

United States Court of Appeals
FOR THE DISTRICT OF COLUMBIA CIRCUIT

Argued December 10, 2013

Decided April 15, 2014

No. 12-1100

WHITE STALLION ENERGY CENTER, LLC,
PETITIONER

v.

ENVIRONMENTAL PROTECTION AGENCY,
RESPONDENT

AMERICAN ACADEMY OF PEDIATRICS, ET AL.,
INTERVENORS

Consolidated with 12-1101, 12-1102, 12-1147, 12-1172,
12-1173, 12-1174, 12-1175, 12-1176, 12-1177, 12-1178,
12-1180, 12-1181, 12-1182, 12-1183, 12-1184, 12-1185,
12-1186, 12-1187, 12-1188, 12-1189, 12-1190, 12-1191,
12-1192, 12-1193, 12-1194, 12-1195, 12-1196

On Petitions for Review of Final Rule of the
United States Environmental Protection Agency

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Bill Cobb argued the cause for Industry Petitioners' Specific Issues. With him on the briefs were *Michael Nasi, Leslie Sue Ritts, Jeffrey R. Holmstead, Sandra Y. Snyder, Paul D. Clement, Nathan A. Sales, Steven C. Kohl, Eugene E. Smary, Sarah C. Lindsay, Bart E. Cassidy, Katherine L. Vaccaro, John C. Hayes, Jr., Dennis Lane, John A. Riley, Christopher C. Thiele, C. Grady Moore, III, P. Stephen Gidiere, III*, and *Thomas Lee Casey, III*.

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David Bookbinder argued the cause and filed the briefs for petitioner Julander Energy Company.

Michael B. Wigmore, Sandra P. Franco, Robin S. Conrad, Rachel Brand, and Sheldon Gilbert were on the brief for *amicus curiae* The Chamber of Commerce of the United States of America in support of Industry Petitioners.

Eric G. Hostetler, Matthew R. Oakes, and Amanda S. Berman, Attorneys, U.S. Department of Justice, argued the causes for respondent. With them on the brief was *Wendy L. Blake*, Attorney, U.S. Environmental Protection Agency.

Melissa Hoffer, Assistant Attorney General, Office of the Attorney General for the Commonwealth of Massachusetts, argued the cause for State and Local Government Intervenors in support of Respondent. With her on the brief were *Martha Coakley*, Attorney General, Office of the Attorney General for the State of Massachusetts, *Tracy Triplett* and *Carol A. Iancu*, Assistant Attorneys General, *Kamala D. Harris*, Attorney General, Office of the Attorney General for the State of California, *Janill L. Richards*, Supervising Deputy Attorney General, *Susan L. Durbin*, Deputy Attorney General, *Joseph R. Biden, III*, Attorney General, Office of the Attorney General for the State of Delaware, *Valerie M. Satterfield*, Deputy Attorney General, *Thomas L. Miller*, Attorney General, Office of the Attorney General for the State of Iowa, *David R. Sheridan*, Assistant Attorney General, *George Jepsen*, Attorney General, Office of the Attorney General for the State of Connecticut, *Kimberly P. Massicotte* and *Matthew I. Levine*, Assistant Attorneys General, *Lisa Madigan*, Attorney General, Office of

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Sean H. Donahue argued the cause for Public Health, Environmental, and Environmental Justice Group Respondent Intervenors. With him on the brief were *Pamela A. Campos*,

Tomás Carbonell, Ann Brewster Weeks, Darin T. Schroeder, James S. Pew, Neil E. Gormley, Sanjay Narayan, John D. Walke, and John Suttles. Vickie L. Patton entered an appearance.

Brendan K. Collins argued the cause for Industry Respondent Intervenors. With him on the brief were Robert B. McKinstry Jr., Lorene L. Boudreau, and Erik S. Jaffe.

Peter S. Glaser, George Y. Sugiyama, F. William Brownell, Lauren E. Freeman, Lee B. Zeugin, Elizabeth L. Horner, David B. Rivkin Jr., Lee A. Casey, Mark W. DeLaquil, Andrew M. Grossman, Jeremy C. Marwell, Eric A. Groton, Jeffrey R. Holmstead, and Sandra Y. Snyder were on the brief for Industry Intervenors in response to Environmental Petitioners. Henry V. Nickel entered an appearance.

Peter S. Glaser, George Y. Sugiyama, Hahnah Williams, F. William Brownell, Lauren E. Freeman, Lee B. Zeugin, Elizabeth L. Horner, Jeremy C. Marwell, Eric A. Groton, Jeffrey R. Holmstead, Sandra Y. Snyder, Bill Cobb, Michael Nasi, David B. Rivkin Jr., Lee A. Casey, Mark W. DeLaquil, and Andrew M. Grossman were on the brief for Intervenor Respondents in Opposition to Brief of Petitioner Julander Energy Company.

Wendy B. Jacobs, Adam Babich, and Michael A. Livermore were on the brief for amici curiae Institute for Policy Integrity, et al. in support of respondent.

Before: GARLAND, *Chief Judge*, and ROGERS and KAVANAUGH, *Circuit Judges*.

PER CURIAM:* In 2012, the Environmental Protection Agency promulgated emission standards for a number of listed hazardous air pollutants emitted by coal- and oil-fired electric utility steam generating units. *See National Emission Standards for Hazardous Air Pollutants From Coal- and Oil-Fired Electric Utility Steam Generating Units and Standards of Performance for Fossil-Fuel-Fired Electric Utility, Industrial-Commercial-Institutional, and Small Industrial-Commercial-Institutional Steam Generating Units*, Final Rule, 77 Fed. Reg. 9304 (Feb. 16, 2012). In this complex case, we address the challenges to the Final Rule by State, Industry, and Labor petitioners, by Industry petitioners to specific aspects of the Final Rule, by Environmental petitioners, and by Julander Energy Company. For the following reasons, we deny the petitions challenging the Final Rule.

I.

In 1970, Congress enacted § 112 of the Clean Air Act, Pub. L. No. 91-604, § 4(a), 84 Stat. 1676, 1685 (1970), to reduce hazardous air pollutants (“HAPs”). *See Sierra Club v. EPA*, 353 F.3d 976, 979 (D.C. Cir. 2004); H. R. REP. NO. 101-490, at 150 (1990). The statute defined HAPs as “air pollutant[s] . . . which in the judgment of the Administrator [of the Environmental Protection Agency (“EPA”)] cause, or contribute to, air pollution which may reasonably be anticipated to result in an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness.” § 112(a)(1), 84 Stat. at 1685. In its original form, § 112 required EPA to publish a list containing “each hazardous air pollutant for which [it] intends to establish an emission standard.” § 112(b)(1)(A), 84 Stat. at

* Parts I, II, and IV are written by Judge Rogers. Part III is written by Judge Kavanaugh, as are his dissenting opinion in Part II.B.2 and his concurring opinion in Part IV.

1685. EPA then was to promulgate, within 360 days, emission standards “provid[ing] an ample margin of safety to protect the public health” for each listed HAP, unless EPA found that a particular listed substance was in fact not hazardous. § 112(b)(1)(B), 84 Stat. at 1685. Over the next eighteen years, EPA listed only eight HAPs, established standards for only seven, and as to these seven addressed only a limited selection of possible pollution sources. *See New Jersey v. EPA*, 517 F.3d 574, 578 (D.C. Cir. 2008); S. REP. NO. 101-228, at 131 (1989).

To remedy the slow pace of EPA’s regulation of HAPs, Congress amended the Clean Air Act in 1990, *see* Pub. L. No. 101-549, 104 Stat. 2531 (1990) (“CAA”), by eliminating much of EPA’s discretion in the process. *See New Jersey*, 517 F.3d at 578. In the amended § 112, Congress itself listed 189 HAPs that were to be regulated, *see* CAA § 112(b), 42 U.S.C. § 7412(b), and directed EPA to publish a list of “categories and subcategories” of “major sources” and certain “area sources” that emit these pollutants, CAA § 112(c), 42 U.S.C. § 7412(c). Once listed, a source category may only be delisted (with one exception not relevant here) if EPA determines that “no source” in that category emits HAPs in quantities exceeding specified thresholds. CAA § 112(c)(9)(B), 42 U.S.C. § 7412(c)(9)(B). For each listed “category or subcategory of major sources and area sources” of HAPs, EPA must promulgate emission standards. CAA § 112(d)(1), 42 U.S.C. § 7412(d)(1). Section 112(d) provides, as relevant, that emission standards

shall require the *maximum degree of reduction in emissions* of the hazardous air pollutants subject to this section (including a prohibition on such emissions, where achievable) that the Administrator, taking into consideration the cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements,

determines is achievable[.]

CAA § 112(d)(2), 42 U.S.C. § 7412(d)(2) (emphasis added). For existing sources, these “maximum achievable control technology” (“MACT”) standards may not be less stringent — regardless of cost or other considerations — “than [] the average emission limitation achieved by the best performing [] sources” in the relevant category or subcategory. CAA § 112(d)(3)(A)–(B), 42 U.S.C. § 7412(d)(3)(A)–(B); *see Nat’l Lime Ass’n v. EPA*, 233 F.3d 625, 629 (D.C. Cir. 2000). EPA refers to minimum-stringency MACT standards as “floors.” Standards more stringent than the floors, determined pursuant to § 112(d)(2), are called “beyond-the-floor” limits.

