolutely constrains EPA's discretion in setting the NAAQS. *Whitman*, 531 U.S. at 475-76. The Administrator faces a tough call, but it is her call to make.

D. State Petitioners waived any argument about EPA's decision to lengthen the ozone monitoring seasons.

At the end of their statement of the case, State Petitioners add two sentences asserting, without explanation, that EPA irrationally lengthened ozone monitoring seasons. State Br. 13-14. State Petitioners did not address this issue in their argument, and have waived any argument they might have had. *New York Rehab. Care Mgmt., LLC v. Nat'l Labor Relations Bd.*, 506 F.3d 1070, 1076 (D.C. Cir. 2007) ("It is not enough merely to mention a possible argument in the most skeletal way, leaving the

court to do counsel's work." (citation omitted)). Regardless, EPA adequately explained that ozone monitoring should occur when there is a reasonable possibility that ozone concentrations will reach 70 ppb, not merely when concentrations have reached 70 ppb in the past. EPA reasonably adjudged that 60 ppb was an appropriate threshold on which to base monitoring requirements, particularly because "highly variable meteorological conditions" can shift high ozone days earlier or later in any given year than typically observed. 80 FR 65,416/2.

IV. EPA reasonably interpreted the Act's preconstruction permit provisions to allow limited grandfathering of permit applications.

In the ozone NAAQS rule, EPA amended the regulations for the CAA's Prevention of Significant Deterioration (PSD) program to allow permitting authorities (either a state or EPA) to grandfather a narrow category of permit applications from demonstrating that emissions from the proposed new source or modification will not cause or contribute to a violation of the revised ozone NAAQS. *See* 40 C.F.R. §§ 52.21(i)(12), 51.166(i)(11). Environmental Petitioners challenge the grandfathering provision as inconsistent with the Act's plain language. Environmental Br. 57-62. But contrary to their argument, this is not a *Chevron* step one situation because Congress did not directly speak to the precise question here. 467 U.S. at 842. Rather, Section 7475 of the Act is ambiguous, and EPA has implicit authority to resolve the ambiguity.

Section 7475(a)(3)(B) prohibits a "major emitting facility" from being constructed in any covered area unless the owner or operator of the facility "demonstrates," in relevant part, "that emissions from construction or operation of such facility will not cause, or contribute to, air pollution in excess of any . . . [NAAQS] in any air quality control region." 42 U.S.C. § 7475(a)(3)(B). EPA generally interprets this provision to require a permit applicant to make this demonstration for any NAAQS in effect when that the PSD permit is issued. 80 FR 65,433/3. But nothing in the Act expressly precludes EPA, when it revises the NAAQS, from

issuing a regulation grandfathering a narrow category of pending permit applications from satisfying the demonstration requirement in Section 7475(a)(3)(B), for the revised NAAQS. And EPA has a long history of interpreting the Act to provide it discretion to issue a rule grandfathering some permit applicants from demonstrating compliance with a NAAQS that is promulgated while a permit application is pending. 40 C.F.R. § 52.21(i)(9)-(11). So the precise question is whether Section 7475(a)(3)(B)'s demonstration requirement must always apply to a NAAQS that is promulgated by EPA while a PSD permit application is pending.

Environmental Petitioners focus their *Chevron* step one argument on the language of Section 7475(a)(3)(B) alone. Environmental Br. 57-58. Yet "[i]n making the threshold determination under *Chevron*," the Court does not restrict itself to "examining a particular statutory provision in isolation" because "[t]he meaning—or ambiguity—of certain words or phrases may only become evident when placed in context." *Nat'l Ass'n of Home Builders v. Defs. of Wildlife*, 551 U.S. 644, 666 (2007) (citations and quotations omitted).

Looking at the broader statutory context, Section 7475(c) instructs the permitting authority that "[a]ny completed permit application" for a "major emitting facility" in any covered area "shall be granted or denied not later than one year after the date of filing of such completed application." 42 U.S.C. § 7475(c). Read together, Sections 7475(a)(3)(B) and 7475(c) do not clearly address how the demonstration requirements should be met for permit applications pending when the NAAQS are

revised. 80 FR 65,433/3. In particular, EPA was concerned that for a limited subset of pending permits, complying with Section 7475(a)(3)(B)'s demonstration requirement for the 2015 ozone NAAQS "could hinder compliance with the requirement under section [7475](c) to issue a permit within one year of the completeness determination." *Id.* at 65,434/1. Moreover, neither Section 7475(a)(3)(B) nor Section 7475(c) tells EPA what to do in light of the requirement in Section 7409(d)(1) to review the NAAQS every five years.

Environmental Petitioners see no friction between Sections 7475(a)(3)(B) and 7475(c), claiming that the Act gives EPA two clear alternatives when a revised ozone NAAQS becomes effective: deny all pending permit applications or find the applications no longer complete. Environmental Br. 59. Neither of their preferred interpretations is unambiguously dictated by Section 7475. In fact, their alternative interpretations reinforce why *Chevron* step one does not apply.