For electric utility steam generating units (“EGUs”), however, Congress directed that prior to any listing EPA conduct a study of “the *hazards to public health* reasonably anticipated to occur as a result of [EGU HAP emissions] after imposition of the requirements of this Chapter [i.e., Chapter 85 Air Pollution Prevention and Control].” CAA § 112(n)(1)(A), 42 U.S.C. § 7412(n)(1)(A) (emphasis added). The results of this “Utility Study” were to be reported to Congress within three years. *Id.* Further, Congress directed that:

The Administrator shall regulate [EGUs] under this section, if the Administrator finds such regulation is *appropriate and necessary* after considering the results of the study required by this subparagraph.

Id. (emphasis added). Congress also directed EPA to conduct two other studies on mercury emissions: the “Mercury Study” on “the rate and mass of such emissions, the health and environmental effects of such emissions, technologies which are available to control such emissions, and the costs of such technologies,” to be reported to Congress in four years, and the

National Institute of Environmental Health Sciences “study to determine the threshold level of mercury exposure below which adverse human health effects are not expected to occur,” to be reported to Congress in three years. See CAA § 112(n)(1)(A)–(C), 42 U.S.C. § 7412(n)(1)(A)–(C).

In December 2000, on the basis of the Utility Study and other data subsequently gathered, EPA issued a notice of regulatory finding “that regulation of HAP emissions from coal- and oil-fired electric utility steam generating units under section 112 of the CAA is appropriate and necessary.” *Regulatory Finding on the Emissions of Hazardous Air Pollutants From Electric Utility Steam Generating Units*, 65 Fed. Reg. 79,825, 79,826 (Dec. 20, 2000) (“2000 Finding”). EPA found that EGUs “are the largest source of mercury emissions in the U.S.” and that “[m]ercury is highly toxic, persistent, and bioaccumulates in food chains.” 65 Fed. Reg. at 79,827. Specifically, “[m]ercury emitted from [EGUs] . . . is transported through the atmosphere and eventually deposits onto land or water bodies” where it then changes into “a highly toxic” substance called methylmercury. *Id.* Methylmercury “biomagnifies in the aquatic food chain,” *id.*, meaning that it becomes concentrated in the bodies of predatory fish which absorb the methylmercury their food sources contained. When humans eat these contaminated fish, they also are exposed; the methylmercury from the fish is absorbed into the bloodstream and “distributed to all tissues including the brain.” *Id.* at 79,829. The risks are greatest for women of childbearing age, EPA explained, because methylmercury “readily passes . . . to the fetus and fetal brain,” *id.*, and “the developing fetus is most sensitive to the effects of methylmercury,” *id.* at 79,827. Children born to women who were exposed to methylmercury during pregnancy have exhibited neurological abnormalities and developmental delays. *Id.* at 79,829.

EPA concluded that “the available information indicate[d] that mercury emissions from [EGUs] . . . are a threat to public health and the environment,” notwithstanding “uncertainties regarding the *extent* of the risks due to electric utility mercury emissions.” *Id.* (emphasis added). EPA also identified several other metal and acid gas emissions from EGUs that were “of potential concern,” namely arsenic, chromium, nickel, cadmium, dioxins, hydrogen chloride, and hydrogen fluoride. *Id.* EPA therefore determined that it was “appropriate” to regulate coal- and oil-fired EGUs under § 112 because of the health and environmental hazards posed by mercury emissions from EGUs, and the availability of a number of control options to effectively reduce such emissions. *Id.* at 79,830. EPA further determined that it was “necessary” to regulate EGUs under § 112 because implementation of other provisions of the CAA would “not adequately address” the public health and environmental hazards found. *Id.* Therefore, EPA added “coal- and oil-fired electric utility steam generating units to the list of source categories under section 112(c) of the CAA.” *Id.*

In 2005, EPA reversed its 2000 Finding and removed coal- and oil-fired EGUs from the list of source categories under § 112(c). *See Revision of December 2000 Regulatory Finding on the Emissions of Hazardous Air Pollutants From Electric Utility Steam Generating Units and the Removal of Coal- and Oil-Fired Electric Utility Steam Generating Units From the Section 112(c) List*, 70 Fed. Reg. 15,994, 15,994 (Mar. 29, 2005) (“2005 Delisting Decision”). This change was based on EPA’s revised interpretation of § 112(n)(1)(A) and, to some extent, on a revised assessment of the results of the Utility Study. EPA concluded that it lacked authority under § 112(n)(1)(A) to regulate on the basis of non-health hazards (e.g., environmental harms), and should “focus solely” on the health effects directly attributable to EGU emissions, rather than on EGUs’ contribution to overall pollutant levels. *Id.* at 15,998. Further,

EPA decided it could consider other relevant, “situation-specific factors, including cost” that may affect whether regulation under § 112 is “appropriate.” *Id.* at 16,000–01. Critically, EPA determined that it must make its “appropriate and necessary” finding by reference to health hazards that will remain “*after* imposition of the requirements of” the CAA. *Id.* at 15,998 (emphasis added) (quoting CAA § 112(n)(1)(A), 42 U.S.C. § 7412(n)(1)(A)). EPA interpreted these other “requirements” to include “not only those requirements already imposed and in effect, but also those requirements that EPA reasonably anticipates will be implemented” and which “could either directly or indirectly result in reductions of utility HAP emissions.” *Id.* at 15,999. Concluding that regulation under other provisions of the CAA would adequately address EGU emissions of mercury and other HAPs, EPA determined that regulation under § 112 was neither “appropriate” nor “necessary.” *Id.* at 16,002–08. In responding to comments, EPA stated that if it *were* to regulate EGU emissions, then it would regulate *only* those substances for which it had made a specific “appropriate and necessary” determination. States and other groups petitioned for review and this court vacated the 2005 Listing Decision, *New Jersey*, 517 F.3d at 583, holding that EPA’s attempt to reverse its December 2000 listing decision was unlawful because Congress had “unambiguously limit[ed] EPA’s discretion to remove sources, including EGUs, from the section 112(c)(1) list once they have been added to it.”

In 2012, after notice and comment, EPA “confirm[ed]” its 2000 Finding that regulation of EGU emissions under § 112 is “appropriate and necessary.” Final Rule, 77 Fed. Reg. 9304, 9310–11. In the proposed rule, EPA stated that “the December 2000 Finding was valid at the time it was made based on the information available to the Agency at that time.” Proposed Rule, 76 Fed. Reg. 24,976, 24,986, 24,994–97 (May 3, 2011) (“NPRM”). Although of the view that no further evidence was

required to affirm the 2000 Finding, EPA had conducted additional quantitative and qualitative analyses “confirm[ing] that it remains appropriate and necessary today to regulate EGUs under CAA section 112.” *Id.* at 24,986; *see id.* at 24,999–25,020. With respect to the term “appropriate,” EPA explained that it was “chang[ing] the position taken in 2005 that the appropriate finding could not be based on environmental effects alone”; “revisiting the 2005 interpretation that required the Agency to consider HAP emissions from EGUs without considering the cumulative impacts of all sources of HAP emissions”; “revising the 2005 interpretation that required the Agency to evaluate the hazards to public health after imposition of the requirements of the CAA”; and “rejecting the 2005 interpretation that authorizes the Agency to consider other factors (*e.g.*, cost), even if the agency determines that HAP emitted by EGUs pose a hazard to public health (or the environment).” *Id.* at 24,989. With respect to the term “necessary,” EPA rejected as “unreasonable” its interpretation in 2005 that regulation under § 112 was “necessary” only if *no* other provision in the CAA — whether implemented or only anticipated — could “directly or indirectly” reduce HAP emissions to acceptable levels. *Id.* at 24,992.

EPA explained that it interpreted § 112(n)(1)(A)

to require the Agency to find it *appropriate* to regulate EGUs under CAA section 112 if the Agency determines that the emissions of one or more HAP emitted from EGUs pose an identified or potential hazard to public health or the environment at the time the finding is made. If the Agency finds that it is *appropriate* to regulate, it must find it *necessary* to regulate EGUs under section 112 if the identified or potential hazards to public health or the environment will not be adequately addressed by the imposition of

the requirements of the CAA. Moreover, it may be *necessary* to regulate utilities under section 112 for a number of other reasons, including, for example, that section 112 standards will assure permanent reductions in EGU HAP emissions, which cannot be assured based on other requirements of the CAA.

Id. at 24,987–88. EPA also affirmed that coal- and oil-fired EGUs were properly listed as a source category under § 112(c). *See id.* at 24,986. EPA adhered to these interpretations in the Final Rule, 77 Fed. Reg. at 9311. Accordingly, on February 16, 2012, EPA promulgated emission standards for a number of listed HAPs emitted by coal- and oil-fired EGUs. *See id.* at 9487–93.

Several petitions for review challenge the Final Rule. We first address, in Part II, the challenges of the State, Industry, and Labor petitioners. In Part III, we address Industry petitioners' specific issues. In Part IV.A, we address the challenges by the Environmental petitioners, and in Part IV.B, Julander Energy Company's standing. In addressing the substantive challenges to the Final Rule, this court must determine under the CAA whether the Final Rule was promulgated in a manner that was arbitrary or capricious, an abuse of discretion, or otherwise not in accordance with law. *See* CAA § 307(d)(9)(A), 42 U.S.C. § 7607(d)(9)(A). "The 'arbitrary and capricious' standard deems the agency action presumptively valid provided the action meets a minimum rationality standard." *Sierra Club*, 353 F.3d at 978–79 (quoting *Natural Res. Def. Council v. EPA*, 194 F.3d 130, 136 (D.C. Cir. 1999)). That is, "[i]f EPA acted within its delegated statutory authority, considered all of the relevant factors, and demonstrated a reasonable connection between the facts on the record and its decision, we will uphold its determination." *Ethyl Corp. v. EPA*, 51 F.3d 1053, 1064 (D.C. Cir. 1995). The court will show particular deference "where the

agency's decision rests on an evaluation of complex scientific data within the agency's technical expertise." *Troy Corp. v. Browner*, 120 F.3d 277, 283 (D.C. Cir. 1997); *see also Marsh v. Or. Natural Res. Council*, 490 U.S. 360, 377 (1989).

II.

State, Industry, and Labor petitioners challenge EPA's interpretation and application of the "appropriate and necessary" requirement in § 112(n)(1)(A).

A.

As a threshold matter, petitioners contend that the 2000 Finding was unlawful because EPA did not allow notice and comment on the finding, did not quantify the relevant mercury emissions and associated health risks, and did not describe "alternative control strategies" as required under § 112(n)(1)(A). Because the December 2000 notice was "fundamentally flawed," they contend it "could have no legal consequences" and "could not provide the basis for a § 112(c) listing decision." State, Industry & Labor Pet'rs' Br. (hereinafter "SIL Br.") 27–28. Without a proper listing under § 112(c), they contend, EPA has no authority to regulate EGUs under § 112(d).

The court need not decide whether EPA's December 2000 "appropriate and necessary" finding was procedurally or substantively valid because EPA reconsidered and "confirm[ed]" that determination in the Final Rule. *See* NPRM, 76 Fed. Reg. at 24,977; Final Rule, 77 Fed. Reg. at 9310–11, 9320. For the reasons we will discuss, we hold that EPA's finding in the Final Rule was substantively and procedurally valid, and consequently any purported defects in the 2000 Finding have been cured, rendering petitioners' challenge to December 2000 "appropriate and necessary" finding moot. *Cf. Fund for Animals, Inc. v. Hogan*, 428 F.3d 1059, 1063–64 (D.C.

Cir. 2005).

B.

The crux of petitioners' challenge to the Final Rule focuses on EPA's interpretation of the phrase "appropriate and necessary" in § 112(n)(1)(A), 42 U.S.C. § 7412(n)(1)(A). The context of this phrase is as follows. In a special subsection on EGUs, Congress first directed: "The Administrator shall perform a *study of the hazards to public health* reasonably anticipated to occur as a result of emissions by electric utility steam generating units of pollutants listed under subsection (f) after imposition of the requirements of this Act." CAA § 112(n)(1)(A), 42 U.S.C. § 7412(n)(1)(A) (emphasis added). Congress then directed: "The Administrator shall regulate electric utility steam generating units under this section, if the Administrator finds such regulation is *appropriate and necessary after considering the results of the study* required by this subparagraph." *Id.* (emphasis added). Apart from the instruction to "consider[] the results of the [Utility Study]" on public health hazards from EGU emissions, the statute offers no express guidance regarding what factors EPA is required or permitted to consider in deciding whether regulation under § 112 is "appropriate and necessary." Neither does it define the words "appropriate" or "necessary." *See* NPRM, 76 Fed. Reg. at 24,986; 2005 Listing Decision, 70 Fed. Reg. at 15,997. Petitioners object to how EPA chose to fill these gaps.

In matters of statutory interpretation, the court applies the familiar two part test under *Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 842–43 (1984). First, the court employs traditional tools of statutory construction to determine *de novo* "whether Congress has directly spoken to the precise question at issue." *Id.* at 842, 843 n.9. If the court "ascertains that Congress had an intention on the precise question at issue," *id.* at 843 n.9, "that is the end of

the matter” and the court “must give effect to the unambiguously expressed intent of Congress,” *id.* at 842–43. If, however, “the statute is silent or ambiguous with respect to the specific issue,” the court will uphold the agency’s interpretation so long as it constitutes “a permissible construction of the statute.” *Id.* at 843. “In such case, a court may not substitute its own construction of a statutory provision for a reasonable interpretation made by the administrator of an agency.” *Id.* at 844.

To the extent petitioners’ challenge concerns EPA’s *change* in interpretation from that in 2005, our approach is the same because “[a]gency inconsistency is not a basis for declining to analyze the agency’s interpretation under the *Chevron* framework.” *Nat’l Cable & Telecomms. Ass’n v. Brand X Internet Servs.*, 545 U.S. 967, 981 (2005). That is, “if the agency adequately explains the reasons for a reversal of policy, change is not invalidating, since the whole point of *Chevron* is to leave the discretion provided by the ambiguities of a statute with the implementing agency.” *Id.* (internal quotation marks omitted). And while “[u]nexplained inconsistency” may be “a reason for holding an interpretation to be an arbitrary and capricious change from agency practice,” *id.*, our review of a change in agency policy is no stricter than our review of an initial agency action, *see FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 514–16 (2009). Thus, although an agency may not “depart from a prior policy *sub silentio* or simply disregard rules that are still on the books,” the agency “need not demonstrate to a court’s satisfaction that the reasons for the new policy are *better* than the reasons for the old one.” *Id.* at 515. Rather, “it suffices that the new policy is permissible under the statute, that there are good reasons for it, and that the agency *believes* it to be better.” *Id.*

1. *Reliance on delisting criteria.* In the Final Rule, EPA concluded that it is “appropriate and necessary” to regulate HAP emissions on the basis, *inter alia*, that EGU emissions of certain HAPs pose a cancer risk higher than the standard set forth in the § 112(c)(9) delisting criteria (i.e., greater than one in a million for the most exposed individual). *See* Final Rule, 77 Fed. Reg. at 9311; NPRM, 76 Fed. Reg. at 24,998. Petitioners contend that by so doing EPA wrongly conflated the delisting criteria with the “appropriate and necessary” determination. “By applying the *delisting* provisions of § 112(c)(9) in making the initial, *pre-listing* determination whether it is ‘appropriate and necessary’ to regulate EGUs, EPA has unlawfully imposed requirements on itself the Congress chose not to impose at the listing stage.” SIL Br. 35. They maintain that EPA’s approach “would treat EGUs the same as all other major source categories — as a category that *must* be listed *unless* the delisting criteria are met.” *Id.*

EPA explained that it was relying upon the delisting criteria to interpret an ambiguous term in § 112(n)(1)(A), namely, “hazards to public health,” *see* Final Rule, 77 Fed. Reg. at 9333–34; NPRM, 76 Fed. Reg. at 24,992–93, because the phrase “hazards to public health” is nowhere defined in the CAA. EPA looked to the delisting criteria, which specify the risk thresholds below which a source category need not be regulated, as evidence of congressional judgment as to what *degree* of risk constitutes a health hazard. *See id.* EPA explained:

Although Congress provided no definition of *hazard to public health*, section 112(c)(9)(B) is instructive. In that section, Congress set forth a test for removing source categories from the section 112(c) source category list. That test is relevant because it reflects Congress’ view as to the level of health effects

associated with HAP emissions that Congress thought warranted continued regulation under section 112.

NPRM, 76 Fed. Reg. at 24,993 (emphasis added); *see* Final Rule, 77 Fed. Reg. at 9333–34. EPA concluded that it had discretion also to consider various other factors in evaluating hazards to public health, including

the nature and severity of the health effects associated with exposure to HAP emissions; the degree of confidence in our knowledge of those health effects; the size and characteristics of the populations affected by exposures to HAP emissions; [and] the magnitude and breadth of the exposures and risks posed by HAP emissions from a particular source category, including how those exposures contribute to risk in populations with additional exposures to HAP from other sources[.]

NPRM, 76 Fed. Reg. at 24,992; *see* Final Rule, 77 Fed. Reg. at 9334.

EPA reasonably relied on the § 112(c)(9) delisting criteria to inform its interpretation of the undefined statutory term “hazard to public health.” Congress did not specify what types or levels of public health risks should be deemed a “hazard” for purposes of § 112(n)(1)(A). By leaving this gap in the statute, Congress delegated to EPA the authority to give reasonable meaning to the term. *Cf. Chevron*, 467 U.S. at 843–44. EPA’s approach does not, as petitioners contend, “treat EGUs the same as all other major source categories.” SIL Br. 35. Other major source categories *must* be listed unless the delisting criteria are satisfied; EPA’s approach treats EGUs quite differently. For EGUs, EPA reasonably determined that it may look at a broad range of factors — only one of which concerned the § 112(c)(9) benchmark levels — in assessing the health hazards posed by

EGU HAPs. Nowhere does EPA state or imply that the delisting criteria provide the sole basis for determining whether it is “appropriate and necessary” to regulate EGUs under § 112. Because EPA’s approach is based on a permissible construction of § 112(n)(1)(A), it is entitled to deference and must be upheld.