By leaving open the potential for conflict between Sections 7475(a)(3)(B) and 7475(c), Congress implicitly delegated authority to EPA to resolve the conflict. *Morton v. Ruiz*, 415 U.S. 199, 231 (1974). And EPA's authority is further supported by Section 7601 of the Act, which authorizes the Administrator "to prescribe such regulations as are necessary to carry out [her] functions under this chapter." 80 FR 65,434/1 (quoting 42 U.S.C. § 7601).

EPA has long held this view of its grandfathering authority. *See Sierra Club v. EPA*, 762 F.3d 971, 982 (9th Cir. 2014) (acknowledging that EPA "has long exercised

authority to grandfather certain permit applications from revised regulations"); *id.* at 983 n.8 (citing four examples of EPA's "traditional grandfathering," including three grandfathering provisions for prior NAAQS); 80 FR 65,434/2-/3 (citing three examples of EPA's exercise of authority to grandfather). When, in 1978, this Court reviewed EPA's early exercise of its grandfathering authority, it held that EPA "unquestionably had authority" to promulgate the grandfathering provision under Section 7601, but also suggested that "even without [that] explicit rulemaking authority," the Agency had gap-filling authority under the Act. *Citizens to Save Spencer County v. EPA,* 600 F.2d 844, 874 (D.C. Cir. 1979). That same authority exists here.

Turning to *Chevron* step two, 467 U.S. at 843, the grandfathering provision reflects EPA's permissible construction of Section 7475. The Agency's interpretation is supported by the context of the statutory provisions, the purposes of the PSD program and the CAA, and the legislative history of the PSD program.

First, in interpreting Section 7475, EPA followed the "fundamental canon of statutory construction that the words of a statute must be read in their context and with a view to their place in the overall statutory scheme." *Nat'l Ass'n of Home Builders*, 551 U.S. at 666 (citations and quotations omitted). Here, EPA refused to read Section 7475(a)(3)(B) in isolation, as Environmental Petitioners do, and instead read the provision's demonstration requirements in the context of the permitting authority's obligation to timely issue a permit decision under Section 7475(c). 80 FR 65,434/1.

EPA's grandfathering provision strikes a reasonable balance between Section 7475(a), which is aimed at protecting the NAAQS, and Section 7475(c), which is aimed at avoiding permitting delays. The provision covers a limited category of PSD permit applications that are pending when the revised ozone NAAQS becomes effective and that satisfy one of two permitting milestones: the permitting authority has either (1) issued a formal completeness determination on or before the signature date of the final rule, or (2) published public notice of the draft permit or preliminary determination before the final rule's effective date. 80 FR 65,431/1. For permit applications that fall within this narrowly defined window, the grandfathering provision requires the applicant to demonstrate that the proposed project's emissions will not cause or contribute to a violation of the ozone NAAQS in place when the permitting milestone was met. But the applicant need not make that demonstration for the revised ozone NAAQS that became effective while the permit was pending because introducing that requirement midstream could disrupt and delay the permitting process. And the permit must still satisfy all other applicable PSD requirements, including those for ozone. *Id.* at 65,434/3.

The grandfathering provision is based on a reasonable interpretation of Section 7475(a)(3)(B) in the limited situation where a new NAAQS is established after a pending permit application passes a permitting milestone. This reading ensures that projects satisfy the Act's substantive permitting requirements that applied when the permit met the milestone while avoiding unreasonable delays in processing permit

applications. Contrary to Environmental Petitioners' claim that EPA is "waiving" Section 7475(a)(3)(B)'s requirements, Environmental Br. 62, EPA is identifying for purposes of Section 7475(a)(3)(B) which ozone NAAQS apply to certain permit applications submitted before the revised NAAQS were finalized. *See Sierra Club*, 762 F.3d at 983 (recognizing for similar EPA grandfathering regulations that "EPA grandfathered a limited set of applications, in effect, by specifying an operative date … for each new regulation, as it was formally adopted."). Put differently, the grandfathering provision does not exempt grandfathered sources from meeting Section 7475(a)(3)(B)'s demonstration requirement; rather it clarifies, incident to revision of the ozone NAAQS, which ozone standards apply to those pending permit applications. *Id.*; RTC 332, JA____.

Second, EPA's reading of Sections 7475(a) and 7475(c) harmonizes with the stated purposes of the PSD program and the CAA as a whole. One goal of the PSD program is to "insure that economic growth will occur in a manner consistent with the preservation of existing clean air resources." 42 U.S.C. § 7470(3). Meanwhile, the CAA's broader purpose is to "protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population." *Id.* § 7401(b)(1). Both purposes recognize the need to simultaneously protect air quality and maximize opportunities for economic growth. Unlike Environmental Petitioners' strict reading of Section 7475(a), which promotes

only the protection of air quality and ignores Congress's stated desire not to inhibit economic growth, EPA's interpretation of its grandfathering authority serves both.