2. *Costs of regulation.* Noting that in 2005 EPA construed § 112(n)(1)(A) to allow consideration of costs in determining whether regulation of EGU HAP emissions is “appropriate,” petitioners contend that EPA’s new interpretation to “preclude consideration of costs,” SIL Br. 42, “unreasonably constrains the language of § 112(n)(1)(A),” SIL Br. 39. They point to the dictionary definition of “appropriate” and to the differences between regulation of EGUs under § 112(n)(1)(A) and regulating other sources under § 112(c), and to this court’s precedent that “only where there is ‘clear congressional intent to preclude consideration of cost’ [do] we find agencies barred from considering costs.” SIL Br. 40 (quoting *Michigan v. EPA*, 213 F.3d 663, 678 (D.C. Cir. 2000), *cert. denied*, 532 U.S. 904 (2001)). They contend that EPA’s new interpretation “is also unlawful because it eliminates the discretion that Congress intended EPA to exercise after completing the Utility Study.” SIL Br. 41. As they see it, if the statutory term “appropriate” imposes any limit whatsoever, it must at least limit regulation to “risks [that] are worth the cost of elimination.” SIL Reply Br. 14 (quoting *Michigan v. EPA*, 213 F.3d at 667 (addressing the term “significant”)).

In the Final Rule, EPA stated that “it is reasonable to make the listing decision, including the appropriate determination, without considering costs.” Final Rule, 77 Fed. Reg. at 9327. EPA reasoned that § 112(n)(1)(A) would have included an “express statutory requirement that the Agency consider costs in making the appropriate determination” if Congress wanted to require EPA to do so. *Id.* EPA also noted that “[t]o the extent

[its] interpretation differs from the one set forth in 2005,” it had “fully explained the basis for such changes.” *Id.* at 9323 (citing NPRM, 76 Fed. Reg. at 24,986–93). (Even in 2005, EPA noted only that “[n]othing precludes EPA from considering costs in assessing whether regulation of [EGUs] under section 112 is appropriate in light of all the facts and circumstances presented.” 2005 Delisting Decision, 70 Fed. Reg. at 16,001 n.19.) In responding to comments reacting to its position that “the better reading of the term ‘appropriate’ is that it does not allow for the consideration of costs in assessing whether hazards to public health or the environment are reasonably anticipated to occur based on EGU emissions,” NPRM, 76 Fed. Reg. at 24,989, EPA observed that the dictionary definition of “appropriate” does not require consideration of costs and that commenters had failed to identify an express statutory requirement to that effect. EPA also stated that it was reasonable to decline to consider costs in the absence of an express statutory requirement to do so because Congress, in enacting § 112, was principally concerned with mitigating hazards to public health and the environment from HAP emissions. *See* Final Rule, 77 Fed. Reg. at 9327. Inasmuch as Congress had treated the regulation of HAP emissions differently in the 1990 Amendments because EPA was not acting quickly enough, EPA concluded it was reasonable to make a listing decision without considering costs. *See id.*

On its face, § 112(n)(1)(A) neither requires EPA to consider costs nor prohibits EPA from doing so. Indeed, the word “costs” appears nowhere in subparagraph A. In the absence of any express statutory instruction regarding costs, petitioners rely on the dictionary definition of “appropriate” — meaning “especially suitable or compatible” or “suitable or proper in the circumstances” — to argue that EPA was required “to take into account costs to the nation’s electricity generators when deciding whether to regulate EGUs.” SIL Br. 39 (citing

MERRIAM-WEBSTER'S ONLINE DICTIONARY; NEW OXFORD AMERICAN DICTIONARY (2d ed. 2005)). Yet these definitions, which do not mention costs, merely underscore that the term “appropriate” is “open-ended,” “ambiguous,” and “inherently context-dependent.” *Sossamon v. Texas*, 131 S. Ct. 1651, 1659 (2011); cf. *Nat'l Ass'n of Clean Air Agencies v. EPA*, 489 F.3d 1221, 1229 (D.C. Cir. 2007).

Even if the word “appropriate” might require cost consideration in *some* contexts, such a reading of “appropriate” is unwarranted here, where Congress directed EPA’s attention to the conclusions of the study regarding public health hazards from EGU emissions. Throughout § 112, Congress mentioned costs explicitly where it intended EPA to consider them. Cf. CAA § 112(d)(2), 112(d)(8)(A)(i), 112(f)(1)(B), 112(f)(2)(A), 112(n)(1)(B), 112(s)(2), 42 U.S.C. § 7412(d)(2), 7412(d)(8)(A)(i), 7412(f)(1)(B), 7412(f)(2)(A), 7412(n)(1)(B), 7412(s)(2). Indeed, in the immediately following subparagraph of § 112(n), Congress expressly required costs to be considered. CAA § 112(n)(1)(B), 42 U.S.C. § 7412(n)(1)(B). The contrast with subparagraph A could not be more stark. “Where Congress includes particular language in one section of a statute but omits it in another section of the same Act, it is generally presumed that Congress acts intentionally . . . in the disparate inclusion or exclusion.” *Russello v. United States*, 464 U.S. 16, 23 (1983) (alterations omitted); cf. *Catawba Cnty., N.C. v. EPA*, 571 F.3d 20, 36 (D.C. Cir. 2009). Petitioners offer no compelling reason why Congress, by using only the broad term “appropriate,” would have intended the same result — that costs be considered — in § 112(n)(1)(A). The legislative history the dissent claims “establishes” the point, Dissent at 13, consists of a Floor statement by a single Congressman that at best is ambiguous.¹

¹ See 1 A LEGISLATIVE HISTORY OF THE CLEAN AIR ACT AMENDMENTS OF 1990, at 1416–17 (1993) (statement by Rep. Oxley)

For these reasons, we conclude that the statute does not evince unambiguous congressional intent on the specific issue of whether EPA was required to consider costs in making its “appropriate and necessary” determination under § 112(n)(1)(A).

Turning to EPA’s approach, its position that “nothing about the definition of [‘appropriate’] compels a consideration of costs,” Final Rule, 77 Fed. Reg. at 9327, is clearly permissible. In *Whitman v. American Trucking Ass’n*s, 531 U.S. 457 (2001), Justice Scalia, writing for a unanimous Court, noted that the Supreme Court has “refused to find implicit in ambiguous sections of the CAA an authorization to consider costs that has elsewhere, and so often, been expressly granted.” *Id.* at 467; *see also Natural Res. Def. Council v. U.S. EPA*, 824 F.2d 1146, 1163–65 (D.C. Cir. 1987) (en banc). EPA’s interpretation is consistent with that instruction. Just as in *Whitman*, EPA declines to find in an ambiguous section what in so many other CAA sections Congress has mentioned expressly. And even assuming *Whitman* might be distinguished on grounds it concerned a different provision of the CAA, the question remains only whether EPA’s interpretation is *permissible*. Petitioners cannot point to a single case in which this court has *required* EPA to consider costs where the CAA does not expressly so instruct. In *Michigan v. EPA*, this court merely held that “the agency was *free* to consider . . . costs” under CAA § 110(a)(2)(D), 42 U.S.C. § 7410(a)(2)(D), as EPA had urged in that case. 213 F.3d at 679 (emphasis added).

(indicating that the provision authorizing regulation of EGUs would “avoid[] the imposition of excessive and unnecessary costs” *by ensuring that* EPA can regulate “only if the studies described in section 112(n) clearly establish that emissions . . . from such units cause a significant risk of serious adverse effects on public health”).

EPA's interpretation is also consistent with the purpose of the 1990 Amendments, which were aimed at remedying "the slow pace of EPA's regulation of HAPs" following the initial passage of the CAA. *New Jersey*, 517 F.3d at 578. To ensure that HAP emissions would be reduced to at least minimally-acceptable levels, Congress, among other things, listed 189 HAP substances for regulation and "restrict[ed] the opportunities for EPA and others to intervene in the regulation of HAP sources." *Id.* The overall purpose of the 1990 Amendments was to spur EPA to action. Although Congress gave EGUs a three-year pass when it instructed EPA to conduct a further study before regulating EGUs, *see* CAA § 112(n)(1)(A), 42 U.S.C. § 7412(n)(1)(A), there is no indication that Congress did *not* intend EPA to regulate EGUs if and when their public health hazards were confirmed by the study, as they were here.

Petitioners, and our dissenting colleague, suggest that EPA's interpretation is unreasonable because the notion that Congress would have authorized EPA to regulate without *any* consideration of regulatory costs is implausible. But this argument rests on a false premise. Here, as in *Whitman*, interpreting one isolated provision not to require cost consideration does not indicate that Congress was unconcerned with costs altogether, because Congress accounted for costs elsewhere in the statute. Section 112(d)(2) expressly requires EPA to "tak[e] into consideration the cost of achieving . . . emission reduction[s]" when setting the *level* of regulation under § 112. CAA § 112(d)(2), 42 U.S.C. § 7412(d)(2). It is true that this cost consideration requirement does not apply with respect to MACT floors. Yet even for MACT floors, costs are reflected to some extent because the floors correspond (by definition) to standards that better-performing EGUs have *already achieved*, presumably in a cost efficient manner. *See* CAA § 112(d)(3)(A), 42 U.S.C. § 7412(d)(3)(A). Moreover, Industry respondent intervenors point out that petitioners' proposed

approach would lead to an improbable “all-or-nothing” scheme in which EPA could “choose not to regulate EGUs *at all* under Section 112 based on cost, even though EPA could not consider cost to justify a less stringent emission standard than the MACT floor.” *Indus. Resp’t Intvn’rs’ Br.* 8.

Contrary to petitioners’ claims, the word “appropriate” is not rendered meaningless unless interpreted to include cost consideration. Petitioners contend that § 112(n)(1)(A) mandates a two-step inquiry: EPA must “*first* identify ‘a health hazard’ from HAPs emitted from EGUs, and *then* determine whether regulation of that health hazard is ‘appropriate and necessary.’” *SIL Br.* 41 (emphasis added). If the existence of a health hazard automatically *means* regulation is appropriate, they contend, then EPA has unlawfully abdicated the exercise of discretion Congress delegated to it. This argument, too, is unpersuasive. First, the rulemaking record reflects that EPA did *not* focus exclusively on health hazards in considering whether regulation would be “appropriate”; EPA also considered “the availability of controls to address HAP emissions from EGUs.” *NPRM*, 76 *Fed. Reg.* at 24,989; *see id.* at 24,997; *see also* *Final Rule*, 77 *Fed. Reg.* at 9311. The factual premise of petitioners’ argument is therefore incorrect. Second, even if EPA *had* focused exclusively on health hazards, the word “appropriate” would still have meaning in § 112(n)(1)(A) because the provision does not assume, as petitioners seem to suggest, that EPA would in fact “identify ‘a health hazard’” from EGUs. *SIL Br.* 41. Rather, the statute directs EPA to “*perform a study* of the hazards to public health *reasonably anticipated* to occur” and then to “regulate [EGUs] . . . if the Administrator finds such regulation is appropriate and necessary after *considering the results of the study.*” *CAA* § 112(n)(1)(A), 42 *U.S.C.* § 7412(n)(1)(A) (emphasis added). At the time Congress enacted the 1990 Amendments, it was possible that the Utility Study would fail to identify significant health hazards from

EGU HAP emissions. (Indeed, petitioners argue that it *did* fail to do so. *See* SIL Br. 13, 48–54.) Therefore, EPA had to “consider[] the results of the study” in order to determine whether regulation would be “appropriate” based on its assessment of the existence and severity of such health hazards. The term “appropriate” plainly plays a role: it requires EPA to apply its judgment in evaluating the results of the study.

Basically, petitioners and our dissenting colleague seek to impose a requirement that Congress did not. What they ignore is that Congress sought, as a threshold matter, to have EPA confirm the nature of public health hazards from EGU emissions. That is the clear focus of § 112(n)(1)(A). After that, Congress left it to the expertise and judgment of EPA whether or not to regulate. For EPA to focus its “appropriate and necessary” determination on factors relating to public health hazards, and not industry’s objections that emission controls are costly, properly puts the horse before the cart, and not the other way around as petitioners and our dissenting colleague urge. Given Congress’s efforts in the 1990 Amendments to promote regulation of hazardous pollutants, EPA’s interpretation of § 112(n)(1)(A) appears consistent with Congress’s intent. Recall that only EGUs’ hazardous emissions were relieved of regulation until completion of a study, and once the study confirmed the serious public health effects of hazardous pollutants from EGUs, Congress gave no signal that the matter should end if remediation would be costly.

Our dissenting colleague has written a powerful-sounding dissent. It sounds powerful, however, only because it elides the distinction between EPA’s initial decision regarding whether to list EGUs as sources of hazardous air pollutants, and its subsequent decision regarding whether to issue stringent beyond-the-floor standards for such sources. The dissent refers to both together as the MACT “program.” Dissent at 3. But the

“program” in fact proceeds in two stages, as the dissent acknowledges. It is only as to the first, listing stage that EPA has determined it should not consider costs. That stage leads only to the setting of the statutory MACT floor which, as the dissent notes, is a “minimum stringency level.” *Id.* The second stage leads to beyond-the-floor standards, which are more restrictive. When setting those, EPA *does* consider costs.

The dissent contends that “[m]eeting that [MACT] floor will be prohibitively expensive, particularly for many coal-fired utilities,” forcing them “out of business.” Dissent at 10–11. But in the Final Rule EPA rejected this contention, concluding that “the estimated number of early retirements,” of EGUs “that may result from this rule is . . . less than 2 percent of all U.S. coal-fired capacity” in 2015. Final Rule, 77 Fed. Reg. at 9416; *see also id.* at 9408 (rejecting the claim that the Final Rule “will result in substantial power plant retirements”). Petitioners have not challenged that conclusion. Industry respondent intervenors further observe that continuing to exempt EGUs from HAP regulation penalizes those plants that *have* made investments in clean air technology, and that “[t]he Rule merely requires owners of uncontrolled plants to install and operate control technology already operating at their competitors’ plants, both leveling the playing field and improving health and the environment.” Indus. Resp’t Interv’ors’ Br. 7. The Final Rule, which, as the dissent notes, EPA has calculated will cost \$9.6 billion a year, includes the cost of both stages. EPA also has concluded under Executive Order 13563 that the annualized benefits are \$37 to \$90 billion. *See* Final Rule, 77 Fed. Reg. at 9306. (The dissent questions this conclusion, notwithstanding its promise that agency cost-benefit analyses should be reviewed deferentially.) That’s “billion with a b,” in the dissent’s catchy phrase. Dissent at 1. In short, “the benefits of this rule outweigh its costs by between 3 to 1 or 9 to 1.” Final Rule, 77 Fed. Reg. at 9306.

As the agency noted, “[u]nder section 112(n)(1)(A), EPA is evaluating whether to regulate HAP emissions from EGUs *at all*.” NPRM, 76 Fed. Reg. at 24,989 (emphasis added). And there was nothing unreasonable about its conclusion that costs should not be considered in determining “whether HAP emissions from EGUs pose a hazard to public health or the environment.” *Id.* at 24,988; *see id.* at 24,990. That is especially so when “Congress did not authorize the consideration of costs in listing any [other] source categories for regulation under section 112 . . . [and] did not permit the consideration of costs in evaluating whether a source category could be delisted pursuant to the provisions of section 112(c)(9).” *Id.* at 24,989. And while the dissent insists on “the centrality of cost consideration to proper regulatory decisionmaking,” Dissent at 6, *Whitman* makes clear the Supreme Court believes that Congress does not necessarily agree. Nor is *Whitman* the only case in which courts have found that Congress legislated in a way the dissent would find irrational.²

² *See Am. Textile Mfrs. Inst. v. Donovan*, 452 U.S. 490, 511–12 (1981) (holding that OSHA is not required to conduct a cost-benefit analysis in promulgating a standard under section 6(b)(5) of the Occupational Safety and Health Act because “Congress uses specific language when intending that an agency engage in cost-benefit analysis”); *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 184 (1978) (“The plain intent of Congress in enacting [the Endangered Species Act] was to halt and reverse the trend towards species extinction, whatever the cost.”); *Union Elec. Co. v. EPA*, 427 U.S. 246, 257–58 (1976) (holding that EPA may not consider claims of economic infeasibility in evaluating a state requirement that primary ambient air quality standards be met by a certain deadline); *Lead Indus. Ass’n v. EPA*, 647 F.2d 1130, 1150 (D.C. Cir. 1980) (“We are unable to discern here any congressional intent to require, or even permit, [EPA] to consider economic . . . factors in promulgating air quality standards [under the CAA].”).

Academic generalities, *see* Dissent at 6–8, do not demonstrate that EPA could not reasonably proceed as it did in interpreting congressional intent — especially not generalities by academics who are criticizing the Supreme Court for failing to read congressional statutes as they do.³ The same is true of utterances by single Justices — especially a separate statement by one Justice concurring in *Whitman* and a question by another during oral argument about a different statutory section. *See* Dissent at 6–7. Nor do the different approaches of the Bush and Obama Administrations on the role of costs in implementing the CAA do more than demonstrate that administrations may differ and can change positions without legal jeopardy, so long as an adequate explanation is provided as was done here. *See Chevron*, 467 U.S. at 865–66. The question before the court is not “Should EPA have considered costs in making its threshold determination under § 112(n)(1)(A)?” but rather “Was EPA required to do so at that point in its regulatory evaluation?” EPA has explained why it concluded costs were not part of the “appropriate and necessary” determination, and given Congress’s choice to leave the factors entering into that determination to EPA, petitioners, and our dissenting colleague, fail to demonstrate that EPA’s considered judgment about the factors to be considered was unlawful as an impermissible and unreasonable interpretation of § 112(n)(1)(A). Congress left to

³ *See* Cass R. Sunstein, *Interpreting Statutes in the Regulatory State*, 103 HARV. L. REV. 405, 492–93 (1989) (criticizing *American Textile Manufacturers Institute*, 452 U.S. 490, for “contributing to the irrationality of the Occupational Safety and Health Act” by “refusing to read the statute” as the author would); Cass R. Sunstein, *Cost-Benefit Default Principles*, 99 MICH. L. REV. 1651, 1671 (2001) (same); Richard J. Pierce, Jr., *The Appropriate Role of Costs in Environmental Regulation*, 54 ADMIN L. REV. 1237, 1253 (2002) (criticizing the *Whitman* Court for relying on an “anti-cost canon”).