Third, the legislative history behind the PSD Program reveals clear congressional intent that EPA have authority to ease the transition to new or revised requirements under Section 7475(a), where such measures are needed to balance economic growth and the protection of air quality. As the Court stated in *Citizens to Save Spencer County*, "both the House and Senate committees responsible for the Clean Air Act Amendments were concerned about the possibility of economic disruption from implementation of new PSD requirements and took measures to reduce such disruption." 600 F.2d at 869 & n.112 (quoting H.R. Rep. No. 95-294 at 171 (1977) (""extraordinary lengths' taken not to cause 'current construction to be halted' or to 'clamp even a temporary moratorium on planned industrial and economic development"") and S. Rep. No. 95-127 at 11, 32 (1977) ("EPA to 'minimize any disruption that might be caused in implementing the Act' and 'permit process to prevent significant deterioration should (not) become a vehicle for inaction or delay.'")); *see also* 80 FR 65,434/1 (citing S. Rep. No. 94-717 at 26 (1976) ("nothing could be more detrimental to the intent of this section and the integrity of this Act than to have the process encumbered by bureaucratic delay.").

Environmental Petitioners argue that by including Section 7478(b) in the Act, Congress precluded EPA from interpreting the PSD program as providing any other authority to grandfather sources. Environmental Br. 58. But the grandfathering

provided in Section 7478(b) is different in kind from the grandfathering at issue here, so it cannot be considered a specific exception that precludes any interpretation of Section 7475 that permits grandfathering. Section 7478(b) addressed the one-time transition from an earlier version of the PSD program to a different statutory and regulatory PSD regime. RTC 333, JA____. Although the provision highlights Congress's support for grandfathering to ease the transition to new or revised requirements, Section 7478(b) does not address the type of transition at issue here—the transition to a revised NAAQS in the context of the existing PSD program.

Just as in *Citizens to Save Spencer County*, EPA here "sought to pursue a legally supportable 'middle path' between inconsistent statutory provisions so as to harmonize to the maximum extent possible both the public policy concerns and conflicting directives of Congress." 600 F.2d at 859. Unlike EPA's middle path, Environmental Petitioners' reading of the PSD requirements plainly frustrates Congress's intent. Their theory, which forbids grandfathering under any circumstance, could subject applicants to potentially ongoing application revisions if EPA promulgates several new or revised NAAQS in succession. If such revisions could not be addressed within the timeframe in Section 7475(c), the permitting authority could be forced to deny the permit application. Then the applicant would need to reapply in an effort to obtain the permitting authority's approval before additional requirements become applicable to avoid going through the cycle again.

In light of the legislative history indicating Congress's intent not to delay projects or slow economic development, Congress could not have intended this result, and the Court should reject such a constrained reading of EPA's authority. The statute implicitly grants EPA the authority to resolve the conflict between Sections 7475(a) and 7475(c), and the Agency did so in a way that balances both air quality protection and economic growth, consistent with the goals of the Act. The Court should uphold the grandfathering provision because EPA's interpretation of the Act is permissible.

* * *

Finally, if the Court remands any part of EPA's rule for further consideration, the Court should decline Environmental Petitioners' request to set a 17-month deadline for EPA to act. *See Natural Res. Def. Council v. EPA*, 489 F.3d 1364, 1375 (D.C. Cir. 2007) ("We decline to set a two year limit on EPA's proceedings on remand as the NRDC requests; mandamus affords a remedy for undue delay."); *North Carolina v. EPA*, 550 F.3d 1176, 1178 (D.C. Cir. 2008) (per curiam) (declining invitation to "impose a definitive deadline by which EPA must correct [CAA rule's] flaws"). The Court can and should presume that in the event of a remand, EPA will act diligently to reach a final decision consistent with the Court's opinion.

CONCLUSION

The Court should deny all of the petitions for review and uphold EPA's 2015 ozone NAAQS rule.

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE WITH FEDERAL RULE OF APPELLATE PROCEDURE 32(A)

I hereby certify that this brief complies with the requirements of Fed. R. App. P. 32(a)(5) and (6) because it has been prepared in 14-point Garamond, a proportionally spaced font.

I further certify that this brief complies with the type-volume limitation of Fed. R. App. P. 32(a)(7)(B) because it contains 32,896 words, excluding the parts of the brief exempted under Rule 32(a)(7)(B)(iii), according to the count of Microsoft Word.

/s/ Justin D. Heminger
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CERTIFICATE OF SERVICE

I hereby certify that on July 29, 2016, I electronically filed the foregoing brief with the Clerk of the Court for the United States Court of Appeals for the District of Columbia Circuit by using the appellate CM/ECF system.

The participants in the case are registered CM/ECF users and service will be accomplished by the appellate CM/ECF system.

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