EPA “the accommodation of manifestly competing interests,” *id.* at 865, and EPA did all that Congress required of it. Exactly how and when EGU emissions are to be regulated is a different question.

For these reasons, we hold that EPA reasonably concluded it need not consider costs in making its “appropriate and necessary” determination under § 112(n)(1)(A).

3. *Environmental harms.* Petitioners also contend that EPA was constrained to consider only public health hazards, not environmental or other harms, in making its “appropriate and necessary” determination. In their view, § 112(n)(1)(A) unambiguously forecloses the consideration of non-health effects because the statute requires EPA to make its “appropriate and necessary” determination after considering the results of the Utility Study, which is focused exclusively on identifying “hazards to public health” caused by EGU HAP emissions. *See* SIL Br. 44. Petitioners insist that in 2005 EPA followed the health-only approach.

EPA reasoned that “nothing in the statute suggests that the [EPA] should ignore adverse environmental effects in determining whether to regulate EGUs under section 112.” NPRM, 76 Fed. Reg. at 24,988; *see* Final Rule, 77 Fed. Reg. at 9325. To the contrary, EPA concluded that the purpose of the CAA and the statute’s express instruction to assess environmental effects in the *Mercury Study* suggest “it is reasonable to consider environmental effects in evaluating the hazards posed by HAP emitted from EGUs.” NPRM, 76 Fed. Reg. at 24,988; *see* Final Rule, 77 Fed. Reg. at 9325. EPA explained in response to comments that restricting it from considering environmental harms would “incorrectly conflate[] the requirements for the Utility Study with the requirement to regulate EGUs under CAA section 112 if EPA determines it is

appropriate and necessary to do so.” Final Rule, 77 Fed. Reg. at 9325.

EPA did not err in considering environmental effects alongside health effects for purposes of the “appropriate and necessary” determination. Although petitioners’ interpretation of § 112(n)(1)(A) is plausible, the statute could also be read to treat consideration of the Utility Study as a mere condition precedent to the “appropriate and necessary” determination. EPA has consistently adopted this latter interpretation, including in 2005. *See* 2005 Delisting Decision, 70 Fed. Reg. at 16,002. In the absence of any limiting text, and considering the context (including § 112(n)(1)(B)) and purpose of the CAA, EPA reasonably concluded that it could consider environmental harms in making its “appropriate and necessary” determination. The court need not decide whether environmental effects *alone* would allow EPA to regulate EGUs under § 112, because EPA did not base its determination *solely* on environmental effects. As we explain, *infra* Part II.B.5, EPA’s decision to list EGUs can be sustained on the basis of its findings regarding health hazards posed by EGU HAP emissions.

4. *Cumulative impacts of HAP emissions.* On the grounds that § 112(n)(1)(A) directs EPA to study hazards reasonably anticipated to occur “as a result of” EGU HAP emissions, petitioners contend that EPA was required to base its “appropriate and necessary” determination on public health hazards that occur *exclusively* due to EGU HAPs. Thus, they contend, EPA erred in considering EGU HAP emissions that merely “contribute to” or exacerbate otherwise-occurring health hazards. Petitioners point out that EPA’s interpretation conflicts with its approach in 2005, when it read § 112(n)(1)(A) to authorize regulation only upon a showing that EGU emissions *alone* would cause harm.

EPA explained that it could reasonably consider the cumulative impacts of HAP emissions because

focusing on HAP emissions from EGUs alone when making the appropriate finding ignores the manner in which public health and the environment are affected by air pollution. An individual that suffers adverse health effects as the result of the combined HAP emissions from EGUs and other sources is harmed, irrespective of whether HAP emissions from EGUs alone would cause the harm.

NPRM, 76 Fed. Reg. at 24,988; *see* Final Rule, 77 Fed. Reg. at 9325. EPA acknowledged it was departing from its 2005 approach, *see* NPRM, 76 Fed. Reg. at 24,989, but justified the departure on grounds that the 2005 approach had been “flawed” and “non-scientific” to the extent that “EPA [had] incorrectly determined that U.S. EGU emissions of [mercury] did not constitute a hazard to public health,” *id.* at 25,019; *cf.* Final Rule, 77 Fed. Reg. at 9322–23.

EPA’s interpretation in the Final Rule is entitled to deference. Section 112(n)(1)(A)’s reference to hazards occurring “as a result of” EGU HAP emissions could connote hazards *caused solely* by EGU emissions, but it could also connote hazards *exacerbated* by EGU emissions. EPA’s commonsense approach to this statutory ambiguity was well within the bounds of its discretion, and it adequately explained its reversal from 2005. Petitioners’ contention that EPA erred in considering the effects of HAPs emitted by non-EGU sources is therefore unavailing. In any event, EPA concluded in the Mercury Study that “even if there were no other sources of [mercury] exposure, exposures associated with deposition attributable to U.S. EGUs” would place the most susceptible populations above the methylmercury reference dose. NPRM,

76 Fed. Reg. at 25,010. Thus, EPA *did* find, as petitioners contend it was required to do, that EGU emissions alone would cause health hazards.

5. *Regulation under § 112(d)*. Petitioners contend that even if it is “appropriate and necessary” to regulate EGU HAP emissions, such regulation should be effected under § 112(n)(1)(A) to the degree appropriate and necessary — not under § 112(d) through the imposition of MACT standards. They maintain that regulation of EGU HAPs that do not pose health hazards, or regulation at a level higher than needed to eliminate such hazards, is not regulation that is “appropriate and necessary.” Petitioners contend that § 112(n)(1)(A)’s instruction to “regulate electric steam generating units *under this section*” (emphasis added) — rather than “*under § 112(d)*” — evinces congressional intent that EGU HAPs should be regulated differently than other sources. SIL Br. 36.

EPA expressly considered and dismissed petitioners’ proposed interpretation. EPA concluded that the phrase “under this section” presumptively refers to regulation under *section* 112, not to regulation under *subparagraph* 112(n)(1)(A). See Final Rule, 77 Fed. Reg. at 9330; NPRM, 76 Fed. Reg. at 24,993. Thus, the plain statutory language suggests “EGUs should be regulated in the same manner as other categories for which the statute requires regulation.” Final Rule, 77 Fed. Reg. at 9330. EPA explained:

CAA section 112 establishes a mechanism to list and regulate stationary sources of HAP emissions. Regulation under CAA section 112 generally requires listing under CAA section 112(c)[] [and] regulation under CAA section 112(d)[.] . . . A determination that EGUs should be listed once the prerequisite appropriate and necessary finding is made is wholly

consistent with the language of section 112(n)(1)(A), and listed sources must be regulated under CAA section 112(d).

Id.; *see also id.* at 9326.

EPA acted properly in regulating EGUs under § 112(d). Section 112(n)(1)(A) directs the Administrator to “regulate electric steam generating units under this section, if the Administrator finds such regulation is appropriate and necessary.” CAA § 112(n)(1)(A), 42 U.S.C. § 7412(n)(1)(A). EPA reasonably interprets the phrase “under this section” to refer to the entirety of section 112. *See Desert Citizens Against Pollution v. EPA*, 66 F.3d 524, 527 (D.C. Cir. 2012). Under section 112, the statutory framework for regulating HAP sources appears in § 112(c), which covers listing, and § 112(d), which covers standard-setting. *See* CAA § 112(c), 112(d), 42 U.S.C. § 7412(c), 7412(d). This court has previously noted that “where Congress wished to exempt EGUs from specific requirements of section 112, it said so explicitly.” *New Jersey*, 517 F.3d at 583. EPA reasonably concluded that the framework set forth in § 112(c) and § 112(d) — rather than another, hypothetical framework not elaborated in the statute — provided the appropriate mechanism for regulating EGUs under § 112 after the “appropriate and necessary” determination was made. Therefore, EPA’s interpretation is entitled to deference and must be upheld.

6. *Regulation of all HAP emissions.* In the Final Rule, EPA claimed authority to promulgate standards for all listed HAPs emitted by EGUs, not merely for those HAPs it has expressly determined to cause health or environmental hazards. *See, e.g.*, 77 Fed. Reg. at 9325–26. Petitioners challenge this approach, maintaining that § 112(n)(1)(A) limits regulation to those individual HAPs that are “appropriate and necessary” to

regulate. Petitioners also object that EPA's interpretation contradicts its 2005 rulemaking when it supported a substance-by-substance approach to regulation.

EPA explained its disagreement with petitioners' proposed approach. First, EPA reiterated its view that once an "appropriate and necessary" determination is properly made, "EGUs should be regulated under section 112 in the same manner as other categories for which the statute requires regulation." Final Rule, 77 Fed. Reg. at 9326. EPA then reasoned that this court's decision in *National Lime*, 233 F.3d at 633, "requires [EPA] to regulate *all* HAP from major sources of HAP emissions once a source category is added to the list of categories under CAA section 112(c)." *Id.* (emphasis added). In other words, EPA concluded that if EGUs are to be regulated in the same manner as other source categories, then *all* HAPs emitted by EGUs should be subject to regulation. *See id.*

EPA did not err by concluding that it may regulate all HAP substances emitted by EGUs. In *National Lime*, 233 F.3d at 633, this court considered whether § 112(d)(1) permitted EPA "to set emission levels only for those listed HAPs" that could be controlled with existing technology. Concluding that EPA had a "clear statutory obligation to set emission standards for each listed HAP," the court held that "the absence of technology-based pollution control devices for HCl, mercury, and total hydrocarbons did not excuse EPA from setting emission standards for those pollutants." *Id.* at 634. Although petitioners attempt to distinguish *National Lime* on grounds that it concerned "major sources" rather than EGUs, they have not provided any compelling reason why EGUs should not be regulated the same way as other sources once EPA has determined that regulation under § 112 is "appropriate and necessary." It also bears emphasis that the plain text of § 112(n)(1)(A) directs the Administrator to "regulate electric

utility steam generating units” — not to regulate their *emissions*, as petitioners suggest. This source-based approach to regulating EGU HAPs was affirmed in *New Jersey*, 517 F.3d at 582, which held that EGUs could not be delisted without demonstrating that EGUs, as a category, satisfied the delisting criteria set forth in § 112(c)(9). The notion that EPA must “pick and choose” among HAPs in order to regulate only those substances it deems most harmful is at odds with the court’s precedent.

To the extent EPA’s interpretation differs from its 2005 approach, it adequately explained its decision. *See* Final Rule, 77 Fed. Reg. at 9325–26. Although petitioners suggest otherwise, the 2005 Delisting Decision did not address whether EPA could regulate all listed EGU HAPs following an “appropriate and necessary” determination. Here, EPA offered a reasoned explanation for its approach; no more is required. *See Fox Television Stations*, 556 U.S. at 515; *Nat’l Cable & Telecomms. Ass’n*, 545 U.S. at 981.

In view of the above, EPA’s conclusion that it may regulate *all* HAP emissions from EGUs must be upheld.

III.

A.

Petitioners assert that even if EPA has correctly interpreted § 112(n)(1)(A), the emission standards that EPA promulgated in the Final Rule are flawed in several respects.

1. *Appropriate and necessary determination.* Petitioners first contend that the agency’s determination that it was “appropriate and necessary” to regulate EGUs is arbitrary and capricious. Consistent with their position on the proper interpretation of § 112(n)(1)(A), petitioners take a HAP-by-HAP approach to criticizing EPA’s Finding. But, as we explained above, EPA reasonably interprets the CAA as allowing it to

regulate *all* EGU HAP emissions pursuant to the usual MACT program once it makes the threshold “appropriate and necessary” determination. The question then is whether EPA reasonably found it appropriate and necessary to regulate EGUs based on all the record evidence before it.

EPA’s “appropriate and necessary” determination in 2000, and its reaffirmation of that determination in 2012, are amply supported by EPA’s findings regarding the health effects of mercury exposure. Mercury exposure has adverse effects on human health, primarily through consumption of fish in which mercury has bioaccumulated. *See* Final Rule, 77 Fed. Reg. at 9310. And EGUs are the largest domestic source of mercury emissions. *Id.* Petitioners do not dispute these basic facts, but instead take issue with whether EPA has sufficiently quantified the contribution of EGU mercury emissions to overall mercury exposure. Our case law makes clear, however, that EPA is not obligated to conclusively resolve every scientific uncertainty before it issues regulation. *See Coal. for Responsible Regulation v. EPA*, 684 F.3d 102, 121 (D.C. Cir. 2012) (“If a statute is precautionary in nature and designed to protect the public health, and the relevant evidence is difficult to come by, uncertain, or conflicting because it is on the frontiers of scientific knowledge, EPA need not provide rigorous step-by-step proof of cause and effect to support an endangerment finding.”) (internal quotation marks omitted). Instead, “[w]hen EPA evaluates scientific evidence in its bailiwick, we ask only that it take the scientific record into account in a rational manner.” *Id.* at 122 (internal quotation marks omitted).

EPA did so here. As explained in the technical support document (TSD) accompanying the Final Rule, EPA determined that mercury emissions posed a significant threat to public health based on an analysis of women of child-bearing age who consumed large amounts of freshwater fish. *See* Mercury TSD; NPRM, 76 Fed. Reg. at 25,007; Final Rule, 77 Fed. Reg. at

9311–17. The design of EPA’s TSD was neither arbitrary nor capricious; the study was reviewed by EPA’s independent Science Advisory Board, which stated that it “support[ed] the overall design of and approach to the risk assessment” and found “that it should provide an objective, reasonable, and credible determination of the potential for a public health hazard from mercury emitted from U.S. EGUs.” SAB Letter to EPA Administrator Jackson at 2 (Sept. 29, 2011), EPA-SAB-11-017. In addition, EPA revised the final TSD to address SAB’s remaining concerns regarding EPA’s data collection practices. *See* Final Rule, 77 Fed. Reg. at 9313–16.⁴

Petitioners’ remaining objections center on the change in EPA’s position between 2005 and 2012. Although petitioners are correct that EPA weighed certain pieces of evidence differently at different times, the agency reasonably and adequately explained its basis for changing its position on whether mercury emissions posed a sufficient risk to constitute a public health hazard. *See* EPA Br. 40; NPRM, 76 Fed. Reg. at 25,019–20. EPA identified and analyzed what it viewed as technical flaws in the scientific analysis supporting the 2005 Delisting Decision, including a failure to evaluate the

⁴ For the reasons explained in *UARG v. EPA*, Nos. 12-1166, 12-1366, 12-1420, 2014 WL 928230 (D.C. Cir. Mar. 11, 2014), we do not address petitioners’ claims that SAB’s final report on the Mercury TSD was submitted too late to allow public comment and that EPA unreasonably refused SAB’s request to review the final TSD. Petitioners did not raise those issues in comments, and reconsideration is still pending before the agency. Even if these arguments had been properly presented to the agency, petitioners would have forfeited them by raising them only in a cursory footnote in their opening brief before this court. *See Hutchins v. Dist. of Columbia*, 188 F.3d 531, 539 n.3 (D.C. Cir. 1999) (en banc) (“We need not consider cursory arguments made only in a footnote”).

cumulative health hazard from EGU emissions when combined with other sources of mercury, NPRM, 76 Fed. Reg. at 25,019, and health hazards from methylmercury exposure above the reference dose, *id.* at 25,020. Those explanations are sufficient to meet the agency's burden. *See Fox Television Stations*, 556 U.S. at 514–16.

2. *Major source classification.* Petitioners contend that in setting emission standards for EGUs, EPA was required to distinguish between “major sources” and “area sources.” As relevant here, major sources are automatically subject to MACT controls, while area sources may, in EPA's discretion, be regulated under alternative standards. *See* CAA § 112(a)(1), 112(a)(2), 112(d)(5), 42 U.S.C. § 7412(a)(1), 7412(a)(2), 7412(d)(5). Petitioners assert that EPA's failure to segregate the different types of sources fatally compromises the Final Rule because the EGU emission standards should have been based exclusively on data from major source EGUs. But § 112(d) does not require EPA to regulate EGUs as “major sources” and “area sources”; it merely says that, *if* EPA lists major and area sources, it must then regulate them according to the separate provisions. *See* CAA § 112(d)(1), 42 U.S.C. § 7412(d)(1).

EPA's decision not to draw such a distinction here is a reasonable one. As EPA emphasizes, distinguishing between major source and area source EGUs runs counter to the separate statutory provisions governing EGUs. While other sources are classified as major or area sources depending on the quantity of emissions they emit, § 112 specifically defines EGUs in terms of their electrical output. *Compare* CAA § 112(a)(8), *with* CAA § 112(a)(1)–(2). Consistent with ordinary rules of statutory construction, EPA reasonably relied on the more specific definition in § 112(a)(8) rather than the general definitions applicable to all other sources. *See RadLAX Gateway Hotel, LLC v. Amalgamated Bank*, 132 S. Ct. 2065, 2070–72 (2012). Requiring EPA to classify EGUs as major or area sources would

also create redundancy in the source-category listing criteria. Section 112(c)(3) of the CAA requires EPA to list area sources for regulation if EPA determines that they “warrant[] regulation.” CAA § 112(c)(3), 42 U.S.C. § 7412(c)(3). That finding is arguably unnecessary as applied to EGUs given the requirement in § 112(n)(1)(A) that EPA make a finding that regulation of all EGUs is “appropriate and necessary.”

EPA also did not err in declining to exercise its discretionary authority to require less stringent “generally available control technology,” or GACT, standards, rather than MACT standards. *Id.* § 112(d)(5), 42 U.S.C. § 7412(d)(5). In the Final Rule, EPA expressly and reasonably determined that setting separate GACT standards for area source EGUs was unnecessary. *See* Final Rule, 77 Fed. Reg. at 9404, 9438 (“[S]imilar HAP emissions and control technologies are found on both major and area sources” such that “there is no essential difference between area source and major source EGUs with respect to emissions of HAP.”).

For these reasons, EPA reasonably declined to interpret § 112 as mandating classification of EGUs as major sources and area sources.

3. Mercury MACT floor. Petitioners next challenge EPA’s standards for mercury emissions from existing coal-fired EGUs. Petitioners maintain that in calculating the MACT floor for those units, EPA collected emissions data from only those EGUs that were best-performing for mercury emissions. Consequently, petitioners insist, the mercury MACT standard reflects the results achieved by the “best of the best” EGUs, and not the results of the best 12% of all EGUs, as required by statute.

Petitioners’ assertions of a biased or irrational data collection process are not supported by a review of the record.

“EPA typically has wide latitude in determining the extent of data-gathering necessary to solve a problem.” *Sierra Club v. EPA*, 167 F.3d 658, 662 (D.C. Cir. 1999). Here, EPA determined that a three-pronged approach was appropriate for developing the mercury MACT standard. First, EPA asked all EGUs for all of their data from 2005–10; it received data from 168 units. Information Collection Request (“ICR”) Supporting Statement Part A at 9; *see generally* MACT Floor Analysis Spreadsheets. Second, EPA requested and received data from 50 randomly selected EGUs. ICR Supporting Statement Part B at 2, 7–8. Finally, EPA requested and received data from 170 of the best-performing units for non-mercury emissions. *Id.* EPA initially thought that third group would also be the best-performing for mercury emissions, but it discovered that was not the case after examining the data. *See* Responses to Comments, Dec. 2011, v.1, at 573–76 (“RTC”).

Based on the results of its ICR, covering a total of 388 EGUs, EPA chose “the average emission limitation achieved by the best performing 12 percent” of all existing sources “for which [it] ha[d] emissions information,” as authorized by CAA § 112(d)(3)(A). *See* NPRM, 76 Fed. Reg. at 25,022–23. Although, as EPA acknowledges, it would be arbitrary and capricious for EPA to set a MACT floor based on intentionally skewed data, the facts indicate that EPA did not do so here. Nor does the record suggest that EPA’s data collection efforts resulted in unintentional bias. As previously noted, EPA collected data from a wide range of EGUs because the agency concluded that it could not identify units representing the best-performing 12 percent of mercury emitters. That conclusion is borne out by the data in the record, which showed that some of the best-performing units for particulate matter control were among the worst performing units for mercury control. *See generally* MACT Floor Analysis Spreadsheets. Similarly, many of the mercury best performers (32 of the best performing 126 units) were not drawn from the pool of units that EPA targeted

as best performers for particulate matter. *See* RTC v. 1 at 575. In short, EPA's data-collection process was reasonable, even if it may not have resulted in a perfect dataset.

4. *Acid gas HAP*. EPA did not conclusively determine that emissions of acid gases such as hydrogen chloride from EGUs pose a health hazard. *See* NPRM, 76 Fed. Reg. at 25,016 (“our case studies did not identify significant chronic non-cancer risks from acid gas emissions”). Petitioners say that given that conclusion, EPA should have established a less stringent, health-based emission standard for acid gases under § 112(d)(4). That provision states: “With respect to pollutants for which a health threshold has been established, the Administrator may consider such threshold level, with an ample margin of safety, when establishing emission standards under this subsection.” CAA § 112(d)(4), 42 U.S.C. § 7412(d)(4). Section 112(d)(4) makes clear, however, that EPA's authority to set alternate standards is discretionary. *See id.* (“the Administrator *may* consider such threshold level”) (emphasis added). Here, EPA concluded that it lacked enough evidence to determine whether an alternative standard would protect health “with an ample margin of safety.” *See* Final Rule, 77 Fed. Reg. at 9405–06. Petitioners dispute EPA's weighing of the evidence, but petitioners offer no compelling basis for second-guessing EPA's analysis.

Petitioners also suggest that regulation of EGU acid gas emissions to address ecosystem acidification conflicts with Congress's decision in the 1990 CAA amendments to address such acidification in Title IV of the CAA. *See* SIL Reply Br. 5. But petitioners failed to raise that argument before the agency, and did not raise it in this court until their reply brief. We therefore deem the argument forfeited. *See Bd. of Regents of Univ. of Washington v. EPA*, 86 F.3d 1214, 1221 (D.C. Cir. 1996).

5. *UARG delisting petition.* The Utility Air Regulatory Group (UARG) filed a petition with EPA seeking to remove coal-fired EGUs from the list of sources regulated under § 112. EPA denied the petition. Petitioners now argue that that denial was arbitrary and capricious for the same reasons they assert that the agency's determination that it is "appropriate and necessary" to regulate EGUs was incorrect. Assuming, without deciding, that EPA can delist only a subset of the EGU source category, we reject petitioners' argument on this point. As EPA explained in the Final Rule, UARG's delisting petition did not demonstrate that EPA could make either of the two predicate findings required for delisting under § 112(c)(9)(B): (1) that no source in the category emits HAP "in quantities which may cause a lifetime risk of cancer greater than one in one million to the individual in the population who is most exposed" and (2) that emissions from no source in the category "exceed a level which is adequate to protect public health with an ample margin of safety." CAA § 112(c)(9)(B), 42 U.S.C. § 7412(c)(9)(B); *see also* Final Rule, 77 Fed. Reg. at 9364–65 (discussing technical flaws in UARG's risk analysis).

6. *Chromium emissions data.* Finally, petitioners question the validity of EPA's case study regarding risks from non-mercury EGU emissions. As relevant here, that study found that at 6 of 16 tested facilities, emissions of HAP posed a lifetime cancer risk of more than one in a million to the most exposed individuals. *See* Final Rule, 77 Fed. Reg. at 9319. Petitioners contend that EPA's cancer-risk finding was the product of contaminated emissions samples, and that EPA has refused to correct the emissions data it used. In making this argument, they rely on their own independent "subsequent resampling" of the facilities that EPA examined in conducting its inhalation risk assessment. SIL Br. 52 n.58; UARG, Petition for Reconsideration of MATS Rule at 6–7 (Apr. 16, 2012), EPA-HQ-OAR-2009-0234-20179 (J.A. 2493–94).

EPA did not act arbitrarily or capriciously in relying on the chromium emissions data to which petitioners object. As EPA explained in its responses to comments, the data came from source representatives themselves. *RTC v.1* at 187. EPA reasonably believed that these representatives — given their “concern[] about data accuracy” — would review “all data before certifying their accuracy and submitting them to the EPA.” *Id.* EPA did not err in relying on this certified data. We cannot consider the data from petitioners’ independent resampling, which was conducted after the Final Rule issued and was not part of the administrative record. *See* CAA § 307(d)(7)(A), 42 U.S.C. § 7607(d)(7)(A).

B.

A group of electric utilities and industry groups have filed a separate petition raising issues specific to industry. Many of industry petitioners’ arguments concern circulating fluidized bed EGUs, or CFBs. As relevant here, CFBs differ from conventional pulverized coal units in that CFBs inject air and additional materials, such as limestone, into the combustion zone in order to achieve lower-temperature combustion. At that lower temperature, fuel breaks down to a lesser degree, thus enabling CFBs to control emissions without using add-on controls.

Industry petitioners argue that these design differences required EPA to create a separately regulated subcategory for CFBs. They emphasize that EPA recognized the need for a CFB subcategory in a different rulemaking proceeding, the “Boiler MACT” Rule.

Industry petitioners’ CFB-related arguments are unavailing. Contrary to industry petitioners’ assertions, nothing in the Clean Air Act “requires” EPA to create a CFB subcategory. Rather, the statute gives EPA substantial discretion in determining whether subcategorization is appropriate. *See* CAA § 112(d)(1),

42 U.S.C. § 7412(d)(1) (EPA “*may* distinguish among classes, types, and sizes of sources”) (emphasis added); *see also Nat’l Ass’n of Clean Water Agencies v. EPA*, 734 F.3d 1115, 1159 (D.C. Cir. 2013) (“EPA’s subcategorization authority under § 112 involves an expert determination, placing a heavy burden on a challenger to overcome deference to EPA’s articulated rational connection between the facts found and the choice made.”) (internal quotation marks omitted). EPA’s decision not to create a CFB subcategory in the Final Rule is reasonable and well-supported by the record. Among other things, EPA noted that CFBs were among the best and worst performers for various pollutants, indicating that CFBs have emissions profiles similar to other coal-fired units despite their operational differences. *See* Final Rule, 77 Fed. Reg. at 9397.

The record similarly supports EPA’s determination that the 0.002 lb/MMBtu hydrogen chloride limit for CFBs is achievable. As noted above, some CFB units were among the top performers for each of the regulated pollutants, including hydrogen chloride. *See id.* The record thus demonstrates that at least some CFB units are in fact able to achieve the hydrogen chloride limit. In any event, the fact that the Final Rule may not be cost effective for all CFBs does not necessarily mean EPA erred in declining to create a CFB subcategory or in setting emission standards applicable to those units.

EPA’s decision to subcategorize CFBs in the Boiler MACT Rule is not to the contrary. There, EPA concluded that CFBs presented relevant differences with respect to carbon monoxide — not mercury, acid gases, or particulates (the pollutants at issue in this rulemaking). *See National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters*, 76 Fed. Reg. 15,608, 15,617–18 (Mar. 21, 2011).